



International Invention Innovation Competition in Canada
iCAN - TORONTO, CANADA



The Seventh Story

CATALOGUE

Welcome Messages • Event Information • List of Exhibits



81 Countries & Regions
Around the World





TISIAs

**TORONTO INTERNATIONAL SOCIETY
OF INNOVATION & ADVANCED SKILLS**

Toronto International Society of Innovation & Advanced Skills (TISIAs) was established in 2013 to build a global hub in Toronto, Canada to provide a variety of services and opportunities for both local and overseas inventors, innovators, students and researchers to promote their inventions and products in the world market. TISIAs is globally active as the delegation of Canada participating in numerous international invention exhibitions, competitions and conferences organized by its partners around the world. TISIAs majorly promotes its Canadian and American members' inventions and products to world exhibitions and conferences as well as some other international members' creative ideas to success in commercialization and branding.



TISIAs PARTICIPATED IN 104 INTERNATIONAL EVENTS IN 24 DIFFERENT COUNTRIES



ANNUAL EVENT ORGANIZED IN TORONTO, CANADA



**TORONTO
CANADA**



International Invention Competition in Canada
ICAN - TORONTO, CANADA

iCAN 7 2022

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International Invention Innovation Competition in Canada
iCAN-TORONTO, CANADA

WELCOME TO iCAN 2022 THE 7TH ANNUAL EDITION

THE 7TH INTERNATIONAL INVENTION INNOVATION COMPETITION IN CANADA, iCAN 2022



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MOONSUK CHANG / The Organizer



Greetings to all honourable inventors and innovators from around the world! On behalf of Toronto International Society of Innovation & Advanced Skills (TISIAS) and the entire Organizing Committee of the 7th International Invention Innovation Competition in Canada, iCAN 2022 – I would like to deeply express my utmost respect and appreciation to everyone taking part in this year's competition.

Over the years that I've been organizing this show, I realized how amazing it is for numerous inventors to be able to grow through innovation as they continue to develop better ways, better solutions all for the benefit of a better world. Innovation is truly the metaphor for ultimate freedom and choice. We must always remember how exciting it is to have that sort of right to be able to freely think and fly our minds to infinite imaginations, continue to learn and discover

the best methods for the future. Understanding that nothing in this world is ever perfect, but that is the beauty of innovation as we are striving to make things as perfect as it can be. And that is what I will continue to do with iCAN with all my heart and soul.

If you ever felt challenged by creativity, I would like to encourage you to breakthrough and breakout. Fully express and articulate your life through the art of inventing. I am always thankful to be in the position that I'm in today for being able to host iCAN and have some of the best minded and talented innovators with us. The most important thing is you must put everybody on notice that you're here and you are for real. And always remember to "**create from truth**".

I wish you have the finest experience in iCAN 2022!

MOONSUK CHANG 

Chairman & Chief Exhibition Officer

Toronto International Society of Innovation & Advanced Skills (TISIAS)

International Invention Innovation Competition in Canada, iCAN Organizing Committee



BOB HUYBRECHTS / Co-Chairman of the Jury

Dear Participants! My name is Bob Huybrechts, the founder and President of the Inventors Circle in Toronto, Canada. It is that time of year again to bid you all a warm welcome to the 7th annual iCAN Awards. Thanks to Moonsuk leading the way with his relentless efforts motivating all of you and never giving up your exclusive creative powers, this year's iCAN promises to be another outstanding occasion to join and partake in.

As a fellow inventor and the founder of the world's first Inventors' Co-operative 19 years ago, my passion is still helping inventors on a daily basis. You may recall, in iCAN 2021 I presented Roger Hamilton's Wealth Dynamics Chart and for my iCAN Keynote this year, I picked one of my favourite topics, titled "Nikola Tesla, Genius out of Time!" After many years of studying Tesla, I will talk about his accomplishments, but I will also reveal some of the lesser-known particulars about his life, as he surely was one of the most brilliant inventors of the last few centuries. And speaking of Tesla, I am so happy to announce that we recently earmarked another successful contribution to the list of achievements that were all inspired to revive Nikola Tesla's bewildering life and legacy. Last fall, the Ontario Government in Canada unanimously voted in a new Act No.292, dedicating Tesla's birthday, July 10, 1856, from now on to be officially known as 'Nikola Tesla Day'. Wow!

I extend my sincere congratulations to all Finalists on Saturday, August 27!

BOB HUYBRECHTS 

Founder & President

Innovation Initiative Co-operative Inc. "The Inventors Circle"
Co-Chairman of the Jury at iCAN (2016 ~ Present)



innovation initiative
A NON-PROFIT FORUM SUPPORTING INNOVATIVE BUSINESS

HOWARD A. LIM / Co-Chairman of the Jury



It has been nothing short of an honor to serve as the 7th year as a speaker, judge, and co-chair for iCAN. I'd like to acknowledge and thank Moonsuk, along with the organizing committee members for producing the 7th anniversary of the 2022, International Invention Innovation Competition event. To the inventors, I thank you for your participation. Thank you iCAN for providing the platform for all of us to come together and to share our dreams and aspirations.

Our everyday experiences are shaped by our ability to use our imaginations. Your endeavors inspire the world in which we live and lead us into a future full of endless possibilities. Your inspirations play a crucial role in shaping societies and cultures around the world. It's through the struggles and inspirations of inventors, that we continue to grow and evolve, and pave the world for creators after us.

iCAN provides the platform to turn our dreams into reality. On behalf of iCAN, I'd like to leave you with a final thought in the words of David Grinspoon, "Our most valuable resources - creativity, communication, invention, and reinvention - are, in fact, unlimited." To each and every one participating, congratulations. You are one of the few courageous souls that seek and strive for greatness, all while making a difference in the world we live in.

Sincerely,

HOWARD LIM 

President

HOW Creative

Co-Chairman of the Jury at iCAN (2016 ~ Present)

HOW
CREATIVE
We Design Businesses.

ALIREZA RASTEGAR / President of IFIA

I would like to extend my sincere congratulations and appreciation to the organizing team of the iCAN International Invention Innovation competition for providing an excellent opportunity to the community of inventors and innovators to showcase their creative achievements, gain international recognition and reach their ultimate goal of commercializing their innovations.

The 7th International Invention Innovation Competition in Canada, iCAN 2022 will be held online and I invite again all IFIA members to join this event and share their ideas and make an impact for your outstanding creativity and innovation that Canada wants to see from you.

IFIA is very proud to have contributed to the economic, social, and technological prosperity by supporting the inventors, raising their status, enhancing awareness about the importance of invention and innovation in all aspects of our daily lives and supporting the organization of international invention events.

In order of this approach, IFIA offers its unconditional support to iCAN 2022 due to its underlying concept of disseminating the culture of invention and innovation nationally and internationally which is in parallel with IFIA's mission.

I hope all participants will enjoy this great event.

ALIREZA RASTEGAR 

President

International Federation of Inventors' Associations (IFIA)
Silicon Valley International Invention Festival, SVIIF in USA



IFIA
INTERNATIONAL FEDERATION
OF INVENTORS' ASSOCIATIONS

MANLI HSIEH / President of WIIPA



Create your mind, explore your life! 50 member states and partner have joined "WIIPA Family" work together on the concept of "promoting invention and intellectual property right".

On behalf of the World Invention Intellectual Property Associations (WIIPA), I would like to advance my deepest gratitude and appreciation towards Toronto International Society of Innovation & Advanced Skills (TISIAS) for the great deal of effort they have devoted into organizing their annual event: The 7th annual iCAN 2022 in Toronto, Canada. Canada. The iCAN Team's hard work and dedication for promoting inventors and entrepreneurs while facilitating social exchange, innovation marketing, licensing, and

manufacturing has been truly remarkable.

Throughout the last 6 years, it was evident to see that iCAN has truly made one of the biggest cultural impacts for the global community of inventors and innovators by merging many creative minds and souls from 86 countries around the world to this special occasion in Canada. The iCAN Team's hard work and dedication for promoting inventors and entrepreneurs while facilitating social exchange, innovation marketing, licensing, and manufacturing has been truly remarkable.

WIIPA fully supports this event and our honorable cooperation partner, Toronto International Society of Innovation & Advanced Skills (TISIAS) in Canada. Congratulations to all outstanding students, inventors and businesses that are taking part in iCAN 2022 and wish you all the best of luck and hope that you will take full advantage of this opportunity, capitalize all the sweet fruits from in this excellent competition.

MANLI HSIEH 

President

World Invention Intellectual Property Associations (WIIPA)
Kaohsiung International Invention & Design EXPO, KIDE in Taiwan



MIKE McFARTHING / Vice-President of the Jury

As the Director of Education for the Inventors Initiative here in Toronto and a Jury Vice-President & the Master of Ceremonies for the iCAN Awards since its beginning 7 years ago, I am proud to invite you all to the 7th Annual Inventors Awards.

This year looks to be one of the best Awards yet, with increased numbers and quality of submissions from around the globe. I am, especially proud of our collaboration to field for the first time a New, special medal and Award from the Inventor's Initiative. This marks a unique opportunity to recognize Inventions that have a real potential to thrive and grow in the Canadian startup sector. In fact, Canada and Toronto in particular have been in the top 10 places worldwide to start a business focused on international customers.



Please, don't miss my Keynote speech focused on growing your exposure online and offline to harness this growing market for your 'Big Idea'. I also want to thank the tireless efforts of Moonsuk Chang and his TISIAS team here in Toronto and across the world, who have shown amazing resiliency in keeping and growing this important community recognizing inventor excellence.

MIKE McFARTHING 

Director of Education

Innovation Initiative Co-operative Inc. "The Inventors Circle"
iCAN Jury Vice-President & The Master of Ceremonies (2016 ~ present)



INVENTORS CIRCLE

innovation initiative
A NON-PROFIT FORUM SUPPORTING INNOVATIVE BUSINESS

PROF. DR. ANDREI VICTOR SANDU / Vice-President of the Jury



iCAN is one of the most important gates of the inventions towards the North American market! A real landmark on innovation map! The place where your idea can become a real deal! Romanian inventors are supporting and answering to every call to showcase the latest ideas for a safer and healthier live.

The Romanian Inventors Forum is a professional association with the purpose to support, stimulate, develop, and valorize the scientifically, technically, and artistically creativity of individuals or institutions from Romania and abroad. In this respect, we highly support Toronto International Society of Innovation and Advanced Skills (TISIAs) and its privileged annual event, iCAN as the main partner and colleague from Romania.

I truly wish that the participants of the 7th edition of iCAN 2022 to achieve all their important goals, realize a much higher level of creativity and imagination for many future successes in all fields of business and scientific research. Enjoy the main show of Canada for global inventors and innovators!

ANDREI VICTOR SANDU



*President of the Romanian Inventors Forum
Professor at Gheorghe Asachi Technical University of Iasi*



SIR DR. YOSHIRO NAKAMATS / iCAN 2022 Committee Advisor

As the Chairman of the World Genius Convention (WGC), "Congratulations" to the 7th Anniversary of iCAN in Toronto, Canada!

I sincerely wish you all the best and success. The creation is the parent of progress. The person who invents is a genius. My hope is that the progress you engender will benefit all people for centuries in a world that is free, prosperous and at peace.

Effort is important, but theory is also important. You should study Theory, Flash and Practicality. These three elements are very important.

I hope you will continue to build your inventions!

YOSHIRO NAKAMATS



*Founder, President and Chairman
World Genius Convention, WGC
International Invention & Innovation Institute (IIII) – Japan*



MI YOUNG HAN / iCAN 2022 Committee Advisor



On behalf of World Women Inventors and Entrepreneurs Association (WWIEA), I would like to congratulate Toronto International Society of Innovation & Advanced Skills (TISIAs) for successfully hosting iCAN 2022 "The 7th Edition" in Canada. In the future, the contribution of young people will become a major factor for the advancement of innovation and creative skills. I sincerely hope that the participants will gain the necessary and valuable experiences during this event. I also believe this event will be a smashing success.

MI YOUNG HAN



*President
World Women Inventors & Entrepreneurs Association
Korea International Youth Olympiad KIYO 4i*



MICHAEL ESUONG / iCAN 2022 Jury Member

It is a great pleasure for me on behalf of OCIIIP to extend my congratulations to the participants for their efforts and achievements during the iCAN 2022 'The 7th Edition'. Your exhibition of outstanding innovation has gained international recognition. I encourage you to work hard and stay committed towards improving your innovations.

Hard work and dedication are the ways to paint your success stories. Whatever you have achieved today, you have earned it and many successes are yet to come. The achievements in iCAN 2022 will take you global; therefore, never lose confidence and always strive for success.

To the organizers, I want to say a big congratulation for a very impactful and well-organized event. Ever since the inception of iCAN, you have become highly recognized for nurturing, supporting, and promoting inventions and innovations across the globe. I know it has been a lot of work organizing this event; but you have done a great job. I am confident that the next edition will be a grand success. I would like to wish the organizing team success in the coming years. Thank you.

MICHAEL ESUONG 

President

Organization for Creativity, Innovation, and Invention Promotion (OCIIIP)
Africa Invention & Innovation Expo (AIIE)



ZOLTÁN NAGY / Delegation of Hungary



I heartily congratulate the organizing team of iCAN 2022, led by Mr. Moonsuk Chang, for organizing the 7th international competition. I know that organizing and holding an international event is no small task these days. Special thanks to the organizers of iCAN that we can now participate in this outstanding event for the third time and represent our country, Hungary.

I congratulate all participants and inventors on their excellent work and efforts. Our achievements can be measured not only in diplomas and awards, but also in the fact that we belong to a family, a large family of inventors, with the same goals, and by helping each other, we add something to the world. Perseverance and success my dear friends.

ZOLTÁN NAGY 

President

ÖTLET CLUB 13 EGYESÜLET (Idea 13 Club Association)
Hódmezővásárhely, HUNGARY



EDDIE SHIH / Delegation of Taiwan R.O.C.

"Invention" is the key to promoting human development and social progress. It solves various problems in our daily lives. "Invention" is like a "dream" not just for me, but for many people around the world.

On behalf of Taiwan Invention Products Promotion Association (TIPPA), I would like to take this time to thank the organizer, Mr. Moonsuk Chang and his incredibly talented iCAN Team for dedicating their time and passion to make this prestigious event possible for us. Wishing all best for iCAN Expo. With best regards from TIPPA!

EDDIE SHIH 

President

Taiwan Invention Products Promotion Association (TIPPA)



HOSSEIN VAEZI ASHTIANI / Delegation of I.R. IRAN



On behalf of the First Institute Researchers and Inventors in I.R. IRAN (FIRI), I would like to begin by appreciating the considerable efforts of the Toronto International Society of Innovation & Advanced Skills (TISIAS) for the organization of International Invention Innovation Competition in Canada – iCAN within 7 consecutive years which has effectively promoted the culture of invention and innovation in Canada and worldwide and wish you further progress and prosperity.

FIRI, as an official agent of iCAN in I.R. IRAN, is proud to declare support for the organization of iCAN since it has proved to be the top competition and a professional marketplace for the commercialization of ideas/inventions in Canada.

This year is the 7th edition of iCAN and the crossing from this year is accompanied with the best wishes for the organization committee of iCAN to gain more success and a higher position in the years to come. Finally, it is a big pleasure for us to continue our collaboration with TISIAS and we will actively take part in the event to showcase our country's creative achievements.

Yours Sincerely,

HOSSEIN VAEZI ASHTIANI 

President

The First Institute Inventors and Researchers in I.R. IRAN (FIRI)



YEVHEN KUDRIAVETS / Delegation of Ukraine

On behalf of UNESCO Center Junior Academy of Sciences of Ukraine, I have the honor to express my sincere congratulations to the Toronto International Society of Innovation & Advanced Skills (TISIAS) on the occasion of the 7th anniversary of the international competition in Canada, iCAN!

This year became really challenging for Ukraine due to the Russian invasion, but this experience shows that there's nothing impossible in the world nowadays. Ukrainian children are still creating impressive inventions, sharing their ideas, and trying to learn, explore and make an impact for the bright future, even while sitting in the bomb shelters.



We respect all the opportunities TISIAS creates for young people, and this is appreciative being a part of such a powerful global community that supports and unites inventors from all around the world. We are convinced that every idea has a right for existing and be realized.

JASU thanks you for supporting talented youth and wishes you to continue this important activity successfully, growing every year, achieve new heights and make some wonderful things for the world.

Best regards,

YEVHEN KUDRIAVETS 

Deputy Director for International Relations and Strategic Projects
UNESCO Center Junior Academy of Sciences of Ukraine



United Nations
Educational, Scientific and
Cultural Organization



Junior Academy of Sciences
of Ukraine



BARBARA HALLER DE HALLENBURG-ILLG / Delegation of Poland



Dear iCAN Organizers,

The EUROBUSINESS-HALLER team from Poland would like to express its appreciation for the excellent organization of iCan 2022. It has been a pleasure for INTARG Poland to cooperate with the TISIAS organization for many years. We are always amazed and honored to be part of such a great event.

We would like to congratulate all the winners for winning high-ranking awards. In recent years, Polish inventors have won many valuable awards. Thank you very much for the hard work of the excellent and international Jury. As in previous years, we would like to invite all iCAN

exhibitors to participate in the XVI International Invention and Innovation Show INTARG 2023 on 24-25.05.2023 in Katowice, Poland!

Good luck to all Finalists of iCAN 2022!

BARBARA HALLER



President & CEO
Eurobusiness-Haller & Haller Pro Inventio Foundation



Eurobusiness - Haller



RADWAN CHOUAIB / Delegation of Lebanon

It is our pleasure to be participating as the focal point of IFIA in the Middle East at iCAN 2022, for the second year in a row. It is an amazing job getting inventors together, and it is great to be able to connect with individuals around the globe and work on ideas together virtually.

We also would like to Thank Mr. Moonsuk Chang for being part of the Beirut International Innovation Show 2022, your dedication to innovation and your constant positive attitude have contributed greatly to our event. We, at the National Association for Science and Research, look forward to continuing to work together for the benefit of inventors and entrepreneurs. At the end, a special thanks and appreciation go to the inventors who are participating in iCAN 2022, your hard work means a lot during this hard period!



RADWAN CHOUAIB



President of the National Association for Science and Research
Director of the IFIA Focal Point Middle East



INTERNATIONAL FEDERATION
OF INVENTORS' ASSOCIATIONS
Focal Point Middle East



OMAR BILONASHVILI / Delegation of Georgia



The Inventors Club of Georgia congratulates the 7th International Invention Innovation Competition in Canada, iCAN 2022 organizers (especially to Mr. Moonsuk Chang) and participants with this great expo held in Toronto, Canada.

We are thankful for the opportunity to be part of your great event and hope it will be another step forward to success, peace, and cooperation between peoples of the world. It is always a great pleasure to work alongside you. Witnessing you achieve your tasks with such enthusiasm is truly impressive. You are an inspiration to all who works with you. With great respect,



Inventor's Club of Georgia
საქართველოს გამომგონებელთა კლუბი



OMAR BILONASHVILI

Founder & CEO
The Inventors Club of Georgia

DR. CATHERINE DEMETRIADES / iCAN 2022 Committee Member

Greetings! This is Dr. Catherine Demetriades “*Catatrix in the Matrix*” from Cyprus congratulating all my Fellow Inventors for their Long, Hard-Working Journey to the Awards! I especially thank the organizer, Moonsuk Chang and Team for hosting this life-changing event. The 7th annual edition of iCAN.

iCAN allows an inventor to be appreciated for all of their latent talents. The scale of success amongst us grasps heights never before realized with each year we celebrate.

Once man has reached his own coveted plateau, he will see another ladder to even higher summits. Reality is, in all actuality, and eternity stretched before mankind with a greater purpose than mere survival at any cost.

Destiny is obligated by Universal Law to conceive to the demands of unwavering faith. Nothing shall stand in the way of our Calling. Our future is too important to be held hostage by fear.

Stay Amazing, Stay Inspired, and Always Stay in the Matrix.

CATHERINE DEMETRIADES



Founder & CEO
CXAI Technologies

iCAN Committee Member & Keynote Speaker in 2019



MAJID EL BOUAZZAQUI / Delegation of Morocco



Dear Ladies and Gentlemen, on behalf of OFEED – Morocco, I would like to congratulate TISIAS – CANADA and the iCAN Team for successfully holding the 7th annual iCAN 2022 in Toronto, Canada. iCAN has certainly become one of the greatest and the most important international events for inventors in just a few years of existence. It was not by impulse; it is a result of the hardworking team in TISIAS which is now one of the most valuable associations in the field of inventions. They dedicate their time and effort on supporting inventors and promoting inventions for youth, women, and brilliant inventors all over the world.

I was just amazed by their fantastic contribution to the promotion of innovation worldwide contacting companies and developing fruitful cooperation and partnerships with many countries from Asia, Europe, Africa, and the Americas. TISIAS drives its members to be great and successful over their participation in many international competitions and exhibitions held all around the world. I was honored to meet and discuss with their Chairman Mr. Moonsuk Chang. He is just so brilliant, so talented and so creative for enabling the massive growth of the iCAN World for the past 6 consecutive years.

Moreover, iCAN is truly one of the best invention contests in the world providing opportunities for international participants to discover and share Canadian local culture promoting not only innovation but also economy, industry, culture, tourism, education, science, etc. I am truly so proud to have TISIAS and iCAN as our official partner for many years of collaboration to support inventors and innovators all over the world and I look forward to enhancing our fruitful partnership in the near future.

MAJID EL BOUAZZAQUI

Executive Committee Member and Department Manager
International Federation of Inventors' Associations (IFIA)
President, OFEED Morocco
Premier Jury Member of IFIA Events



PROF. LUY MITHONA / Delegation of Cambodia

On behalf of Norton University, Cambodia, I would like to congratulate the 2022 International Invention Innovation Competition in Canada iCAN on your 7th anniversary, organized by Toronto International Society of Innovation & Advanced Skills (TISIAS).

TISIAS is known across the globe for supporting students, inventors, innovators, entrepreneurs, and researchers to promote creative ideas and innovative projects through making numerous participations in international invention exhibitions, conferences, and other relevant events. I am grateful to the TISIAS for their work and for demonstrating the continued support and create such an annual event like the 7th iCAN 2022.



I recognize the effort of the International Invention Innovation Competition in Canada iCAN since 2016 when they organize a new opportunity for the world inventor through their overseas invention shows for international delegation to participate. As the representative of Cambodia, I would like to congratulate the organizers for hosting this great event and I look forward to supporting the event as a Cambodia participant. Best wishes to all the participants and for a successful iCAN 2022.

LUY MITHONA 

Professor at Norton University – Cambodia



ERRICHA INSAN PRATISI / Delegation of Indonesia



Hi Everyone! This is Erricha from Indonesian Invention and Innovation Promotion Association (INNOVA). I am so happy to see all of you are still passionate about creating an invention, in the midst of current difficulties. I would like to appreciate all of you, who have devoted all your energy, time, and minds, to create something new, a simple problem solving that someday can bring benefit to the society.

Therefore, I would like to congratulate all of you for your great achievement in iCAN 2022. I wish iCAN is not your first-final journey to invent another useful thing in the future. We believe that innovation doesn't come just from giving people incentives, but it comes from creating environments where their ideas can connect, and iCAN is one of the environments. Lastly, I would

like to congratulate Mr Moonsuk CHANG from Toronto International Society of Innovation and Advanced Skills (TISIAS) for another wonderful iCAN that all of us can experience. It's always an honour for INNOVA to be friend and partner of iCAN since its first establishment in 2016.

ERRICHA INSAN PRATISI 

President

Indonesian Invention & Innovation Promotion Association (INNOVA)
Indonesia Inventors Day "IID" (IYIA & WINTEX)



ABDALBASIT IBRAHIM ADAM ABDALLA / Delegation of Sudan

Greetings to all distinguished participants, delegations of the 7th International Invention Innovation Competition in Canada, iCAN 2022. I've got to first know about iCAN back when it was holding the 2nd edition in 2017 and it surely was a marvelous experience in Toronto, Canada. Now as a long-time friend of Moonsuk Chang and his iCAN Team, I wish the very best to everyone who is jointly associated with iCAN 2022 from around the world!

ABDALBASIT ABDALLA 

President of Smart Care Tech (SCT) – Sudan

Director of Africa Promotion Development at WIIPA



AYNAMPUDI SUBBARAO / iCAN 2022 Jury Member

Canada is now hot destination for Indian entrepreneurs. The inaugural edition of Startup Bridge Canada received 276 applications from which 35 startups make up the cohort. To further facilitate the entry of Indian firms in Canada, Startup Réseau has tied up with the Governments of Alberta, British Columbia, and Ontario, along with economic development agencies such as Toronto Global, Montreal International to help a cohort of Indian entrepreneurs grow, scale, and promote their businesses in Canada, and access the larger North American geography.



The International Invention Innovation Competition in Canada, iCAN 2022 organized by Toronto International Society of Innovation and Advanced Skills (TISIAS) is another great opportunity for Indian entrepreneurs to tap Canadian market and also partner with Canadian innovations.

Our best wishes to iCAN 2022 from Indian Innovators Association (IIA)

AYNAMPUDI SUBBARAO



President

Indian Innovators Association



DANNY LAI PAK KEONG / Delegation of Macao



On behalf of Macao Innovation & Invention Association (MiiA), I would like to express my appreciation to Toronto International Society of Innovation & Advanced Skills for the great deal of efforts, they have devoted to organizing the 7th International Invention Innovation Competition in Canada, iCAN 2022 to persevere this well-established culture of innovation for 6 consecutive years.

iCAN is truly one of the biggest North American fairs to be held in Canada, a region of large and civilized Canada dedicated to bringing inventors and entrepreneurs together and facilitate marketing, licensing, and manufacturing of the products. Finally, I would like to thank the MOONSUK CHANG the Chairman for inviting Macao to participate in this wonderful event.

DANNY LAI PAK KEONG



President of Macao Invention and Innovation Association

Vice-President of World Invention Intellectual Property Associations



VICTOR BAUTISTA DÍAZ / iCAN 2022 Committee Advisor

In this new opportunity, I would like to congratulate iCAN organizers team, professors, students, inventors, researchers and all kind of participants, whose presence make it possible.

In a short time, we are going to see a surprising, amazing collection of remarkable inventions, innovations, and a lot of advanced skills applications from every place in the world. This is the fruit of excellent minds, devoted to a silent art: creation in all fields of Science and Technology, and, as consequence, a lot of very prestigious prizes will be granted in this event. It has a great value, because the prizes constitute a stimulant acknowledgement for young inventors and innovators, beginning a vigorous diffusion process of scientific and technological know-how. After this great event and success, a hard work will take place: to put all this knowledge at the service of Humanity. Welcome to all of you!!



VICTOR B. DÍAZ



Retired Chemist & Private Researcher
Buenos Aires, Argentina



PROF. AUREL MIHAIL TITU / iCAN 2022 Jury Member



As a university professor and PhD supervisor, as an inventor and European expert in Intellectual Property, it is a great honour to participate and be in touch with great inventors coming this year from every corner of this world at iCAN 2022.

First, congratulations to organizers for making this new edition take place, the 7th one, as we passed two difficult years. I would like to send great congratulations to Mr. Moonsuk Chang and his team of big-hearted and honest professionals who managed this exceptional event. Also, I am grateful that I can be part of the International Jury of iCAN 2022.

A special appreciation goes to the heads of delegations worldwide and those who lead the organizations of Intellectual Property Protection. I thank all of them for the unique collaboration and for the support they have offered me in my professional training in the field of Intellectual Property at the International level in the last 28 years.

Congratulations to all participants for the fascinating inventions presented at iCAN 2022. I am confident that we will all see each other again soon and make great things together.

Kind regards,

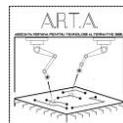
AUREL MIHAIL TITU 

Professor at "Lucian Blaga" University of Sibiu – ROMANIA

President of the Romanian Association for Alternative Technologies Sibiu - A.R.T.A. Sibiu



UNIVERSITATEA
LUCIAN BLAGA
— DIN SIBIU —



DR. VICTORIA RAMZY HABIB / iCAN 2022 Honorary Jury Member

This is one of the nicest moments we live in to express our appreciation for the amazing efforts of the iCAN team at the 7th 2022 Edition - from the bottom of our hearts we congratulate them for their good organization, quality of performance, dedication to work, keen interest in modernization, and effective communication! The result of these efforts is the iCAN 2022 "The 7th Edition". We wish iCAN and its hardworking team continued success and progress in every session! We thank them very much for all that they have done and are doing. Congratulations, wishing them all the best!



VICTORIA RAMZY HABIB 

Invention Education Specialist from Egypt

Honorary iCAN Jury Member since 2016 ~ Present



DR. WAGDY RIZK GHALI / iCAN 2022 Honorary Jury Member



Good organization and quality of work management, high efficiency in communication around the world, evident sincerity in efforts, conscious awareness and correct understanding of the concepts of invention and innovation - these elements achieved in the iCAN 2022 "The 7th Edition" are the result of this brilliant and continuous success, constant progress and the growing, as well as rallying around iCAN and keenness by the leading inventors and innovators, whether they're individuals or organizations, to join it in all its sessions. I warmly congratulate the iCAN team on this brilliant success, wishing them success, prosperity, and permanent growth.

WAGDY RIZK GHALI 

Invention Education Specialist from Egypt

Honorary iCAN Jury Member since 2016 ~ Present



PROF. AUGUSTIN SEMENESCU / iCAN 2022 Jury Member

Dear iCAN 2022 Participants,

As we all know, inventions and discoveries that changed the world, thanks to innovative minds in different fields and that had a huge impact on people's lives.

Inventors are special people, being the ones who solve old problems with new ideas, and their inventions can help people or destroy them, but only the greatest ideas will change the world.



From something mundane to something truly spectacular, numerous inventions have changed the world. As a representative of a technical university, I believe that unconventional thinking is also important in engineering. Engineering means developing technologies to help people and make our lives easier and more enjoyable. If they always choose the same path, things will become boring, and it would no longer be possible to solve the problems we currently encounter. Bottom line: "not possible" is not an acceptable answer as long as the basic laws of physics and chemistry are respected. Engineers must always be prepared to discover unexpected answers to well-known problems - this is what we mean when we talk about "invention".

REMEMBER: Intelligence, inspiration, imagination, and practical sense. These are the characteristics that any inventor should have if he wants to be successful.

iCAN can lead you! So, SUCCESS!

AUGUSTIN SEMENESCU 

Professor Habilitatus

University POLITEHNICA of Bucharest – Romania



DR. JUHYEONG KIL / iCAN 2022 Jury Member



Distinguished guests, judges, and participants, "Welcome to iCAN 2022!"

In just blink of an eye, we have already reached the seventh year of the event. This is truly a reflection of the effort and dedication by all of us. Although the world has been paralyzed by COVID-19, your passion has always been alive, and it will continue to grow in the future.

It is your smallest shining idea that connects the world united by inventors and innovators with bright expectations for the future always soaring high up in the sky. In that essence, we all know that this mesmerizing event so-called "iCAN" in Toronto, Canada will always be the anchor and stability for the inventors.

Just like the initial development of inventing a pencil and a blank sheet of paper that enabled the mankind to record every history from beginning of time, iCAN will record your hard work and passion and leave it for the future generations to see. You are all to become an integral part of the world history of inventors. From young students to lifetime professors, from a small startup to global corporations, you are all humanity's greatest gifts.

In just 6 years, iCAN has evolved into one of the greatest invention shows in the world, an exciting festivity, and a competitive platform for new challenges and opportunities for inventors. And I surely believe that with your continued interest and love for inventions, iCAN will continue to grow and turn into the world's largest invention expo one day. Once again, congratulations on hosting the "Seventh iCAN" and thanks to all inventors joining us this year from around the world, and everyone who are together organizing the competition. I sincerely wish you good luck in all your future endeavors. Thank you!

JUHYEONG KIL 

Chairman

International Invention & Design Leader Awards (IIDLA)



IIDLA
International Invention &
Design Leader Awards

GENERAL INFORMATION

TITLE OF EVENT

The 7th International Invention Innovation Competition in Canada, iCAN 2022

MAIN DATE(S)

iCAN 2022 *"The Preliminaries"* (January 15 – July 15)

iCAN 2022 *"The Finals"* (August 27)

SPECIAL REMARKS

iCAN 2022 is conducted online for the long-distance mode participants without a physical gathering/function

ORGANIZED & BROUGHT TO YOU BY

Toronto International Society of Innovation & Advanced Skills (TISIAS) & INVENTOR SOUND®

SUPPORTED BY

Innovation Initiative Co-operative Inc. "The Inventors Circle"

International Federation of Inventors' Associations (IFIA)

World Invention Intellectual Property Associations (WIIPA)

PARTNERS, DELEGATIONS & CONTRIBUTORS

AHA2RICH – Canada

Accent on Skills Consulting – Canada

Angolan Association of Inventors and Innovators (A@ii)

Apostolic Vicariate of Calapan Parochial Schools, Diocesan Education Office

Arabian Invention and Innovation Company (AIIC)

Association of Polish Inventors and Rationalizers (SPWiR)

Association of Thai Innovation and Invention Promotion (ATIP)

Bright Inventors Association – France

CANADA"IN" Student Exchange Agency – Korea/Canada

Christian and Missionary Alliance Sun Kei Secondary School (SKSS) – Hong Kong

CMA Choi Cheung Kok Secondary School (CMAACK) – Hong Kong

CXAI Technologies – Cyprus

Citizen Innovation – Singapore

Corneliu Resource - Innovation Association – Romania

EUROBUSINESS-HALLER – Poland

Education University of Hong Kong

Egyptian Council of Creativity Innovation & Protection of Information (ECCIP)

First Institute of Canadian Inventors (FICI)

First Institute of Researchers and Inventors in I.R Iran (FIRI)

German Invention Association (KIT-DEV)

Greek Innovation Forum

HOW Creative – USA

Haller Pro Inventio Foundation – Poland

Hong Kong Student Invention Patent Program (HKSIP)

INVENTARIUM SCIENCE – SRD Security, Research & Development – Portugal

Idea Club Oy & Office Beat Oy – Finland

Indian Innovators Association (IIA)

Indonesian Invention and Innovation Promotion Association (INNOPA)

International American University (IAU) – USA

International Invention & Design Leader Awards (IIDLA) – Korea

International Invention & Innovation Institute (IIII) – Japan

Inventors Club of Georgia

Inventors College Organization (ICO) – Canada

Inventors' Association of Bosnia and Herzegovina (AIBIH)

Junior Academy of Sciences of Ukraine (JASU) – UNESCO

Junior Achievement Moldova (JA-Moldova)

Korea University Invention Association (KUIA)

Latin America Society for Science and Technology (SOLACYT)

Lodz University of Technology – Poland

Lucian Blaga University of Sibiu – Romania

Macao Innovation and Invention Association (MIIA)

Manila Young Inventors Association (MYIA) – Philippines

Mandombe University – Angola

National Association for Science and Research (NASR) – Lebanon

Norton University – Cambodia

OFEEED – Morocco

Organization for Creativity, Innovation and Invention Promotion (OCIIP) – Nigeria
 Ötlet Club 13 Egyesület – Hungary
 Patent Invention Magazine – Italy
 Romanian Association for Alternative Technologies Sibiu (A.R.T.A. - SIBIU)
 Romanian Inventors Forum (FIR)
 Shun Tak Fraternal Association – Yung Yao College – Hong Kong
 Siava, Ideas Accelerated – Canada
 Smart Care Tech (SCT) – Africa
 Sri Lanka Inventors Commission (SLIC)
 Taiwan Invention Products Promotion Association (TIPPA)
 Tunisian Association for the Future of Sciences and Technology (ATAST)
 Turkish Inventors Association (TÜMMIAD)
 Turkish Inventors and Innovators Network (TIIN)
 Uncle Bugs Inventor Academy – Malaysia
 Union of Arabian Academics (TUOAA) – Yemen
 Universiti Sains Malaysia (USM)
 University POLITEHNICA of Bucharest – Romania
 ViTrox Academy – Malaysia
 Visions in Green – Canada
 World Genius Convention (WGC) – Japan
 World Women Inventors & Entrepreneurs Association (WWIEA)
 Yahya Kemal College (YKC) – Macedonia

INTERNATIONAL JURY

| | |
|--|---|
| Bob Huybrechts The Inventors' Circle (CANADA) / Co-Chairman | Howard A. Lim HOW Creative (USA) / Co-Chairman |
| Mike McFarthing The Inventors' Circle / Vice-Chairman of the Jury | Andrei Victor Sandu Romanian Inventors Forum / Vice-Chairman of the Jury |
| Guy Langvardt International American University (IAU) – USA | Victor Bautista Díaz Chemist & Researcher of Buenos Aires, Argentina |
| Winfried Sturm German Invention Association (KIT-DEV) | Aynampudi Subbarao Indian Innovators Association, India |
| Mi Young Han World Women Inventors & Entrepreneurs Association (WWIEA) | Otto Schmidt Accent on Skills Consulting / Inventors College Organization |
| Michał Szota Association of Polish Inventors and Rationalizers (SPWiR) | Adam Rylski Lodz University of Technology – Poland |
| Fernando Maldonado Lopes INVENTARIUM SCIENCE – Portugal | Zoltán Nagy Idea Club 13 Association – Hungary |
| Amedeo Pozzebon The Inventors' Circle / Deo Innovations | Raymond Lawson The Inventors' Circle – Canada |
| Masoud Shafaghi Int'l Federation of Inventors' Associations (IFIA) | Babak Khodaparast The First Institute of Canadian Inventors (FICI) |
| Danny Pak Keong Lai Macao Innovation & Invention Association (MiiA) | Bugs Tan Uncle Bugs Inventor Academy & ViTrox Academy |
| Victoria Ramzy Habib Attia Invention Education Specialist | Wagdy Rizk Ghali Rizk Invention Education Specialist |
| Lemon Hok Ming Kwan The Education University of Hong Kong | Leo D. W. Kim CANADA*IN* Student Exchange Agency – Toronto, CA |
| Aurel Mihail Titu Lucian Blaga University of Sibiu | Augustin Semenescu University Politehnica of Bucharest |
| Majid El Bouzazzaoui OFEED – Morocco | Radwan Chouaib National Association for Science and Research (NASR) |
| Juhyeong Kil International Invention & Design Leader Awards (IIDLA) | Bitombokele Lei Gomes Lunguani Mandombe University (JOTRAKEN) – Angola |
| Gihan Farahat Egyptian Council of Creativity Innovation Protection (ECCIP) | Husein Hujic Inventors' Association of Bosnia and Herzegovina |
| Wan Manshol Bin W. Zin Wan Global Invention & Innovation Enterprise | Michael Esuong Organizer of the Africa Invention and Innovation Expo |
| Angelita Elliott Visions in Green – Canada | Lau Sai Chong Hong Kong Student Invention Patent Program |
| Mithona Luy Norton University – Cambodia | Ma. Chat Donna V. Ofilas Manila Young Inventors Association (MYIA) |

ABOUT iCAN 2022 “THE 7TH ANNUAL EDITION”

iCAN is the world-recognized premier event of Canada for inventors which has shown continuous growth and improvement since its first edition in 2016 through 2021 with each year breaking the previous year's records for the total number of participating inventions, countries and collaborating organizations. **iCAN 2021 last year featured more than 650 inventions from 70 countries around the world.** The past 6 editions of iCAN from 2016–2021 featured participants from 86 countries from all continents of the world including **North, Central and South Americas, Asia, Europe, Africa, the Middle East, and Oceania** which redefined the event as the true global stage for merging worldwide creativity and innovation in the center of the multicultural mainstream of Toronto, Canada.

This year, the **7th International Invention Innovation Competition in Canada, iCAN 2022** will be held online and it is our honour to once again invite you to join us and share your ideas, make an impact, and be awarded for your outstanding creativity and innovation that Canada wants to see from you. iCAN is a colossal confluence of many favourable programs: **invention competition, keynote speakers' presentations, The Finals Movie and the iCAN Awards.** Inventors, innovators, students, professors, researchers, scientists, designers, entrepreneurs, and anyone with spectacular ideas are eligible to apply to iCAN 2022 and participate in all event programs above and receive all benefits of participation.

THE PRELIMINARIES

iCAN 2022 “The Preliminaries” was held open for a 6-month period from January 15 – July 15 where applicants registered to the competition by submitting their application forms by email. The Preliminaries served as the selection process for **Gold, Silver and Bronze Medal Award** Winners based on the jury's screen evaluation of the text/visual contents that the applicants have provided in their application forms to express their projects. The applicants were then proceeded to the Finals as Finalists. Proceeding to the Finals is an optional choice upon their decision to progress further in the competition.

THE FINALS

iCAN 2022 “The Finals” is the advanced phase of the Preliminaries as the final stage of the competition where the Finalists are required to present their projects' video presentations for an additional opportunity for the jury's evaluation, thus an additional opportunity to win the **iCAN 2022 “The Finals” Awards.**

The Finals is a privileged stage that is exclusively offered for those who have passed the competition Preliminaries stage of the event. All Finalists who decide to proceed to the Finals can enjoy the benefits of the programs offered below. This year's iCAN 2022 **“The Finals” will be progressed virtually through content uploads of the following items online on August 27th:**

iCAN 2022 “THE FINALS” ONLINE PROGRAMS

August 27th @ 10:00AM (EST) – Toronto, Canada on www.tisia.org/ican-finals2022

| | |
|---------------------------|---|
| CONTENT UPLOAD I | iCAN 2022 “The Finals” Award Winners Announcement |
| CONTENT UPLOAD II | iCAN 2022 Keynote Speakers' Educational Presentations |
| CONTENT UPLOAD III | iCAN 2022 “The Finals” Movie Showcase |
| CONTENT UPLOAD IV | iCAN 2022 Official Catalogue Online |

AWARDS

* iCAN 2022 “The 7th Edition” features nomination of the following awards for the Finalists *

iCAN 2022 “The Finals”

| THE GRAND PRIZE | | THE SEMI-GRAND PRIZE | |
|------------------------------|---------------------|------------------------------|--|
| TOP 10 BEST INVENTION AWARDS | | TOP 20 BEST INVENTION AWARDS | |
| BEST YOUNG INVENTOR AWARDS | | BEST WOMAN INVENTOR AWARDS | |
| BEST INVENTION VIDEO AWARDS | | BEST INVENTION DESIGN AWARDS | |
| ORGANIZER'S CHOICE AWARDS | | JURY'S CHOICE AWARDS | |
| CANADIAN SPECIAL AWARDS | | INTERNATIONAL SPECIAL AWARDS | |
| ACHIEVEMENT AWARDS | AWARD OF EXCELLENCE | OTHER RECOGNITIONS | |

iCAN 2022 “The Preliminaries”

| | | |
|-------------------|---------------------|---------------------|
| GOLD MEDAL AWARDS | SILVER MEDAL AWARDS | BRONZE MEDAL AWARDS |
|-------------------|---------------------|---------------------|



LIST OF EXHIBITS

81 Countries in Participation for iCAN 2022 "The 7th Edition"

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AFGHANISTAN

| | | |
|---|---------------------------|--------------------|
| AF-01 | NAME(S) | Jawad Fayaz |
| ORGANIZATION | N/A | |
| TITLE OF ENTRY | Water Cycle Energy | |
| <p>It is a power plant that uses the water cycle (steam and liquid), to reduce electricity generation costs. In this system, the water cycle is used to generate electricity. It starts with heating and converting steam water to high pressure. Like all conventional thermal power plants, steam enters the turbine with pressure and generates electricity. This project starts from here. The steam with 300 temperature that comes out of the turbine enters a tunnel and rises to a height of 500 or 1000 meters and turns into cooled water. The water that flows down the rotating water turbines and generates electricity.</p> | | |

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| AF-02 | NAME(S) | Jawad Fayaz |
| ORGANIZATION | N/A | |
| TITLE OF ENTRY | Home paste production machine | |
| <p>The machine reduces the pressure by creating a vacuum and increases the production speed of the paste and requires less energy and time. This device is a boiler in which a vacuum pump is connected. The pump increases the speed and quality of paste production by creating a vacuum.</p> | | |

ALBANIA

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|---|---|-------------------------------|
| AL-01 | NAME(S) | Dr Mohamad Imad Droubi |
| ORGANIZATION | Med Care Albania LLC | |
| TITLE OF ENTRY | One Implant Kit for Different Dental Implant systems | |
| <p>One Implant Kit for Different Dental Implant systems is invented for the medical field of research in which the dental implant kit uses all implant systems for the practitioner dentist to do implantation without surgery with High success rate and reduced cost.</p> | | |

ANGOLA

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|---|--|----------------------------|
| AG-01 | NAME(S) | Pedro António Queta |
| ORGANIZATION | Angolan Association of Inventors and Innovators | |
| TITLE OF ENTRY | ROAD ACCIDENT PREVENTION SYSTEM CAUSED BY SLEEP AND FATIGUE | |
| <p>The driver's sleep is detained by means of a position sensor with the shape of an earpiece used by the driver during the period when he most contracts sleep, especially at night. Once the driver gets sleep, the driver's seat vibrates, and an alarm is triggered to alert him. In turn, the system also able to send an SMS to the owner in the case of profession drivers, informing that the driver has contracted sleep and also informing the geographic location where it happened. This system also extends to individuals who contract sleep very easily, mainly to students.</p> | | |

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| AG-02 | NAME(S) | JOÃO ROCHA MISIDI NETO / WABELADIO PAYI DAVID / BITOMBOKELE LEI GOMES LUNGUANI |
| ORGANIZATION | MANDOMBE UNIVERSITY – JOTRAKEN | |
| TITLE OF ENTRY | APPLIED KIMBANGULA: logic of design of technical schemes based on combinatorial symmetry | |
| <p>Applied Kimbangula is a new logic of design of technical schemes based on combinatorial symmetry whose results are interpreted to produce industrial utility drawings. It is a judicious pedagogical and philosophical instrument that allows to develop the mental and intellectual capacities in the process of conception and production of technical knowledge in several technological areas (Bio-mechanics Mechanics, Architecture, electronics).</p> | | |

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| AG-03 | NAME(S) | BITOMBOKELE LEI GOMES LUNGUANI |
| ORGANIZATION | MANDOMBE UNIVERSITY – JOTRAKEN | |
| TITLE OF ENTRY | MALONDA.01: The mobile laboratory of physic and mathematics, and conversion of angle from 3D into 2D | |
| <p>Malonda.01, is a portable laboratory of physics and mathematics that allows to study behavior of angles and its applications, throughout the conversion process of angle from 3 Dimension into 2 Dimension. In other side, Malonda.01 is a converter of angles, from 3D into 2D through the projection of a luminous from the flashlight focused on the angular structure that undertake a circular movement from 0° to 180°. The image of the angular structure gotten on the screen in each step show us applications in several areas of science and technology.</p> | | |

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| AG-04 | NAME(S) | Manuel Henrique Bongo |
| ORGANIZATION | Angolan Association of Inventors and Innovators | |
| TITLE OF ENTRY | Adaptable racket system for windows and more | |
| <p>It is a very simple and economical system for its construction, due to the problems experienced in Angola and Africa in general because of mosquitoes, causing several diseases (malaria), and increasing the mortality rate. We created this idea of putting racket systems in the windows and not only so we can reduce the number of mosquitoes and insects in a significant way. The system is self-sustained by the solar system.</p> | | |

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| AG-05 | NAME(S) | Helder Silva |
| ORGANIZATION | Angolan Association of Inventors and Innovators | |
| TITLE OF ENTRY | WIRELESS BLACK BOX | |
| <p>Usually in case of an air accident the device that allows to provide the information of the cause of the accident is the black box. But the information is only available when the black box is located physically. In this way, the wireless black box as a system for aircraft black box that can provide information without the need for physical contact with the device.</p> | | |

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| AG-06 | NAME(S) | Delfim Fernando da Costa |
| ORGANIZATION | Angolan Association of Inventors and Innovators | |
| TITLE OF ENTRY | Hydraulic jack innovated | |
| <p>This hydraulic jack is to help the driver change of tire, when the tire breaks, this case the driver does not need use the jack to change of tire. Its mean that the hydraulic jack can change of tire without the driver.</p> | | |

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| AG-07 | NAME(S) | António Calenguluca |
| ORGANIZATION | Angolan Association of Inventors and Innovators | |
| TITLE OF ENTRY | Cactus the Gold of Desert | |
| <p>The cactus plants the botanic family called by Cactaceae; it has got about 84 kinds, but the cactus plant of Namibe desert has got some peculiar aspects or mean, in his chemistry and physical structure. As we can see, this is a good and an interesting plant, because it treats diseases such as: skin cancer, tree man, born smear and helps rubber industry in production of rubber.</p> | | |

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| AG-08 | NAME(S) | Adama Joaquim Dieme / Awa Joaquim Dieme |
| ORGANIZATION | Angolan Association of Inventors and Innovators | |
| TITLE OF ENTRY | Technological Blood Test System, Non-Invasive (Malaria Test) | |
| <p>This project will help in the fight against malaria, which is the main cause of mortality in Angola and in many tropical countries and other pathologies for a detention without pain, nor fear of needles. About 75% of medical decisions are made based on laboratory tests. The issuance of a reliable result is extremely important, it may affect positively or negatively the treatment. Piercing the human body with a needle is an invasive procedure, there may be contamination or infection. This innovation Prevents health risks as well as efficiently records data for future research.</p> | | |

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| AG-09 | NAME(S) | Joel Guilherme Mendes Muxinda |
| ORGANIZATION | Angolan Association of Inventors and Innovators | |
| TITLE OF ENTRY | NATIONAL TECHNOLOGICAL SYSTEM OF ROAD CONTROL | |
| <p>State-of-the-art technology-based design for traffic agent work, real-time national traffic control, real-time supervision of traffic agent work, accident alerts and interface between users and service agencies services to users.</p> | | |

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| AG-10 | NAME(S) | Isaac de Assunção Francisco Manuel / Erasmo Clemente Dias Dos Santos |
| ORGANIZATION | Angolan Association of Inventors and Innovators | |
| TITLE OF ENTRY | PASSENGER CONTROL SYSTEM IN MOTOR VEHICLE BY GSM AND GPS | |
| <p>A project by the startup "ERASAC-SYSTEM", created by the inventors identified above, which brings the solution to one of the great deficiencies of investors in the field of taxi, public transport and much more. The real-time billing control, this project helps in the control of passengers on motorcycles, as well as small and large vehicles, translates into satisfactory solutions, in the collection of revenue. It also strengthens the creation of GSM and GPS control companies.</p> | | |

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| AG-11 | NAME(S) | MILTON DOMINGOS BARTOLOUMEU JOSÉ / NARCIO MIGUEL SIMÃO AGOSTINHO |
| ORGANIZATION | Angolan Association of Inventors and Innovators | |
| TITLE OF ENTRY | AUTOMATED STOVE AND REMOTE CONTROL | |
| <p>Currently, we still face culinary problems, undercooked foods, overcooked foods, food with a burnt taste, sometimes we forget a pot on the stove, problems in memorizing recipes, which in most cases does not allow us to achieve the expected results, resulting in loss of time, effort and money.</p> | | |

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| AG-12 | NAME(S) | PAULO TÉDECA PAMBOU |
| ORGANIZATION | Angolan Association of Inventors and Innovators | |
| TITLE OF ENTRY | Egg Incubator | |
| It is a project that will place our country at the top of the world; we will discuss the potential and development of incubation technologies to improve management, quality of services and increase productivity. | | |

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| AG-13 | NAME(S) | Nataniela de Melo Sumbo / Augusto Quessongo Alves Camati / Milton Domingos Bartolomeu José / Alfredo António Cândido André / Nârcio Miguel Simão Agostinho |
| ORGANIZATION | Angolan Association of Inventors and Innovators | |
| TITLE OF ENTRY | Greenhouse Automation | |
| Lack of quality agricultural products, spending on water and energy, inadequate dosage of fertilizers and the misuse of various resources. If we increase production, the Angolan economy grows, minimizing hunger, poverty and generating jobs. Water is a renewable resource, but it is also scarce, so we have to rationalize its use, this project reuses 90% of the water. | | |

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| AG-14 | NAME(S) | Joel Guilherme Mendes Muxinda / Noemia Mendes Muxinda de Sousa / Joselene Victoriano Muxinda |
| ORGANIZATION | Angolan Association of Inventors and Innovators | |
| TITLE OF ENTRY | "THE BREATH THAT GIVES LIFE" - OZONOTHERAPY EFFECTIVE INTEGRATED SYSTEM FOR HEALTH IN ANGOLA | |
| We refer to breath because it is a tri-atomic gaseous substance, which when introduced into the human body brings many benefits to human health by oxygenating. With the discovery of ozone by the German chemist Christian Friedrich Schönbein in 1840, there has been adherence by many Therapists in the world. However, its consolidation has not been easy, there is still resistance in the medical community and its recognition at the legal level requires greater coordination of efforts in many countries. | | |

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| AG-15 | NAME(S) | Joel Guilherme Mendes Muxinda / Walcir Taleno Afonso / José Amaral Nunes Tomás |
| ORGANIZATION | Angolan Association of Inventors and Innovators | |
| TITLE OF ENTRY | Intelligent Breathalyzer | |
| Alcohol causes great effects on the body, its depressive action on the brain decreasing the physical and mental capacities of individuals, which makes it impossible to carry out complex tasks, such as driving. In Angola, with each passing year, the numbers of Road Accidents remain at frightening proportions, representing according to statistics the second largest cause of death in the country and statistics also argue that a large part of these accidents is the result of the consumption of alcoholic beverages by drivers who roads are made, irresponsibility that often results in death. | | |

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| AG-16 | NAME(S) | Jessé João Pedro / António Fragoso de Castro |
| ORGANIZATION | Angolan Association of Inventors and Innovators | |
| TITLE OF ENTRY | SMART STREET LIGHTING MONITORING SYSTEM | |
| Nowadays we have verified many street lighting poles lacking maintenance and without monitoring or controlling them, which are clustered without knowing their location until the population complains that the poles are damaged, and that the agglomeration of these poles for possible repairs would generate a high cost for the government (since there are several to be repaired). | | |

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| AG-17 | NAME(S) | Ester Regina Capeta Solundo / Denise Witena Domingos Bento |
| ORGANIZATION | Angolan Association of Inventors and Innovators | |
| TITLE OF ENTRY | Rail Traffic Control | |
| In Angola, we saw that no real-time train location mechanism is used on the railway line, which has caused several constraints to passengers, and the unavailability of passengers to have access to updated timetables. There is also a slight delay in acquiring the ticket, due to the lack of confirmation of the location of the train. | | |

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| AG-18 | NAME(S) | LÚCIA MARGARETE DA SILVA NAICIMENTO FORTUNATO |
| ORGANIZATION | Angolan Association of Inventors and Innovators | |
| TITLE OF ENTRY | Lu's seasonings | |
| One of the most fascinating senses we have is taste. The taste for food stimulates the gustatory imagination and feeds the body. Due to the hustle of countless activities, home managers and kitchen masters have had little time to produce seasonings that suit different tastes. | | |

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| AG-19 | NAME(S) | JOSÉ EDUARDO JOAQUIM DOMINGOS |
| ORGANIZATION | ASSOCIAÇÃO ANGOLANA DOS INVENTORES E INOVADORES (AAII) | |
| TITLE OF ENTRY | RESTORATION BY NATURAL GENETIC REGENERATION (RNGR) or (RRGN) | |
| <p>Project, technique, methodology of genetic understanding, resulting from the research of the co-relational and experimental method, whose essence predicts other causes of viruses outside the usual biological literature. Microorganism discovery by deconstruction or decoding of the molecular structure of DNA, in which it is identified that there are internal genetic mechanisms, from the matrix of human cells, as potentiators or generators of retroviruses and variations of new viral mutations.</p> | | |

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| ARGENTINA  | | |
| AR-01 | NAME(S) | Víctor Bautista Díaz |
| ORGANIZATION | Retired private chemist | |
| TITLE OF ENTRY | Organic amendments for soils containing humic substances and humic-like products derived from animal slaughter, organic agroindustrial residues and household waste | |
| <p>Chemical transformation of by-products derived from animal slaughter, organic agro-industrial residues and household waste (organic garbage) for the preparation of organic amendments for soils containing humic acids and humic-like substances. This chemical conversion is operated according to the following steps: • Hydrolysis and oxidation in diluted nitric acid solution. • Separation of the liquid phase: preparation of organic fertilizers. • Heating of the solid product obtained through dilute potassium hydroxide (preferred concentration: 1M). • Further reaction with hydrogen peroxide. • Colloidal grinding of the end-product of the reaction. • Optionally, the method also makes it possible to obtain organic fertilizers applicable by foliar or soil administration.</p> | | |

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| ARMENIA  | | |
| AM-01 | NAME(S) | Boris Aghaian Moghadam |
| ORGANIZATION | N/A | |
| TITLE OF ENTRY | Multi Power Heating System (MPHS) | |
| <p>MPHS is a result of 10 years of work and experiments. It's built based on the standards of fan coil with the difference that it doesn't have a powerhouse central system. So, it lowers energy loss and consumption tremendously, it works with electricity, which is considered a clean energy source, and due to its unique design, it has a true COP of 3 and higher with the recent versions. We have also done some experiments using the same system in fresh produce drying machines and successfully decreased the energy use and time (by 1/8) and increased the quality. It is also very suitable to connect to solar systems since it gives the possibility to cut the amount of PV panels to 1/3 of the amount, which is the project I'm currently working on. So, all its features together make the device a more efficient and environmentally friendly system.</p> | | |

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| AUSTRALIA  | | |
| AU-01 | NAME(S) | Inv Valiant Yuk Yuen LEUNG |
| ORGANIZATION | SYNERGISTIC TRAFFIC CONSULTANCY PTY. LTD. | |
| TITLE OF ENTRY | Synergistic Dual-Modes Sustainable Interchange | |
| <p>In view of the existed three-phase circulation design at the existing interchange, a two-phase design with one phase less is invented to improve the traffic efficiency, whether it is intersected by two freeways, or one freeway intersects with another road with or without bicycle lanes. A remedy mechanism is provided for those travelling in wrong way. Integrated with applicant's other patented Synergistic Traffic Designs, a complete national binary system will be possible. Furthermore, the capacity can be expanded to meet the needs of the sustainable developments around and additional exit and entrance have been reserved for the future surrounded community.</p> | | |

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| BANGLADESH  | | |
| BD-01 | NAME(S) | Md. Mahdi Hasan |
| ORGANIZATION | Jagannath University | |
| TITLE OF ENTRY | IoT Based Public Transport Management System Using Quick Response (QR) Code for Smart City | |
| <p>This work presents a smart public transport management system (BUS) using the quick response (QR) code, digital wallet, and tracking system. The focus of this system is to make a mobile application that can be used for a complete smart road transportation system. Passenger's digital payment, intelligent passenger management for the valid workers and significant owner involvement are all rolled into one system. It will make the bus service more transparent and efficient for passengers, drivers, and authorities (owner).</p> | | |

BOSNIA AND HERZEGOVINA 

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| BA-01 | NAME(S) | Prof. Dr. Fikret ALIĆ |
| ORGANIZATION | Faculty of Mechanical Engineering, University of Tuzla, Bosnia and Herzegovina | |
| TITLE OF ENTRY | FLEXIBLE THERMAL-ACCUMULATION CONVECTIVE EMITTER | |
| <p>This convective emitter is intended to heat various fluids circulating forcibly but efficiently through a flexibly distensible conduit, consisting of an external and internal flexible housing. A fluid flow is enabled by a pump or fan. Because the internal heating housing is flexible and extensible, the control de/compressed air allows its length change according to the optimal process requirements for fluid heating. The conduit's length shall automatically be adapted, in the function of working parameters, temperature, and fluid flow rate. The primary advantage of this device represents the possibility of multiple changes in the optimal power of the electric heater and its convective surface, as well as short-term and long-term heat accumulation. Thanks to this invention, several diverse devices with diverse dimensions and forms can be produced. Its installation and dissembling can be simply and quickly done, given that the electric current is used for fluid heating.</p> | | |

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| BA-02 | NAME(S) | Zoran Dujaković, M3 Diving & UIS Speleology Coach |
| ORGANIZATION | N/A | |
| TITLE OF ENTRY | Underwater charger of gaseous or liquid media | |
| <p>This invention relates to an underwater charger, intended to automatically refill the diver's bottle by the needed media in optimal moments. The novelty is seen, practically, in two ducts: a) Supplying duct, attached to the source of media (compressor, for ex.). The length of this tube depends on the diving depth and deep (especially in speleology); b) Receiving duct, makes a novel piece connected permanently to the bottle. It goes without say that both ducts are bunged up, until moment when the diver decides to connect them. This kind of fluid supplier is especially useful to divers, firemen, even to machines using gases or other high-pressure fluids.</p> | | |

BULGARIA 

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| BG-01 | NAME(S) | Vladislava Ivanova / Olya Surleva / Hristina Slavcheva / Ruza Harizanova / Plamen Petkov |
| ORGANIZATION | University of Chemical Technology and Metallurgy | |
| TITLE OF ENTRY | Chalcogenide glasses for applications as infra-red photodetectors in biomedicine | |
| <p>Chalcogenide glasses find potential application in electronics, optoelectronic memory, neuromorphic computing because of their ability to be repeatedly transformed between glass and crystalline states. Bulk glasses were prepared by applying traditional melt-quenching technique. We study the microstructural evolution of the glasses before and after the measurements of their electrical properties. The samples were imaged by using scanning electron microscopy. Electrical measurements and conductivity determination were investigated using impedance spectroscopy and the thermal band gap energy was calculated from slope of obtained Arrhenius plots. The goal of the research was determination the potential for application of chalcogenide glasses in biomedicine.</p> | | |

CAMBODIA 

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| KH-01 | NAME(S) | Dr. So Sokuntheary / Mr. Chuop Sopheak |
| ORGANIZATION | Norton University | |
| TITLE OF ENTRY | KHMER TRADITIONAL MONASTERY WITH QR INFORMATION SYSTEM | |
| <p>Monastery is an important architecture role of Cambodian's Buddhism. The main building in the pagoda which call Vihara, where erected the Buddha statue, is built in the center of the compound with a special decorative roof and opens in all four directions, opening wide to the east. It is an architecture providing of histories concerned with Buddha life in painting and a place for keeping the mind clean and keeping morals, especially on the full moon day monk gathering and pray with the Dharma of the Buddha or read Jataka. The purpose of the project is wanting to create a system which store all information in monastery of monastery by scanning QR and we want also applies all information of each building inside the historical monastery. We plan to put the QR next to building. So, when the tourist come and visit they no need someone to tell the information but they just scan the QR and it appear all the information about the building.</p> | | |

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| KH-02 | NAME(S) | Dr. So Sokuntheary / Mr. Chuop Sopheak |
| ORGANIZATION | Norton University | |
| TITLE OF ENTRY | Develop Islam Mosque to attract tourist with new technology | |
| <p>Since Cham (Champa) fled their homeland to take refuge in neighboring country as well Cambodia, Cham people build mosque where communities pray for their god. The oldest Cham Mosque is in Banteay Chas Village, Chumnic commune, Krouch Chhmar district, Tbong Khmum province where along the Mekong River. The architecture of this ancient mosque is an invaluable heritage of the Cham people and is a cultural property in Cambodia. According to the interviews said that the chapel was built in 1902 for structure and roof, 1919 lay the ceiling and 1967 added roof decorative. In 1980, was expanded by connecting the four corridors allow more prayer to come and use this chapel. The total columns were 130.</p> | | |

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| KH-03 | NAME(S) | Dr. So Sokuntheary / Mr. Chuop Sopheak |
| ORGANIZATION | Norton University | |
| TITLE OF ENTRY | Angkor Smart Bike | |
| <p>The main location will take place in a heritage town that could be discovered in the northwestern Cambodia in Siem Reap province. The Angkor Smart Bike will enable passenger to rent the bike and explore the spectacular view of Angkor Wat temple. Back in the early 19th century, bicycle was only spotted with an ordinary two wheels which was influenced from the outside country and made its way to Cambodia which then has its own local design. Since bike was a convenient way to transport, people often use them to travel to far places for businesses and other purposes. However, throughout the history, vehicles have been developed to fits the requirement of people such as a more comfortable seating and a faster speed which was made possible with the installation of machine and engine to motorbikes and cars. As vehicles are getting more advance, the number of people in Cambodia who uses bicycle deteriorates. Although, in recent days, it is visible that people often prefer to ride bicycle to sightsee and as a way to exercise instead of transportation.</p> | | |

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| KH-04 | NAME(S) | Dr. So Sokuntheary / Mr. Chuop Sopheak |
| ORGANIZATION | Norton University | |
| TITLE OF ENTRY | The Classic Khmer House “Rongdeung” | |
| <p>The idea of making “The Classic Khmer House, Rongdeung” project was intended to lift up Khmer Vernacular house once again to all new generation of Cambodia citizens and help keeping Khmer cultural heritage also. The traditional Khmer house was constructed and designed by Khmer people since ancient time and passed down the structural method through generations. Obviously, our country grows toward a better stage of life living in the golden age of technology development and greater architecture buildings appear around every places. Therefore, we have inserted the Khmer Rongdeung house project accessible with technology and sustainable materials.</p> | | |

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| KH-05 | NAME(S) | Dr. So Sokuntheary / Mr. Chuop Sopheak |
| ORGANIZATION | Norton University | |
| TITLE OF ENTRY | The Jayavarman Smart Station | |
| <p>Jayavarman Smart Station is renovation of the lodge with the addition of technology to accommodate travelers, locals, scholars, and local officials. We build a small building that allows people to rest and protect from the weather. We are equipped with information systems to inform passengers and provide power for charging and clean drinking water. The station put a system is for locating, identifying, and summarizing the history of ancient temples that have been discovered and setting up locations for tourist destinations. Developing a curriculum, the use of the environment to complement the urban environment.</p> | | |

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| KH-06 | NAME(S) | Dr. So Sokuntheary / Mr. Chuop Sopheak |
| ORGANIZATION | Norton University | |
| TITLE OF ENTRY | Vernacular Khmer House with Sustainable Rohat Teck (Water Wheel) | |
| <p>Rohat Terk in Khmer means “Water Wheel” that is one of attractive decorative device also use to drain water. As we observe that nowadays Rohatt seems to be gradually losing its popularity and function. One of Water-Wheel in Siem Reap that was built in 60s repaired by the (APASA Authority) and has some difficulty with function. That’s cause us then to create and it is an idea to inspire for new design Khmer Traditional Water-Wheel that be based on the ancient and can also produce electrical appliances. Then use that electric to apply in vernacular Khmer house also equipped with new technology that can control any electronic devices.</p> | | |

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| KH-07 | NAME(S) | Prof. Luy Mithona / Prof. Sam Bandithviphou |
| ORGANIZATION | Norton University | |
| TITLE OF ENTRY | NU NFC Smart Attendance | |
| <p>Attendance system is a system that is used to track the attendance of a particular person and is applied in the industries, schools, universities or working places. The traditional way for taking attendance has drawback, which is the data of the attendance list cannot be reuse and tracking and tracing student’s attendance is harder. The technology-based attendance system such as sensors and biometrics-based attendance system reduced human involvement and errors. Thus, in this paper, a NFC-based attendance system is presented. A comparative study between this both NFC and RFID is also discussed thoroughly, especially in terms of their architectures, functionality features, benefits, and weakness.</p> | | |

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| KH-08 | NAME(S) | Prof. Suon Sivatha / Mr. Keo Sameang / Prof. Chansamedy Prum / Mr. Koy Mengly / Mr. Then Dyna |
| ORGANIZATION | Norton University | |
| TITLE OF ENTRY | NU Child Tracking | |
| <p>Technology devices at a minimal price. This allows users, especially parents, to track their children via the mobile application connected with a cutie writs strap. The app will alert notifications to the parent when their children who are wearing the strap safety far away from them in a particular range. Also, the strap device has a simple physical piece of information containing the contact info of the child’s parent. In case of the child getting lost somewhere, people will be able to seek and find the child’s parent faster.</p> | | |

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| KH-09 | NAME(S) | Mr. Seng Noeurn / Mr. Sour Sakada / Mr. Long David / Mr. Horn Sphat / Prof. Luy Mithona |
| ORGANIZATION | Norton University | |
| TITLE OF ENTRY | NU Self-Driving Detection | |
| We desire to invent Software Self-Driving Detection that has ability to calculate and detect colors of the traffic light. In addition to that, there will be an alert and notification in sound to driver in order to prevent them from risky and traffic accident. | | |

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| KH-10 | NAME(S) | Mr. Poch Kimlong / Mr. Chhoy Ra / Prof. Luy Mithona / Prof. Rachana Chhoeung / Prof. Suon Sivatha |
| ORGANIZATION | Norton University | |
| TITLE OF ENTRY | NU Share Destination | |
| NU Share Destination is a ride-hailing app that provides a fairer service to both drivers and riders. Using the "Share Destination" feature allows passengers to share the ride with other passengers who go in the same direction. This gives advantages of lowering the ride coast, reducing energy-wasting, pollution factors, and traffic jams. | | |

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| KH-11 | NAME(S) | Mr. Sreng Ramo / Mr. Nheng Makara / Mr. Theng Soyannpich / Mr. Channy Neat / Prof. Ung Yean |
| ORGANIZATION | Norton University | |
| TITLE OF ENTRY | NU Website SAKKAL | |
| Our website providing accurate information and research on detailed disciplines from within the university to present accurate, clear, and reliable information. All students can access information quickly and easily, which can reduce expenses and avoid time wasting. | | |

CAMEROON

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| CM-01 | NAME(S) | WAM ELVIS MBVIUGEH |
| ORGANIZATION | HOLY CENTER FOR RESEARCH AND PRACTICAL SCIENCES (HCRPS COOP-BOD) | |
| TITLE OF ENTRY | FOOD ELECTRONIC PROCESSING DRYER | |
| "The Food electronic processing dryer" unlike, other dryers are a scientific contribution, which is purely African; in that it is made out of local materials such as: metal, fired bricks, wood, chemical composition of clay soil and electronic components. It uses electrical energy which is transformed into thermal energy; in the presence of a catalyst (ecological coal), that helps to facilitate the process for work done. This creation will help farmers in Cameroon and beyond, to better preserve cocoa to improve on their economic conditions and social lives. | | |

CANADA

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| CA-01 | NAME(S) | Meihuan Yu |
| ORGANIZATION | Markville Secondary School | |
| TITLE OF ENTRY | Optical Shoe-Pad Mouse | |
| An optical shoe pad mouse allows people with upper limb motor disabilities to access computer technologies. According to the present invention, the shoe pad mouse includes a shoe-size foam pad including plastic stabilizers, a single circuit board with 3 microswitches, one rotary potentiometer, infrared LED, one capacitor, one integrated sensor and controller chip and a hole for infrared sensors and LED to lead directional movement. On top of the first pad sits another shoe pad with a hole for x and y axis movement of the wheel and two mouse buttons for left and right clicking. The shoe pad is structured with a 1.5cm foam border to support the weight of a foot. One hole is included in the front of the shoe pad for a USB connector. | | |

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| CA-02 | NAME(S) | Glen Hammond |
| ORGANIZATION | Hotrock Innovations Inc. | |
| TITLE OF ENTRY | The HotRock Griddle | |
| A versatile accessory to create an oven from your barbeque. The multifunctional grill enhancer that allows you to cook juicier and healthier foods safely on your barbeque or campfire. The HotRock Griddle is made of high-quality cooking grade metals with a unique composition of matter on the inside. This creates a more balanced distribution of heat. Hamburgers are juicier and more evenly cooked. The tray is designed to capture all drippings making it easier to clean up and a longer-lasting barbeque. The HotRock griddle can also be used for any food normally cooked with an oven, only with better results. It is the perfect accessory for cooking outdoors. | | |

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| CA-03 | NAME(S) | Naji Khamo |
| ORGANIZATION | Canor Iron Works Ltd | |
| TITLE OF ENTRY | SMART WAVE WATCH | |
| Smart Wave Watch produces beneficial electro-magnetic fields, through 2 inductors on top of the wrist, while 2 powerful magnets placed in the middle of the wristband, deliver a second permanent magnetic field to the bottom of the wrist. This device will help reduce blood clots, improve blood circulation, increase the oxygen level in blood. | | |

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| CA-04 | NAME(S) | Naji Khamo |
| ORGANIZATION | Canor Iron Works Ltd | |
| TITLE OF ENTRY | POWER BRAIN BOOSTER | |
| Power Brain Booster stimulates neurons in the brain and connects with other neurons, which has a positive effect on the brain and helps to optimize brain function. | | |

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| CA-05 | NAME(S) | Amedeo Pozzebon |
| ORGANIZATION | The Inventors Circle | |
| TITLE OF ENTRY | A rotating brush including a soap injector | |
| A rotating brush including a soap injector for older people or those that have mobility issues to wash in the shower. It makes it convenient for the elders and handicapped individuals to easily wash themselves. | | |

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| CA-06 | NAME(S) | Saeed Hosseini / Mohammadreza Erfanian Parsa / Afsaneh Najimi / Mehdi Razavi / Shahriar Shaker |
| ORGANIZATION | Chroneed Care | |
| TITLE OF ENTRY | Healthcare assistant software for stroke survivors | |
| The application aims to reduce the problems encountered by the participants so the process can be streamlined and effectively managed through advanced technology. The software application can be used as an effective communication tool for both parties, so errors can be minimized, reduce risks of recurrence of the ailment, eliminate items that could impede recovery, identify side effects immediately, measure progress, monitor changes in attitude, reduce depression, reduce costs, and pave the way for a faster recovery. | | |

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| CA-07 | NAME(S) | Mohammadkhaled Feizi / Nezameddin Kharazmi / Farahnaz Farahmand Mohammadi / Zohreh Masserati Namini / Maryam Abdollahpour |
| ORGANIZATION | Write Right | |
| TITLE OF ENTRY | Write Right | |
| Write Right is the completely innovative educational aid based on "Struggling Letters," introduced globally. It is in 2 forms physical package and tech-based Application. This tool aims at resolving the children's writing and reading problems. In this method, kids' mental and psychological states have been considered, and all learning styles are covered. This new approach is gathered in 4 packages and supports young learners learning the alphabet to make sentences. | | |

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| CA-08 | NAME(S) | Chakameh Shadloo / Golnaz Fakhrkazemibajestani / Reyhaneh Delfrouz Abdolmaleki / Elham Garaylikorpi / Seyede Atefeh Sadati Sorkhi |
| ORGANIZATION | Invesigma Company | |
| TITLE OF ENTRY | Exclusive machine translation software application for financial services and documentaries | |
| We intend to provide real-time translation software automatically updated for accuracy and transparency, covering cross-language translation. Our application offers accurate translations to avoid regulatory and legal problems. Invesigma has specialized translation services for financial documentaries, contracts, real estate, marketing, and investments. It also helps businesses and customers to extend their markets globally with secure translation. Invesigma acquires Artificial Intelligence and Machine Learning, covers multiple languages, and provides accurate and technically analyzed translation and interpretation without human involvement. This is the only application especially and individually designed for economic, financial, and business-related contexts. | | |

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| CA-09 | NAME(S) | Arman Elhami |
| ORGANIZATION | Armanch Inc. | |
| TITLE OF ENTRY | Hybrid compact heat pump | |
| This invention is a new thermodynamic cycle that has a variable speed forced air heat pump which can provide HVAC, domestic hot water, and hydronic heating systems in one appliance with a smart control system. This appliance is compatible (adaptable) both to different home types and to different climates. It is efficient, affordable, safe, quiet, smart, economical, and both environmentally and user friendly. | | |

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| CA-10 | NAME(S) | Roland Hofer |
| ORGANIZATION | Water Rabbit Design | |
| TITLE OF ENTRY | The Solar Powered Rock (rock power) | |
| Solar energy(light) is converted into electrical energy as photons strike the surface of a solar panel. These electrons travel through a patented circuit and are absorbed by the rock. This increases its mass. The increase of mass is slight, so a meter is used to indicate charging. This creates a pleasant environment for the owner. Rock power can be recorded on a sunny day, cloudy day, and an average day. It is a metaphor for the planet. We live on a solar powered rock. | | |

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| CA-11 | NAME(S) | Elham Hady Nia / Nima Yar Ahmadi |
| | ORGANIZATION | BOOST TAG LTD |
| | TITLE OF ENTRY | Advanced automated inventory control system |
| <p>Boost Tags offer an advanced solution based on RFID technology and artificial intelligence which will facilitate the inventory management process for food and beverage manufacturers. The Company's solution consists of reusable RFID tags, RFID scanners, and an accompanying mobile app. The app will be linked to RFID tags and will provide advanced inventory control, monitoring, and real-time reporting.</p> | | |
| CA-12 | NAME(S) | Mehdi Givvehchi |
| | ORGANIZATION | BENGIV FITNESS BOX HOLDINGS INC |
| | TITLE OF ENTRY | Automated Physical Fitness Box |
| <p>The proposed venture is an automated physical fitness pod (or box) that can accommodate a number of key and multi-purpose pieces of exercise equipment combined with a cloud-based training delivery system via a mobile application. The fitness pods will be located in strategic locations around a city and designed for those described earlier, providing an accessible and physical and emotionally safe place to exercise. Private spaces will be rented from property owners and public spaces will be negotiated with local municipalities.</p> | | |
| CA-13 | NAME(S) | Amir Falamak Hajhosseini / Sima Nasiriani / Ahad Vadiati / Mohammad Khani / Morteza Ahestero |
| | ORGANIZATION | iGate |
| | TITLE OF ENTRY | iGate |
| <p>The proposed venture creates an affordable environmentally friendly DIY modular driveway gate with the capability of controlling and monitoring via smartphone as well as desktop application, utilizes solar energy.</p> | | |
| CA-14 | NAME(S) | Abdolrasool Malekpour / Mohammadreza Khalili / Ali Asghar Mohsenipour / Saeideh Zahedi / Maryamsadat Sadati |
| | ORGANIZATION | OcuSur Technologies Canada Inc. |
| | TITLE OF ENTRY | Eyeball Fixator Speculum |
| <p>Ocular interventions as the most globally frequent operations, are the most sensitive operations during which any unwanted action can cause major injuries. Besides, there is no harmless and safe method for eyeball fixation. So, there is a major need for safe fixation of the eyeball. Ocular disinfection during the intervention is also needed to prevent ophthalmic infection and to reduce healing time. We have invented "Eyeball Fixator Speculum" with the capability of fixation of the eyeball and keeping the eye surface moisturized during the operation; a highly needed medical equipment in all ocular interventions.</p> | | |
| CA-15 | NAME(S) | Iman Sadeghpour / Emad Sadeghpour / Effat Nikfarjamshirazi / Sedigheh Montaseri / Ahmad Sadeghpour |
| | ORGANIZATION | PKM Solutions Canada Inc. |
| | TITLE OF ENTRY | Pathogen Killer Mask and Filter Based on a Green Nanotechnology |
| <p>We have developed "Pathogen Killer Mask" which not only traps the pathogens but also kills the pathogens we have accomplished. Competitive advantages translate to highly efficient in trapping pathogens as well as the capability of destroying pathogenic particles such as viral, bacterial, and fungal pathogens. The face mask market is projected to grow in the world from USD 737 million in 2019 to USD 22,143 million in 2021 and then reduce to USD 3,021 million by 2025. These predictions help us to planning the short and long terms of PKM.</p> | | |
| CA-16 | NAME(S) | JUNG-SOO KO / YOUNGI-JI KO / DAE-YONG KO |
| | ORGANIZATION | YORK UNIVERSITY and N ROBOTICS Co., Ltd. |
| | TITLE OF ENTRY | Artificial intelligence Nursing Robots (Bathing robot apparatus, Bed robot apparatus, and Multi-functional transferring robot apparatus) |
| <p>Our robot's technology has been created for nursing and care, but it can be widely applied to the processes and products that collaboration between robots requires. The key to our technology is to load safely, move, and clean people, animals, and things without human labour using artificial intelligence and maintain optimal temperature, humidity, and odor. Therefore, our technology can be applied to places where people gather, in areas where animals are raised or processed, and where products are produced, stored, and distributed. We can use technology to raise and process animals, starting from nursing and caring for patients and the disabled, factories producing products, warehouses storing products, and logistics for moving products.</p> | | |
| CA-17 | NAME(S) | Hamed Milani / Sona Sadughi Zad |
| | ORGANIZATION | Milanix Company |
| | TITLE OF ENTRY | Diagnosis and Treatment of Cancer Tumors Using Biological Gold Nanoparticles produced by <i>Cupriavidus metallidurans</i> strain <i>H.Milani</i> Bacteria and Production of Cerebrovascular Clips, Angioplasty Stents and Surgery Meshes |
| <p>This is a new generation of systems to produce gold by using newly isolated bacteria. This gold did not exist before. New Generation of Brain Memory Prostheses, Cerebrovascular Clips, Angioplasty Stent, and Orthopedic prostheses are our invention instruments from the produced bio-gold.</p> | | |

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| CA-18 | NAME(S) | Mohammad Mokhtarzadegan / Gholamhossein Yousefi / Nader Tanideh / Omid Farshad / Ali Feiz |
| ORGANIZATION | HealGyn Solutions Canada Inc. | |
| TITLE OF ENTRY | Sustain-Release Drug Delivery Pad for Treatment of Reproductive Tract Infections and Applicator Thereof | |
| <p>The present invention explores a Sustain-Release Drug Delivery Pad for Treatment of Endometrial and Vaginal Infections and Applicator Thereof. The invention comprises two parts including a collagen pad loaded with antibiotics and an optimized applicator. Due to the very high hydrophilicity of collagen, create a good adhesion to the desired site. Proper degradability with or without crosslink collagen also allows it to be used as a sustained release system with appropriate degradability.</p> | | |

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| CA-19 | NAME(S) | Sanam Salimi Elizei / Hamed Mansouri / Sevin Shamizi / Mahdieh Afzali / Pooya Eshrati |
| ORGANIZATION | immicademy | |
| TITLE OF ENTRY | immicademy | |
| <p>For people who are in our target countries (there are 10 countries), aged between 20-39, who need to prepare their Canada Express Entry or Study visa applications, immicademy offers online immigration courses (tools) that provide knowledge and confidence while minimizing the risk of being defrauded by non-license advisors. Unlike competitors such as immigration lawyers, advisors and other DIY learning platforms, our product is cheaper, more reliable, and more complete.</p> | | |

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| CHAD  | | |
| TD-01 | NAME(S) | OSMAN MOHAMED OSMAN MOHAMAD |
| ORGANIZATION | UNIVERSITY OF ELIMAM ELMAHADI | |
| TITLE OF ENTRY | RIHAN'S RENAL PATIENTS HOME DEVICE | |
| <p>It is a home electronic device that takes care of a kidney patient, examining kidney functions with high accuracy, easy way, simple time, providing advice to the patient, monitoring his condition continuously, and reporting in the event of an emergency.</p> | | |

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| CHILE  | | |
| CL-01 | NAME(S) | Carlos Hernandez - Ambar S.A. |
| ORGANIZATION | Ambar S.A. | |
| TITLE OF ENTRY | GREEN HYDROGEN AND WATER PRODUCTION BY GENERATING LOCAL ELECTRIC ENERGY FROM WASTE HEAT RECOVERY OF PYROMETALLURGIC PROCESSES OR FROM SOLAR ENERGY | |
| <p>The system possesses four integrated subsystems for the generation of green Hydrogen and Oxygen:</p> <ol style="list-style-type: none"> 1. Electrical energy generation via Stirling generator, fueled by recovering thermal energy from heat sources of industrial processes or solar energy. 2. Green Hydrogen and Oxygen generation via conventional electrolyzers. 3. Waste energy recovery from the Stirling generator and electrolyzers. 4. The integration of both the electrical energy from the Stirling and that converted from their own residual thermal energy, to feed the electrolyser. | | |

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| CHINA  | | |
| CN-01 | NAME(S) | Rain Yuchen Leng / Lily Xinrui Wu / Jack Yiming You / Cindy Yingran Lv / Janet Zhenni Liu / Emily Yangrui Ma |
| ORGANIZATION | Chengdu Foreign Languages School | |
| TITLE OF ENTRY | A Luban Lock Inspired Pavilion | |
| <p>Looking up under a big tree in Angkor Wat, Cambodia, we saw the interlaced tree roots hanging overhead, like a house, so we designed a pavilion to imitate the tree roots. Combined with the very interesting educational toy in daily life Luban Lock, we have applied the traditional Chinese tenon and mortise structure into the design and finally created a pavilion by using sustainable wood.</p> | | |

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| CN-02 | NAME(S) | Tianlin GU |
| ORGANIZATION | Tianjin University Renai College | |
| TITLE OF ENTRY | Hidden type expansion socket | |
| <p>Hidden type expansion socket design idea, I see a small drawer, so I think, if hidden type expansion socket into the drawing type design, is the current style of the socket, when encountered not enough, the draw type hidden expansion socket open, so than the original four plane, and each plane has a jack, can provide more connection requirements. I also designed a small press switch on the surface of the tap hide expansion socket, which is usually locked and opened when the extension is needed. Of course, because the hidden expansion socket may be connected to more electrical wiring, need to increase the capacity of the cable to hide the expansion socket.</p> | | |

CÔTE D'IVOIRE

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| CI-01 | NAME(S) | DIALLO LOBO GALLET |
| ORGANIZATION | | FEDERATION DES INVENTEURS EN COTE D'IVOIRE |
| TITLE OF ENTRY | | Plant extract for the treatment of diabetes and method for obtaining it |
| <p>The invention consists of a medicinal substance for treating diabetes. The product is successfully actively used in our practice to treat patients with diabetes. Its prescription is recommended after a confirmed diagnosis of diabetes. Due to the high demand among our patients, this product has substantial commercial potential.</p> | | |

CROATIA

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| HR-01 | NAME(S) | Stipan Orčić |
| ORGANIZATION | | N/A |
| TITLE OF ENTRY | | ANTI-GRAVITATION SPACE AIRCRAFT |
| <p>The antigravity spacecraft is intended for suborbital, orbital, interplanetary and intergalactic flights. It uses the Antigravity Impulsor for propulsion, and the energy for its operation, as well as for the entire needs of the parent aircraft, is produced by the Energy Processor. Both devices are integrated into the aircraft and are in constant synchronized operation. The Antigravity Impulsor converts electrical energy into antigravity impulses that it uses to move through space. The spacecraft uses the gravity of the nearest or strongest gravity of the celestial body, as a support for pushing and moving through space. Stabilizer pulses are used for takeoff and descent. The pulses of the rear probe push the spacecraft forward, and the pulses of the front probe push the spacecraft backward.</p> | | |

CYPRUS

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| CY-01 | NAME(S) | Dr. Catherine Demetriades |
| ORGANIZATION | | N/A |
| TITLE OF ENTRY | | CXAI Technology |
| <p>CXAI Technology is the first Actual Intelligence technology in the world. It extracts the information within the human Influential Matrix and decodes both recent and genetic subconscious thought and emotional patterns from Quanta. It can read complex computational thought patterns both recent and genetic memory and even dissect conglomerate masses unreadable by humans. This will uncover mysteries of science and medicine such as in Coma, Sleep, Anesthesia. Newborn Babies will now have a reading of their subconscious genetic memory. The list goes on for the vast number of biological sciences CXAI Technology can be implemented as it compliments new portals of science.</p> | | |

ECUADOR

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| EC-01 | NAME(S) | Majid Khorami / Ricardo Daniel Cajas Córdova / Yandri Fabricio Loaiza Coello / Mehdi Shariati |
| ORGANIZATION | | UTE University / Escuela Superior Politécnica del Litoral (ESPOL) / Anhui University of Technology |
| TITLE OF ENTRY | | WIND TUNNEL DESIGN FOR TESTS UNDER CONTROLLED ENVIRONMENTAL CONDITIONS FOR CONCRETE SHRINKAGE STUDY |
| <p>Since the shrinkage in the concrete creates cracks on the structural elements, especially for concrete slab construction, the evaluation of the actual concrete shrinkage is essential for serviceability and durability behaviour. The shrinkage magnitude is affected by some important environmental variables such as temperature, relative humidity, and wind speed. The objective was to design a wind tunnel which allows researchers to conduct experimental studies to evaluate the influence of atmospheric variables such as wind, temperature, and humidity on the shrinkage behaviour of the concrete for slab elements.</p> | | |

EGYPT

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| EG-01 | NAME(S) | Dr. Zaky Abd EILatif Zaky Abdellatif |
| ORGANIZATION | | N/A |
| TITLE OF ENTRY | | An electric elevator to prevent people from falling into the sea while boarding the ship |
| <p>The electric elevator consists of a chamber hollow from the inside and encapsulated with strong fiberglass plates on sturdy aluminum posts and beams, with entrance door and Exit door for the ship, and it is lifted by the ship's winch. The Hights makes the movement of the ladder and the launch unbalanced without exposing and wire the winch to the cut off, unlike the elevator, it is tight ,safety and prevents the people inside from rain, wind and waves, and also has a safety factor with the presence of spare steel wires welded to the ship if the wire of the winch is cut off, these wires prevent the elevator and people from falling to the sea and descend to the surface of the water And it is equal to the service launch, so people ride in safety and peace</p> | | |

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| EG-02 | NAME(S) | Abanoub Hani Naguib |
| ORGANIZATION | | N/A |
| TITLE OF ENTRY | | Cancer destroyer |
| <p>Laboratory experiments were conducted to measure the efficiency of the extract for this experiment, where it showed statistically significant differences in treatment in the previous stage of background G1 and the cells standing in the G1 stage without entering the cell cycle again, which makes the ability of this extract to destroy carcinogenic cells of type PC3.</p> | | |

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| EG-03 | NAME(S) | Dr.Fadi Ibrahim |
| ORGANIZATION | Al Shuja'a Bin Al Aslam School, Farwaniya, Kuwait | |
| TITLE OF ENTRY | Synthesis of Novel Virus-Like Mesoporous Silica-ZnO-Ag Nanoparticles and Quercetin Synergize with NIR Laser for Omicron Mutated Covid-19 Virus Infectious Diseases Treatment | |
| <p>This work shows that novel virus-like mesopore silica-zinc oxide/Ag nanoparticles (SZnOAg) synthesized and professionally collected on NIR laser irradiation with quercetin to improve the elimination of the mutated virus as a biomedical application. A unique type of silica nanoparticles with a self-inflating tubular surface has been successfully synthesized using a novel single-micelle epitaxial growth process. The properties of the nanoparticles can be tuned with respect to their core diameter, tubular length, and outer diameter. Due to their biomimetic appearance, they can rapidly transform living cells into virus-like particles, this SZnOAg nanomaterial has specific elimination effect on bacteriophage and Covid-19.</p> | | |

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| EG-04 | NAME(S) | Donia Farid Abdullah Abdullah Eissa |
| ORGANIZATION | Sohag STEM School | |
| TITLE OF ENTRY | Computer Double Face | |
| <p>This computer opens job opportunities in companies for blind, dumb and deaf people because it has two screens opposite each other, the blind uses it through a microphone then the sound signals are sent to the Raspberry Pi model B to translate then results appear through the speakers. The deaf and dumb use it by typing on screen also there is a camera that translates all sign languages into words by certain algorithm. The screen consists of a black frame between it an anti-heat glass plate, and on the sides are four semi-transportation laser devices that create screen of computer.</p> | | |

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| EG-05 | NAME(S) | Nourhan Nassr Marae Ahmed / Fatma Mostafa Mohamed Kamel / Yasmin Ahmed Sayed Ahmed / Yasmeen Mohamed Ehsan Ebrahim |
| ORGANIZATION | Faculty of Engineering at Suez University | |
| TITLE OF ENTRY | New harvesting More Algae | |
| <p>This research attempts to find a way to harvest algae, which is one of the most important natural resources to meet the human needs of energy, food, and others. Algae is used to produce diesel, vegetable fertilizers, cosmetics, nutritional supplements. It was recently used in cancer treatment. Methods for harvesting algae are expensive and efficient, and the most efficient centrifuge, but the device is mechanically complex and expensive. We created a device that helps reduce costs and increase efficiency by simplifying the shape and reducing the stages, and the water is separated from the biomass in one stage.</p> | | |

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| EG-06 | NAME(S) | Yasmin Ahmed Sayed Ahmed / Yasmeen Mohamed Ehsan Ebrahim |
| ORGANIZATION | Suez University | |
| TITLE OF ENTRY | Waste power | |
| <p>This research attempts to solve the energy crisis and the problem of accumulation waste. Recently, the technology of converting plastic waste into fuel has been emerged by a process called pyrolysis. But this technique has faced many problems. So, we designed a new reactor to solve these problems in addition to treats two types of waste (plastic and agricultural) and extracts energy from them. This reactor does not depend on using electrical energy to complete the process, treats the problem of PVC pyrolysis by 80% and the use of a new catalyst led to increase the efficiency of fuel produced.</p> | | |

FINLAND

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| FI-01 | NAME(S) | Juha Starck / Rose-Marie Backström |
| ORGANIZATION | Office Beat Oy | |
| TITLE OF ENTRY | Seat Guard -Microbreaks | |
| <p>Seat Guard-microbreaks is a new health innovation to prevent excessive sitting. Seat Guard is a technical intelligent device, that united with the Interstuhl seat cushion makes the perfect combination for healthy sitting on any surface. Place the device into the Seat Guard pocket. The cushion has a non-slip bottom that increases the seat comfort. It is machine washable up to 30°C and this quality cushion is produced in an environmentally friendly way.</p> | | |

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| FI-02 | NAME(S) | Juha Starck |
| ORGANIZATION | Office Beat Oy | |
| TITLE OF ENTRY | Oxygen Booster | |
| <p>Oxygen is the lifeblood of charcoal/briquette grills, and although there are openings for oxygen in the bottom and lid of the grill, the grilles ignite too often unevenly and slowly. Fireproof steel pipe with evenly spaced holes on the sides and ends with closed steel net to prevent the charcoal from entering inside the pipe. The Oxygen Booster is placed vertically on the bottom of the grill at the air intake of the grill before adding charcoals. The Oxygen Booster helps ensure air intake inside, under, and over the charcoal/briquette pile. The Oxygen Pin makes the grill fire faster and more efficiently. At the same time, the number of ignition times and liquids is reduced as the charcoal/briquette receives oxygen more efficiently. The Oxygen Booster brings the barbecue a sense of both success and eco-making! The functionality of Oxygen Booster has been tested with a prototype and the results are clear, the grill ignites better, more efficiently, and requires fewer re-ignition times as well as even less charcoal. The power of the charcoal also lasts longer and the charcoal burns better, which means that less charcoal waste is generated, and the cleaning time of the grill is reduced. Oxygen Booster turns the charcoal grill knobs to the southeast!</p> | | |

FRANCE 

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| FR-01 | NAME(S) | Amma Aljefairi / Hanine Hammoud |
| ORGANIZATION | | QNTC |
| TITLE OF ENTRY | | MEASUREMENT TOOL FOR PORTRAIT CREATION |
| <p>The present invention pertains to a measurement tool for creating portraits, invented to help for more professional portrait drawings specified to beginners + students. The measurement tool includes a vertical ruler and two horizontal rulers. Each of the rulers has a longitudinal slot. The first horizontal ruler is coupled perpendicularly to an upper portion of the vertical ruler and the second horizontal ruler is coupled perpendicularly to a lower portion of the vertical ruler.</p> | | |

GEORGIA 

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| GE-01 | NAME(S) | Giorgi Mikiashvili |
| ORGANIZATION | | Inventors Club of Georgia |
| TITLE OF ENTRY | | Sport complex |
| <p>Sport complex includes A) boxing ring for karate, jujitsu, MMA etc. which contains strings, rope pulling mechanism, rope with head, rope head holder, triangular rope platform for easy use. Also, extension tube, metal plate for attaching poles, metal strips - retainer, platform connector, filled angle parts, angle brackets, angle brackets for poles etc. Proposed innovation is in the rope folding mechanism which is made on the principle of self-tapping the tape and can automatically fold and unfold to the required size. Except that it is possible to change the size of ring as required by specific sports standards and that can be done in couple minutes, B) Boxing bag which can be dismantled in 4 parts, and C) Sparring partner which can be used for all those sport training.</p> | | |

GERMANY 

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| GR-01 | NAME(S) | Anwar Shaboot / Hatem Alhussein |
| ORGANIZATION | | N/A |
| TITLE OF ENTRY | | Managing level crossings for trains using artificial intelligence and computer vision |
| <p>An intelligent system that makes commuting safer. Rail level crossings represent one of the most complex traffic scenarios due to the diversity of road users such as pedestrians, cyclists, cars and trucks, and the potential hazards of collision with trains. High-speed passing trains can put road users at risk, requiring accurate real-time monitoring of traffic at crossings, even in difficult weather conditions, to ensure tracks are clear of obstructions when the train is about to approach. This poses significant challenges to some of the current sensing technologies.</p> | | |

GREECE 

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| GR-01 | NAME(S) | GEORGE HIPPOCRATES PAPAGEORGIOU |
| ORGANIZATION | | N/A |
| TITLE OF ENTRY | | ELECTRICAL SOCKET REMOVAL PREVENTOR |
| <p>The "Electric Socket Removal Preventor", ensures constant/uninterrupted power supply to any device of such feature on a global scale. Electric powered devices of any kind, from household appliances to business machines (mainframes, servers, end-use PC's) as well as healthcare devices and other in numerous categories -like in the industries' production lines, according to their usage, may unexpectedly seize to operate due to their socket's extraction from the power outlet. This event may happen mistakenly (someone pulls the socket's electrical cord because he was not careful at the office/house/hospital etc.), or on purpose, mainly maliciously. The result of this effect has consequences to the operation and usage of the electrical device. This effect is different among these apparatuses and in many electric appliances it has an irreversible impact (for instance in servers, healthcare devices that support patients' lives in hospitals and many others).</p> | | |

HONG KONG 

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| HK-01 | NAME(S) | Dr Kean Poon Kei-yan |
| ORGANIZATION | | The Education University of Hong Kong |
| TITLE OF ENTRY | | iMaze: A Fun Working Memory Training for Pre-school Children from Low-income Families |
| <p>The computerized working memory training is the first performance recording tool to enhance phonological and visual-spatial memory of pre-school children with low socioeconomic status. It consists of 2 training regimes (n-back and card-pairing) and over 25 stimuluses (linguistics, colour, shape, fruit, animal, and digit pictures). Compared to standard face-to-face cognitive training, this cost-effective invention encourages children to train themselves at their own pace and level by different motivations. The reward system visualizes players' progress and will be able to enhance their sense of achievement.</p> | | |

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| HK-02 | NAME(S) | Dr Hung Keung |
| ORGANIZATION | The Education University of Hong Kong | |
| TITLE OF ENTRY | Advanced Tai Chi Experience: An Integration of Novel Typefaces and AR Technology | |
| <p>This novel Tai Chi learning platform consists of an original Tai Chi compound typeface set and 6 sessions of gamified exercises. Demonstrating in the AR environment, the 3D animated Tai Chi typefaces effectively help practitioners to recall Tai Chi acts, motions and patterns in a fun approach. As a Tai Chi learning barrier remover, the platform also enhances self-efficacy and independence even without a master's guidance. Its combination of traditional culture and up-to-date technology suggests a new cultural identity and attracts newcomers.</p> | | |

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| HK-03 | NAME(S) | Dr Zou Di / Miss Liu Yalin |
| ORGANIZATION | The Education University of Hong Kong | |
| TITLE OF ENTRY | Facilitating Emotion Classification Based on Non-Intrusive Learner Data via Deep Neural Networks | |
| <p>The invention discloses a non-intrusive emotion recognition technology by using eye-tracking method. It can achieve non-intrusive data collection by eye data only, instead of other personal private ways such as facial and voice recognition. The collected eye data will be input into a deep convolutional neural network with well-trained parameters for emotion recognition. 9 different kinds of emotions can be recognised by the trained modal, including, depressed, bored, relaxed, sad, calm, happy, anxious, nervous, and excited. Also, our invention is portable and can be used on multi-devices, i.e., install our prototype system and connect an eye tracker, and it can be used.</p> | | |

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| HK-04 | NAME(S) | Dr Tsang Yiu-fai / Mr Wang Yuguang / Ms Cheng Yan-laam |
| ORGANIZATION | The Education University of Hong Kong | |
| TITLE OF ENTRY | Upcycling Waste Residuals into Value-added Eco-coasters: From Environmental Facilities to Tables | |
| <p>Upcycling waste residuals (i.e., sewage sludge, waterworks sludge, bottom ash, fly ash, and sludge ash), into eco-coasters. The raw materials are from different environmental facilities (i.e. wastewater treatment plants, water purification plants, coal-fired power stations, and sludge incineration plants), which can save disposal costs and is free of charge. Through four simple pre-treatment processes (drying, crushing, sieving and mixing), the mixture can be used for making customized eco-coasters. waste residuals value-added products.</p> | | |

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| HK-05 | NAME(S) | Dr Tse Ka-ho |
| ORGANIZATION | The Education University of Hong Kong | |
| TITLE OF ENTRY | CKC Stroke: An Online Practicing Tool for Chinese Stroke Writing | |
| <p>"CKC Stroke" is an online platform that enables Chinese language learners to study and practice the proper way of writing Chinese characters. As a multifunctional tool including customization, recording, info box, and copybook, "CKC Stroke" is a platform to practice and effectively fosters users in memorizing proper writing sequences.</p> | | |

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| HK-06 | NAME(S) | Dr Peggy Or Pui-lai / Dr Henry So Chi-fuk |
| ORGANIZATION | The Education University of Hong Kong | |
| TITLE OF ENTRY | Smart Hand: Are you sure? | |
| <p>Smart Hands is a digital application integrates with hand hygiene education and Artificial Intelligence (AI) feedback system. As hand hygiene is a key measure of avoiding transmission of pathogens and disease, this technology-assisted tool is established intending to strengthen public health awareness and improve the public's hand hygiene practice. Users will be able to access their perception of hand hygiene through exercise and case scenarios. The battle game imbedded with AI feedback system is an interactive approach that allows self-reflection and mutual improvement between players by giving scores on their practice.</p> | | |

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| HK-07 | NAME(S) | Dr Michael Leung Chi-hin |
| ORGANIZATION | The Education University of Hong Kong | |
| TITLE OF ENTRY | Reimagining Music Learning with e-Orch | |
| <p>"e-Orch" is a smart tool (app & cloud-based software) designed for all users to learn, perform and compose music in an enjoyable way on a tablet. Integrating with the patented Grid Notation, 25 virtual instruments, and 4 novel instrument control panels, the invention removes the barriers in music learning. It introduces a student-centred pedagogy for learners to practise music knowledge and techniques easily. This multifunctional invention also assists teachers without sufficient resources in group music teaching. The software's Artificial Intelligence (AI) technology assists users to generate music accompaniment and score like a professional composer.</p> | | |

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| HK-08 | NAME(S) | Prof. Rudolf Wu Shiu Sun / Dr. Vincent Ko Chi Chiu / Dr. Ron Ng Chi On / Prof. Roy Vellaisamy / Dr. Jill Chiu Man Ying |
| | ORGANIZATION | The Education University of Hong Kong |
| | TITLE OF ENTRY | A New Generation of Dissolved Oxygen Sensor Using Replaceable Photo-sensing Film |
| <p>Based on the new dissolved oxygen (DO) sensing method, a novel class of DO sensing films and devices have been developed. The DO sensing devices are unaffected by biofouling, thus providing a cost-effective DO monitoring over large areas of the water bodies, and thus the technology will contribute to the sustainable development of the aquatic environment, fish aquaculture, and fisheries resources.</p> | | |

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| HK-09 | NAME(S) | Ms Gao Jiahui / Ms Zhou Yi / Prof Philip Yu Leung-ho / Dr Shafiq Joty / Dr Gu Jiuxiang |
| | ORGANIZATION | The Education University of Hong Kong |
| | TITLE OF ENTRY | UNISON: Unpaired Cross-lingual Image Captioning |
| <p>To alleviate the problems of image captioning in the current market, UNISON is developed as a revolutionary system that can generate unpaired image captioning without relying on caption corpus. The integration of two AI frameworks includes: i) a cross-lingual auto-encoding process and ii) a cross-modal unsupervised feature mapping that can benefit the encoding process and achieve promising results for instant caption generation in the target language.</p> | | |

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| HK-10 | NAME(S) | Jill LEUNG, Chiu Yee / Leo MA, Chi Yuen / Leo LEE, Chi Kin |
| | ORGANIZATION | City University of Hong Kong |
| | TITLE OF ENTRY | Blockchain-Based Carbon Footprint Monitoring, Reporting and Verification Tool |
| <p>After the Paris agreement and COP26, leaders had agreed and set ambitious carbon neutrality targets, which require close monitoring, data disclosure, and review regularly. However, it is not an easy task for the industry as there are several challenges: poor data quality & management, different interpretations in carbon auditing guidelines, and a lack of resources for verification and validation. Thus, our team has researched and developed a POC prototype that can keep tracking, verifying, and reporting carbon emissions seamlessly with blockchain technology. And the result shows that the tool could work well and greatly enhance efficiency, accuracy, and reliability with a fully digitalized solution.</p> | | |

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| HK-11 | NAME(S) | Chow Sze Lok / Tam Pak Yan Chloe / Zhao Wai Yin |
| | ORGANIZATION | St. Mary's Canossian College |
| | TITLE OF ENTRY | Acredemic-chain |
| <p>According to the 2019 HireRight Asia-Pacific Employment Screening Benchmark Report, 20.8% of job seekers provided fake academic qualifications to employers in Hong Kong. Therefore, we developed the blockchain certificate-verification platform Acredemic-chain. Schools (issuers) can issue certificates to holders through the platform. Blockchains are difficult to tamper with, making Acredemic-chain more secure and reliable. The employer(verifier) can thus verify the integrity of job seekers' qualifications. The working environment will be more trustworthy and fair. Besides, workers will be able to complete their tasks more efficiently since they have the necessary qualifications.</p> | | |

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| HK-12 | NAME(S) | Wong Elizabeth Katelyn / Fong Venus Chi Yan / Hui Hoi Kay / Cheung Kar Cai Jasmyne |
| | ORGANIZATION | The LAM Foundation |
| | TITLE OF ENTRY | CARBON DIOXIDE SORBENT BALLS |
| <p>The oceans cover over 70% of the Earth's surface, they play a critical role in capturing CO₂ from the atmosphere. Around 25% of all CO₂ emissions are absorbed by the ocean, making it one of the world's largest 'carbon sinks'. Our invention is a black sphere pod made of specially designed unique water-soluble polymer maximizing Ocean Alkalinity Enhancement to reduce both ocean acidification and atmospheric CO₂ levels.</p> | | |

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| HK-13 | NAME(S) | Leung Lok Chi / Wong Ka Yin / Wong Yi Hang / Ho Ellen / Ho Elissa |
| | ORGANIZATION | The LAM Foundation |
| | TITLE OF ENTRY | Mango Helmet |
| <p>Inspired by "Mango Cube", our invention is the first one in the world applying elastic membrane mechanism for texture changing interface making it to perfectly fit to any head curvatures and can be folding flat for storage convenience. Our helmet will help keep you safe when you're cycling, and when you are not wearing it, it simply folds flat and slips into a bag or can be used as an Ipad holder or other creative uses. Its ground-breaking Multi-directional Impact Protection System contains individual hexagonal cells acting as an elastic suspension between our head and outer shell resisting linear and rotational forces.</p> | | |

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| HK-14 | NAME(S) | Tsui Sum / Chow Hang Yin / Leung Lok Yan / Chan Chak Fung / Chan Hoi Ching Evan |
| ORGANIZATION | The LAM Foundation | |
| TITLE OF ENTRY | Bio-waste Hemp Carbon Capture HVAC Filter | |
| <p>With a growing body of research linking to reduced cognitive ability, CO₂ is now being recognized as a real problem for indoor environments. Traditional building HVAC system is power consuming with conventional air filters having limited CO₂ adsorption and poor degradability. In US, it sends the equivalent of 260 Olympic-sized swimming pools filled with HVAC filters per year to the landfill. The unmatched ability of our Bio-waste Hemp Technologies has developed an easy to integrate, sustainable CO₂ scrubber, which cuts 60% HVAC air recirculation energy loads and maintaining safe levels of indoor CO₂.</p> | | |

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| HK-15 | NAME(S) | Chan Yik Chung / Po Hiu Tung / Chan Yu Shing / Hon Ki Ching |
| ORGANIZATION | Christian and Missionary Alliance Sun Kei Secondary School | |
| TITLE OF ENTRY | AI Search and Rescue on the Hill | |
| <p>Our invention aims to reduce the chances of hikers being in danger when they are lost by using drones the patrol on hills. The drone will patrol at a pre-written route and the camera on it will detect the surrounding with the aid of AI to see if there are any hikers who need help. If needy is found, photos and GPS locations will be uploaded to the rescue department. We believe our invention can greatly enhance the efficiency of rescuing to ensure the safety of hikers.</p> | | |

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| HK-16 | NAME(S) | Cai Gen / Fung Tin Yau / Zhang Jiacheng / Chan Chun Kiu / Huang Man Ki |
| ORGANIZATION | King's College | |
| TITLE OF ENTRY | Green Synthesis of Nanoparticles and Its Potential Medical Applications | |
| <p>Silver nanoparticles (AgNPs) were synthesised in an eco-friendly way using mainly natural reducing and capping agents. It was found that starch, alginate, chitosan, and okra extracts were reliable capping agents. These nanoparticles exhibited a significant antibacterial effect. They could crosslink with PVA to form hydrogels with outstanding flexibility. These enhance the potential of applying the AgNPs to wound treatment. The interaction of AgNPs with cysteine molecules was also investigated. Significant colour changes resulting from the interaction can be used to screen for proteinuria. A test-paper detection method was developed for low-cost, instant, and easy detection.</p> | | |

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| HK-17 | NAME(S) | Lo Hoi Tung |
| ORGANIZATION | CMA Choi Cheung Kok Secondary School | |
| TITLE OF ENTRY | Dry it Quick | |
| <p>This is a hat that can be useful for people for drying their heads automatically. Can be applied to all kinds of caps. As a result, it can fit most skull sizes. The portable design and user-friendly mechanism of the invention must be beneficial to customers. This idea can reduce the amount of electricity used while speeding up the blowing process.</p> | | |

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| HK-18 | NAME(S) | Chan Nga Hei |
| ORGANIZATION | CMA Choi Cheung Kok Secondary School | |
| TITLE OF ENTRY | PetFit | |
| <p>This invention is called PetFit. It is designed for cats and dogs. There are many fitness training machines for people in the markets. However, there are very few products designed for the pets as fitness trainer. This invention provides visual, audio stimulations to the pets. So, the pets can do exercise. There are many pet lovers in the world. They would care their pets so much and pay effort to prevent the pets having any health problems. Therefore, they are willing to spend money on their pets to keep fit and healthy.</p> | | |

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| HK-19 | NAME(S) | Prof. Michael K.H. Leung / Prof. Dennis Y.C. Leung / Mr. Frank H.T. Leung |
| ORGANIZATION | Cat Limited / City University of Hong Kong / The University of Hong Kong | |
| TITLE OF ENTRY | Solar nano-photocatalytic coating – the ultimate solution to marine fouling problems | |
| <p>All maritime vehicles and facilities suffer from marine biofouling and corrosion problems. Ship hull fouling causes poor fuel efficiency (30-40% reduction) and more carbon emissions. Conventional heavy-metal based antifouling paints can help mitigate the problems but the toxic chemicals seriously harm marine ecology. This is for the first time solar photocatalysis is adopted to function effectively under seawater to perform hull antifouling in an ecologically friendly manner. Although the sunlight transmitted into seawater is weak, its intensity is high enough to activate our newly designed non-metal codoped titania photocatalyst. The innovation has enormous potential leading towards carbon neutrality.</p> | | |

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| HK-20 | NAME(S) | Prof. XIE Haoran / Prof. WONG Man Leung / Prof. ZOU Di |
| ORGANIZATION | Lingnan University / Lingnan University / The Education University of Hong Kong | |
| TITLE OF ENTRY | Personalized vocabulary learning system based on artificial intelligence techniques | |
| <p>The invention provides a personalized word learning system based on artificial intelligence techniques (e.g., deep neural networks). Specifically, the word learning system first constructs task profiles and learner profiles based on involvement load and neighborhood, then obtains the representation for the two task profiles and the two learner profiles; and recommends word learning tasks and learning plans. By integrating the state-of-the-art artificial intelligence techniques, the system can generate reasonable recommended learning tasks and learning path, so that the problems like neglecting knowledge correlations and recommending similar learning tasks in existing intelligent word learning systems can be addressed.</p> | | |

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| HK-21 | NAME(S) | Chiu Chong Yin / Ng Kwan Yu / Ng Shing Hei / Chen Yik Chun |
| ORGANIZATION | Christian and Missionary Alliance Sun Kei Secondary School | |
| TITLE OF ENTRY | Home Treatment App | |
| <p>During the COVID-19 pandemic, students who lack awareness of their sitting postures, may increase the risk of having kyphosis while having online lessons. On the other hand, for the elderly, the pandemic has stopped many health check-ups services, causing them to be unable to diagnose whether they have kyphosis. We believe that our app can solve these problems and eventually helps people prevent diseases led by kyphosis even without the help of a doctor. To improve our app in the future, we might collaborate with professional physical therapists to add more kyphosis improvement exercises into our app.</p> | | |

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| HK-22 | NAME(S) | LAU CHING HEI |
| ORGANIZATION | Tung Wah College | |
| TITLE OF ENTRY | Green Writing Case | |
| <p>Common ballpoint pen tube is only suitable for a particular size refill in the market. So, I design this Green Writing Case for all sizes of ballpoint pen refills. It includes a plastic grip and a recycled drinking straw for easy grabbing the refill and an old conical tip cap to fix the position of the refill point. It promotes green living, and it is low cost for mass production.</p> | | |

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| HK-23 | NAME(S) | YEUNG TING KWOK / HOI CHEONG, KONG |
| ORGANIZATION | HALDANES | |
| TITLE OF ENTRY | Document Warehouse Management System | |
| <p>According to the rules of the Law Society in Hong Kong. There are different minimum retention periods of old files for different practice areas. A law firm must keep all the files in a document warehouse for a long period. The procedures of managing these files are more complicated than expected because you never know if the files in the warehouse can be destroyed or not even if they meet the minimum retention period. A good DWMS not only can help to simplify the procedures but can also reduce the cost of overdue documents and reduce the risk of human errors.</p> | | |

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| HK-24 | NAME(S) | Dr. Wending Pan / Dr. Yifei Wang / Miss. Sarah K. W. Leong / Dr. Yingguang Zhang / Prof. Dennis Y.C. Leung |
| ORGANIZATION | The University of Hong Kong / Harbin Institute of Technology (Shenzhen) | |
| TITLE OF ENTRY | Ultra-low-cost and high-performance aqueous Al-ion batteries | |
| <p>Aqueous Al-ion rechargeable batteries (AAlBs) show the merits of high safety, high theoretical capacity, high volumetric energy density and low price. By using an inexpensive water-in-salt electrolyte, our invented AAlBs solved the H₂ evolution problem on the anode and thus low-cost aluminum foil can be adopted as anode. With graphite cathode, this battery shows an excellent specific capacity of 800 mAh g⁻¹ with a high energy density of 1100 Wh kg⁻¹, which shows great potential for wearable electronic applications with the fast-charging feature. Moreover, the aqueous electrolyte we developed is roughly 2% the cost of traditional electrolyte of Al-ion batteries, contributing to its ultra-low cost.</p> | | |

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| HK-25 | NAME(S) | Yang Yuen Ting / Tse Yee Lam / Chuang Kam Yuk / Lee Pui Yan |
| ORGANIZATION | Lai King Catholic Secondary School | |
| TITLE OF ENTRY | Girl's Secret | |
| <p>Abnormal menstruations could pose a threat to their lives. However, many women usually have little awareness and understanding about their menstruations. "Girl's Secret" uses AI to analyze menstruations of girls based on neural network model trained to distinguish different blood colors and blood flow on menstrual pads. Girls only need to use a special diagnostic tool to take photos when changing their sanitary pads. The system analyses the menstrual conditions, and the data will be integrated in the cloud. It helps early detections of health problems and helps doctors understand daily conditions of patients.</p> | | |

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| HK-26 | NAME(S) | Tsz Ki Lam / Dahua Shou / Jinhao Xu |
| ORGANIZATION | The Hong Kong Polytechnic University | |
| TITLE OF ENTRY | AC Skin: Personalizing Thermal and Moisture Management | |
| <p>Air-Conditioned (AC) Skin is a nature-inspired smart fabric that allows skin thermal and moisture management simultaneously. AC Skin facilities anti-gravity, one-way sweat transport for superior dry and cool comfort. It also enables ultra-fast sweat evaporation with a responsive heating mode, avoiding after-chill effect and adapting to winter activities. The innovation of AC Skin is realized by scalable production technologies, which can benefit a wide range of consumers including outdoor enthusiasts and highly active professionals in different thermal environments.</p> | | |

HUNGARY

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| HU-01 | NAME(S) | Bandi József (Lenti) |
| ORGANIZATION | Ötlet Club 13 Egyesület | |
| TITLE OF ENTRY | Spatial puzzle game | |
| <p>More than 100 pieces of small balls of eight different colours specifically embedded in a handball-sized, 30, transparent, smooth-surfaced sphere create the possibility to display a wide range of colour combinations during the game. Not only is it applicable to set or arrange coloured balls in the traditional "to and from" way, but beyond that, the goal of the game is to display almost countless and increasingly complex colour variations (number combinations) etc. Kids and adults alike will love it, since both simple and complex tasks can be performed. It improves dexterity, concentration, combinatorial skills, endurance, etc. Due to its simple structure and material, it is inexpensive and easy to manufacture and sufficiently durable.</p> | | |

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| HU-02 | NAME(S) | Ludas Ferenc (Tata) |
| ORGANIZATION | Ötlet Club 13 Egyesület | |
| TITLE OF ENTRY | Electric bio-spraying | |
| <p>The high voltage transformer (60.000 – 80.000 V) is operated by a 12V battery. By a fog like water spraying of the plant located between the positive and negative poles, the circuit closes on the effect of the water's conductivity and creates a step voltage which kills the pest on the plant. It does not harm the plant. If we do not set the poles directly on the spraying water, electric arch is developed, which creates ozone. Manual and some mechanical solutions can be seen on the drawings. Advantages: cheap, chemical free, does not contaminate the soil.</p> | | |

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| HU-03 | NAME(S) | Ursinyi János (Hajmáskér) |
| ORGANIZATION | Ötlet Club 13 Egyesület | |
| TITLE OF ENTRY | Reducing consumption and carbon dioxide emissions from internal combustion engines by changing the combustion chamber | |
| <p>Reducing consumption and carbon dioxide emissions of internal combustion engines by changing the combustion chamber. Engines operate at partial load with poor efficiency. A double piston built in the cylinder head can improve the efficiency with at least 20%, thus reducing carbon dioxide emissions by the same percentage. The combustion chamber changes automatically depending on the load. Installation in the cylinder head goes with a minimal additional cost. There are two spaces in which the double piston can move. In the basic position, the double piston is in the lower position; the combustion chamber is small at low loads, so the compression ratio is higher, improving efficiency. The upper chamber is filled with oil. The increased pressure at higher loads can push the oil out of the upper chamber, and the lower chamber increases the combustion chamber. As the combustion chamber is increased, the compression ratio will not change significantly at higher power / higher cylinder charge.</p> | | |

INDIA

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| IN-01 | NAME(S) | Aryan Singh |
| ORGANIZATION | SR. Public.sr.sec. School | |
| TITLE OF ENTRY | Ai-Vr2.0 Agriculture All in One Robot | |
| <p>Farmers are looking for new approaches to use technology to cut costs and reduce labor hours. The Internet of Things (IoT) has brought an uprising revolution to many fields of common man's life by making everything intelligent, perceptive, smart, and trained. In previous or nowadays farmer need animal, tractor, etc. for land they use different types of machines to perform individual function. My idea to build smart and All-in-One agriculture robot.</p> | | |

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| IN-02 | NAME(S) | Rajat Vardhan |
| ORGANIZATION | IIT Kanpur | |
| TITLE OF ENTRY | AgroNxt- SAAS platform Digitalizing the Agri-ecosystem | |
| <p>SAAS platform to connect farmers with Agri-input Shops, FPOs, Department and Decision makers and empowers them with localized Plot level Crop Advisory, Business & Customer Relationship Management with integrated Payment solutions & other Services.</p> | | |

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| IN-03 | NAME(S) | Dishant Mishra |
| ORGANIZATION | IIT Kanpur | |
| TITLE OF ENTRY | Deep Storage: A gravity energy storage system | |
| Deep Storage uses simple physics, to store energy in gravitational potential by upping a weight through a height, or to put it simply it's a pumped Hydro System without water. Deep Storage track variant uses natural inclination to store solar and wind energy by rail, wagon and ultra-low-cost deadweight packed with industrial waste. | | |

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| IN-04 | NAME(S) | Koushik Bose Himansu Sekhar Dash |
| ORGANIZATION | IIT Kanpur | |
| TITLE OF ENTRY | Azeedo : Protecting Crops, Enhancing life | |
| For Farmers and gardeners, who suffer losses due to pest, insect and fungal infection, Crop-defender, a product of Azeedo, addresses all your farming and gardening needs by protecting crops from pests, insects and fungal infection and by increasing productivity. | | |

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| IN-05 | NAME(S) | Hari Shankar |
| ORGANIZATION | IIT Kanpur | |
| TITLE OF ENTRY | Agnys Waste Management: Aiming to develop a circular economy model around waste management and agriculture in India | |
| Drum Composting technology converts the waste into compost in just 12-20 days, making it one of the fastest composting methods. Existing methods like vermi compost and biogas plants which take 40days to 6months depending on the initial processes, | | |

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| IN-06 | NAME(S) | Manibrata Paul / Amlan Datta |
| ORGANIZATION | IIT Kanpur | |
| TITLE OF ENTRY | BomLife: HARVEST HEALTH & HAPINESS | |
| End to end bio-organic solutions for commercial agriculture. BomLife Hi-tech Organic ensures uncompromised yield while mitigating the climate change issues. Our Bio-organic solutions are regenerative which result in consistent soil fertility and productivity | | |

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| IN-07 | NAME(S) | Kaustubh Srivastava |
| ORGANIZATION | GLA University, Mathura | |
| TITLE OF ENTRY | ASSWAN Water Purifier | |
| Asswan water purifier is an advance distillation-based water purification system which can pure nearly all sort of impure water into pure form. The major advantage Asswan upholds is that it can eliminates all sorts of notified problems associated with existing purifiers when dealing with high TDS values, water wastage (constraints in nearly all the metropolitan cities in the world). Despite of the distillation process involved in our system we have managed to purify water using low energy consumption which has made it possible to withstand on solar power making it the most economical way of water purification. | | |

INDONESIA

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| ID-01 | NAME(S) | Herlin Sri Wahyuni / Faridha Illiyuni / Fahrur Rozi / AR Amien / M. Mashuri Utama |
| ORGANIZATION | Brawijaya University | |
| TITLE OF ENTRY | E-Farm : Agriculture Management In Improving Creative Economic Development In The Middle Of The Covid-19 Pandemic | |
| E-farm is a mobile application that provides agricultural products such as fresh vegetables, so it allows consumers to buy fresh vegetables from the mobile app. In addition, our invention also provides needs for farmers to optimize their farms through features to buy agricultural tools, a consultation platform, and nutritional calculators. Through this innovation, we could help farmers cutting the distribution lines from middlemen which causes losses for them. In the other hand, Agricultural MSMe's could sell their handcraft and broaden their market through this innovation. | | |

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| ID-02 | NAME(S) | Edysul Isdar |
| ORGANIZATION | Alauddin State Islamic University | |
| TITLE OF ENTRY | Bagasse Bioelectricity: Alternative Electrical Energy from Sugar Cane Bagasse on MFC Technology with the Addition of Cellulose Bacteria from Cow Tripe Waste | |
| At present, Indonesia's energy needs are still very much dependent on fossil energy, while fossil energy is running out. Therefore, the bagasse bioelectricity innovation is offered as an alternative electric energy source by utilizing MFC technology from bagasse waste and cow tripe waste. This study aims to determine the effectiveness of bagasse bioelectricity innovation as an alternative electrical energy source. The process used is the reactor model of MFC technology with a two-chamber system. The experimental results show that bagasse waste can generate the highest power density value of 906.5 mW/m ² at 12 hours and the lowest power density value of 4655 mW/m ² at 60 hours, making bagasse bioelectricity a solution to renewable energy needs in Indonesia | | |

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| ID-03 | NAME(S) | Ihham Maulana Abdullah / Moch. Alfian Ainur Ridho Humaidi / Ana Maulida Fajria Filqis / Habibah Khair Lu'lu' / Syela Urfani |
| ORGANIZATION | MA MODEL ISLAMIC SENIOR HIGH SCHOOL ZAINUL HASAN GENGGONG | |
| TITLE OF ENTRY | TESION BUDDY APPS AS A SMART APPLICATION FOR CONTROLLING THE BLOOD SUGAR LEVELS | |
| <p>Hyperglycemia is the inability of body producing insulin which will affect the failure of tissue and organ systems. The sufferers of diabetes mellitus reached seven million and it's predicted witnessing the increase number in 2030 to twelve million. In fact, there is opportunity to tackle this problem through the technology. Since the use of smartphones in Indonesia reached 167 million which was 89% of population. Hence, we came up with the new innovation Tesion Buddy Apps to help society to control their blood sugar levels in daily basis, preventing the increase numbers of diabetes mellitus.</p> | | |

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| ID-04 | NAME(S) | Noor Khumaidah / Syahrana Amri / Anggun Rizqi Wijayanti / Safrina Nurul Fitriah / Muhammad Adrik Alfaraodis |
| ORGANIZATION | Universitas Muria Kudus | |
| TITLE OF ENTRY | Explore The Javanese Language to Meet The Pandawa | |
| <p>The Javanese language is the daily language used to communicate in the Java region. In addition, there is a famous culture in Java. We call Wayang Pandawa. The team from UMK innovated the Meepanjava (Meet the Pandawa and Java Language Learning) website that aims to introduce and preserve the wayang culture while learning the Javanese language through the digital web. This research uses the RnD (Research and Development) method, and the Borg and Gall theory called "The RnD Cycle". The main subjects in this study were grade 3-4 students who were still in the early stages of improving their language.</p> | | |

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| ID-05 | NAME(S) | Halimatus Sa'diyah / Yunita Ayu Larasati / Maura Ananda Sabrina / Asa Suryanisa |
| ORGANIZATION | Universitas Jenderal Soedirman | |
| TITLE OF ENTRY | ICO (IPAL Myco): Mini Wastewater Treatment (WWT) Based on Mycoremediation Solution to the Batik City of Pekalongan | |
| <p>The IPAL Myco (ICO) is a mini fungal-based WWT tool which mobilized by the Luffa, a cylindrical-natural sponges. The ICO consists of some components called Immobilized fungi, waste drums, and mechanical tools. The motoric-driven mechanical too shakes the waste inside the drum to filtrate it. The ICO uses luffa - immobilized fungi to filter the wastewater, here, the fungi will grow on the luffa's surface. The mechanical tool shakes the luffa and so waste. Because of the uses of fungi, therefore said to be his innovation is environmentally friendly.</p> | | |

IRAN

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| IR-01 | NAME(S) | Avesta Mohammad Ebrahim / Davoud Beheshtzadeh / Davood Jafari |
| ORGANIZATION | Columbia International College Hamilton, Ontario, Canada / The First Institute of Inventors and Researchers in I.R. IRAN | |
| TITLE OF ENTRY | Design And Making of Safe Place in Structures Resistant Against Earthquake and Impact That Saves the Lives of People During Hazards and Accidents | |
| <p>The main objective of this specialized design and the invention resulting from it is to design and make a safe space resistant against stroke and earthquake that saves the lives of people during hazards and accidents. This space consists of a 3D metal network which can be easily made and installed by a professional welder and forger in the city and its light weight and easy installation and capability of being concealed under the finishing and its low cost are among other characteristics of this design. It protects its contents at the time of incidents, and it has been optimized several times using specialized soft wares of LS-DYNA and ANSYS against penetration, stroke and earthquake. A 3-storey concrete building constructed with common materials was made and stimulated under real earthquake conditions to prove the positive analytical and modeled results and the great results were obtained. This research project has been successfully completed with the cooperation of the office relations with Tabriz University of technology at national specialized committee of concrete under supervision of Iranian Scientific Organization of civil engineering students and can be executed in practical and industrial projects.</p> | | |

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| IR-02 | NAME(S) | Davood Jafari / Ali Jafari / Davoud Beheshtzadeh |
| ORGANIZATION | The First Institute of Inventors and Researchers in I.R. IRAN | |
| TITLE OF ENTRY | High-Degree Spherical Rotator | |
| <p>High-Degree Spherical Rotator is a new generation of rotator systems that can cover 270-degree motion easily with two small linear actuators. The High-Degree Spherical Rotator system can create 3d movements by converting the 3d coordinates to the polar system with a new technique of mechanical joints. This structure can be placed with old simulator seats, which decreases the systems' cost, time, and complexity. The High-Degree Spherical Rotator structure has several applications in different situations, such as medical instruments, industrial robots, flight simulator rooms, and gaming simulator seats. The High-Degree Spherical Rotator system has many advantages, some of which are listed below:</p> <ol style="list-style-type: none"> 1. Rotating the mobile plane with two jacks quickly and easily. 2. Covering the 270-degree motion. 3. Controlling the two jacks with two independent electrical commands. <p>Compared to pneumatic and hydraulic systems, the x system is a low- maintenance system and doesn't need other kinds of energy conversion.</p> | | |

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| IR-03 | NAME(S) | Yasna Soltanian / Davood Jafari / Seyyedmohammadmahdi Azimi / Mehdi Khalessi / Davoud Beheshtizadeh |
| ORGANIZATION | The First Institute of Inventors and Researchers in I.R. IRAN | |
| TITLE OF ENTRY | Design and Production of Crystalline Water – Proof Penetrative for Concrete by Nano Technology | |
| <p>Crystalline water – proof penetrative by Nano is a special chemical compound with some its components that have considerable permeability. Concrete protection is started as a result of reaction of different elements in solution when contacting the surface of concrete. These materials deeply penetrate the concrete through capillary cavities of concrete and using osmotic pressure mechanism. Crystals, formed as a result of reaction of different chemicals with each other and water, block the capillary cavities of concrete and cracks resulting from shrinkage and drive the moisture out. This process occurs because of water pressure or against water pressure. When there is no moisture, the components of penetrating material will inactively remain in the environment and when water penetrates, the penetrating material will contact the moisture and will be activated, and the chemical reaction and sealing process will be automatically repeated and will progress in concrete more deeply. In other words, the components of penetrating material will continuously do sealing and re-sealing according to their chemical nature.</p> | | |

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| IR-04 | NAME(S) | Hanieh Keyhani |
| ORGANIZATION | The First Institute of Inventors and Researchers in I.R. IRAN | |
| TITLE OF ENTRY | Home obesity treatment device Combination of ultrasonic wave and freezing with vibration | |
| <p>It is a device that can be used to treat obesity at home. The function of this invention is to break down fats by the ultrasonic wave and freeze fats. We add more vibration to the device to help break down fats. We also have an app for checking and helping effectively.</p> | | |

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| IR-05 | NAME(S) | Mahya Houchani / Mojtaba Darbaniyan / Hossein Parvini Sani / Pari Alavi / Ashkan Khatibi |
| ORGANIZATION | The First Institute of Inventors and Researchers in I.R. IRAN | |
| TITLE OF ENTRY | The device and method of the greenhouse generating energy and purifying the air in the facade of the building | |
| <p>In this invention, solving the problems of energy consumption in high-rise buildings and air purification in big cities, along with the beauty of the facade of the building, has been considered. With the use of living plants and filters, the air is purified and with the help of the convection law, it is placed between two layers of glass and the main wall of the building, which creates an electric current at the top of the structure by passing through the turbine. To cover the roof structure, photovoltaic panels have been used in a sloping manner. Also, by using the water absorbing gel from the air, the water required for the growth of plants and filter washing is provided.</p> | | |

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| IR-06 | NAME(S) | Nikan Pouraslani |
| ORGANIZATION | The First Institute of Inventors and Researchers in I.R. IRAN | |
| TITLE OF ENTRY | Cooling Gaming Fan | |
| <p>There is a fan for gamers that attaches to the controller. A rechargeable battery powers it. It contains one small fan with two narrows guided to the bottom of the controller and it can be turned on or off by a touch sensor on the top of the device. The main purpose of this invention is to cool the gamers' hand while they are playing and prevents sweating caused by the amount of stress of professional gaming.</p> | | |

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| IR-07 | NAME(S) | Radmehr Bayat |
| ORGANIZATION | The First Institute of Inventors and Researchers in I.R. IRAN | |
| TITLE OF ENTRY | Educational device for learning piano using image processing | |
| <p>This device helps you to learn piano more easily and more enjoyable. This device has placed the piano above the piano keyboard and scans the entire keyboard. And because of the camera it has, it can get help from the image processing system and detect the keyboards. This device is placed on a telescopic base and is fully adjustable. You can also use this device for any piano... in the next step by selecting the desired song from a smart device, such as a phone, tablet, etc., our smart device will measure the notes of your chosen music on the keyboard with a laser. That is, the shape of the notes is transferred to the desired keyboard like a light, and it turns red when you make a mistake. After some time, the process of learning and playing the piano becomes easier, and it can be said that the cost of participating in schools is also reduced and it is economical. The image processing system in the invention can facilitate all our needs for teaching and learning.</p> | | |

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| IR-08 | NAME(S) | Monireh Kheirdideh |
| ORGANIZATION | The First Institute of Inventors and Researchers in I.R. IRAN | |
| TITLE OF ENTRY | Inline Magazine Lancet Device | |
| <p>The inline magazine Lancet device has an innovation that uses several special tiny needles that are placed inside the device like a tip, and one of its important features is the safety box that is placed next to the device into which the needle is pushed, which has no contact. It also has a high application, in different places such as home use, at medical centers, and in different departments of the hospital, which has made it convenient and easy to take blood sugar from a large number of patients.</p> | | |

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| IR-09 | NAME(S) | Seyed Ahmadreza Ahmadi |
| ORGANIZATION | The First Institute of Inventors and Researchers in I.R. IRAN | |
| TITLE OF ENTRY | Smart nail with the ability to control vital signs | |
| A smart artificial nail with the ability to be added to the original nail and measure vital signs such as blood oxygen level, heart rate and blood pressure and send information via Bluetooth to mobile phones can play an important role in controlling people's health. | | |

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| IR-10 | NAME(S) | Hamed Eini |
| ORGANIZATION | The First Institute of Inventors and Researchers in I.R. IRAN | |
| TITLE OF ENTRY | Earthquake-resistant brick mold with silica refractory static structural support mechanism | |
| Construction of this mold for the production of brick has always been very common in the building; however, the use of the existing bricks has always led to the fall of walls during earthquakes. This fall has been the main problem for buildings and structures and creates great hazards for the inhabitants. Therefore, the invention concerned with the following goals has been designed. | | |
| <ol style="list-style-type: none"> 1. Increasing the strength of the built walls 2. Prevention of fall of walls in earthquake 3. Reduction of damages and dangers resulting from the damages created by walls 4. Resistance against high temperature | | |

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| IR-11 | NAME(S) | Majid Hazeri |
| ORGANIZATION | The First Institute of Inventors and Researchers in I.R. IRAN | |
| TITLE OF ENTRY | Hybrid engine construction in the form of consecutive (contra-rotating) propellers for use in propeller light aircraft | |
| As a hybrid system with a combination of fuel and electric motors, this system could be an alternative to traditional fuel engines. The system works by connecting the fuel motor to the front propeller via a series of shafts and bearings that pass through the electric motor. It revolves in the same direction as the engine (possibly counterclockwise). | | |

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| IR-12 | NAME(S) | Omid Modiramani |
| ORGANIZATION | The First Institute of Inventors and Researchers in I.R. IRAN | |
| TITLE OF ENTRY | Blood collection catheter with long-term implantation capability | |
| This invention is called a blood collection catheter with the ability to be implanted for a long time, which is related to the area of blood collection in medical sciences. It will be used in hospitals and medical centers for blood sampling. In the inpatient departments of hospitals, blood sampling is done several times a day, which is both painful for the patient and finding a healthy and suitable vein for the person who performs the blood sampling will gradually become more difficult during the hospitalization period. As a result, this catheter was designed to act as a long-term and impenetrable tunnel from outside the body into the vessels. This was possible by designing elastic structures inside the flexible tube of this catheter. This catheter is designed in such a way that a part of it is fixed on the body and a part is placed inside the vein, and by means of the internal elastic coating, it prevents the unwanted entry of blood into the catheter and outside the body, and whenever there was a need to draw blood from the client, blood is drawn from inside it by means of a syringe or needle. | | |

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| IR-13 | NAME(S) | Pourya Zarshenas / Roya Sedghi / Bahareh Heidari |
| ORGANIZATION | The First Institute of Inventors and Researchers in I.R. IRAN | |
| TITLE OF ENTRY | Well-dispersed N-heterocyclic carbene–palladium complex anchored onto poly(acrylic acid)/poly(vinyl alcohol) nanofibers: Novel, superior and eco-friendly nanocatalyst for the Suzuki–Miyaura cross-coupling reaction | |
| Polymeric nanocomposite@Pd is one of the crown jewels for the catalysis of cross-coupling reactions. This Pd nanocomposite on various polymeric supports has been well established to catalyze cross-coupling reactions, but its preparation supported on the surface of nanofibers has been largely overlooked. Herein, we report the preparation of a poly (acrylic acid) (PAA)/poly (vinyl alcohol) (PVA) nanofiber-supported N-heterocyclic carbene–Pd complex. The first step involves the preparation of PAA/PVA nanofibers using the electrospinning process. The second step comprises the reaction of water-soluble poly (ethylene glycol)-imidazole with modified PAA/PVA nanofibers followed by the introduction of PdCl ₂ to successfully achieve the desired nanocomposite. The catalytic activity of this nanocomposite was examined in the expeditious synthesis of biaryl compounds using the Suzuki–Miyaura cross-coupling reaction under mild reaction conditions. The composite offers multiple features such as good hydrophilic properties, high surface area, admirable potential in repeatability tests, and being recyclable for several runs without significant loss in its activity under the optimum reaction conditions. Our results showed the superior applicability of this novel nanocatalyst in terms of conversion reaction, yields, and turnover frequencies. The structure of the catalyst was characterized using a variety of techniques. | | |

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| IR-14 | NAME(S) | Amir Cheshmi |
| ORGANIZATION | The First Institute of Inventors and Researchers in I.R. IRAN | |
| TITLE OF ENTRY | Magnetic shock absorber based on the repulsion of similar magnetic poles | |
| <p>The operating principle of the magnetic shock absorber is the repulsion of similar magnetic poles. The above magnetic shock absorber consists of the following parts: A two-piece main rod, a body, 2 coils, 2 aluminum sheets, and magnets. The function of the coils is to generate a magnetic field and exert reverse gravity on the aluminum sheet system. The application of reverse gravity to the aluminum sheet system results in limited movement of the magnets; the aluminum sheet limits the movement of the magnets relative to the electric current. The working principle of this shock absorber is the repulsion of similar magnetic poles.</p> | | |

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| IR-15 | NAME(S) | Seyed Ali Tabaei Khaledi |
| ORGANIZATION | The First Institute of Inventors and Researchers in I.R. IRAN | |
| TITLE OF ENTRY | Two-piston smart valve with adjustable tire inflation | |
| <p>Smart valve with adjustable tire inflation which consists of the following parts: 1. Air outlet and air inlet 2. Adjustable button with air outlet capability 3. Air inlet ducts 4. Air adjustment piston inside the tire. The adjustment of car tire pressure in this design is done automatically and manually. The designed piston is essentially a two-way piston, but because we use the manual valve mode, we can activate the piston with a mechanical side and in the automatic mode, the smart valve adjusts to the appropriate proportion according to the weight and pressure of the tire, so that the car air is always adjusted.</p> | | |

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| IR-16 | NAME(S) | Faezeh Ghasemizadeh Tamar / Saba Behrouznia |
| ORGANIZATION | The First Institute of Inventors and Researchers in I.R. IRAN | |
| TITLE OF ENTRY | Magnetic device for dental implant surgery | |
| <p>This device facilitates implant surgery by using electromagnetic force instead of mechanical hand force. This device consists of two parts, a magnetic clamp, and a magnetic angle. With this device, instead of using the usual angles and ratchet, by applying a magnetic field outside the patient's mouth, the process of placing or removing the implant can be facilitated.</p> | | |

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| IR-17 | NAME(S) | Ali Farhadi Andarabi |
| ORGANIZATION | The First Institute of Inventors and Researchers in I.R. IRAN | |
| TITLE OF ENTRY | PEGylated TAT-Efsevin-TA as an antiarrhythmic agent with favorable effect on heart failure caused by arrhythmia | |
| <p>PEGylated TAT-Efsevin-TA compound is an effective anti-arrhythmic agent and improves heart failure caused by arrhythmia. TAT acts as a cell and mitochondrial membrane penetrating peptide, and TA is a targeted drug delivery agent which transports efsevin into the heart tissue efficiently.</p> | | |

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| IR-18 | NAME(S) | Amir Piryaei / Hamid Reza Rezaei / Mahdi Goodarzi / Mohammad Torkashvand |
| ORGANIZATION | The First Institute of Inventors and Researchers in I.R. IRAN | |
| TITLE OF ENTRY | 9-Degree Wrist Freedom Robot for Surgical Instruments | |
| <p>Robendy is a versatile 9-degree freedom surgery robot with different size and any movement that the surgeon wishes to make can be operated through his/her wrist thus enabling surgeons to perform complicated procedures successfully.</p> | | |

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| IR-19 | NAME(S) | Saeid Abazari |
| ORGANIZATION | The First Institute of Inventors and Researchers in I.R. IRAN | |
| TITLE OF ENTRY | Portable Hydrogen Generator Device with Potential of Power Generation from Humidity | |
| <p>This system can produce hydrogen gas without the need for storage tank. And only if the car is on, the system produces hydrogen gas and this produced hydrogen is consumed almost simultaneously, so there is no danger. One of the most important features of this system is starting the device, which is done by hydrogen gas.</p> | | |

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| IR-20 | NAME(S) | Seyedalinaghi Tabatabaieyfi |
| ORGANIZATION | The First Institute of Inventors and Researchers in I.R. IRAN | |
| TITLE OF ENTRY | Gravitational engine (turning elevators into electricity generating generators) | |
| <p>Using mechanical science and science of physics and elevator industry, I have Turned the gravitational force of the earth. Turned into movement in the elevators. This movement went back and does not require electricity or initial start.</p> | | |

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| IR-21 | NAME(S) | Shahram Ramezani |
| ORGANIZATION | The First Institute of Inventors and Researchers in I.R. IRAN | |
| TITLE OF ENTRY | Flexible Ball Union | |
| <p>This invention is installed after the city gas regulator and helps us eliminate the gas leakage forever. Due to its flexibility, the problems caused by earthquakes, misalignment, contraction, and expansion in the gas piping system will no longer have an effect on gas leakage, and it will be prevented.</p> | | |

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| IR-22 | NAME(S) | Vahid Salehi / Azadeh Najafi / Dejeh Monfared |
| ORGANIZATION | The First Institute of Inventors and Researchers in I.R. IRAN | |
| TITLE OF ENTRY | Smart Assistant Legal System | |
| <p>This invention is intelligent consulting legal system using artificial intelligence technology. This mechanism has an App that can be installed in cellphone, tablet, computer and other electronic devices. So, that everybody (lawyers, ordinary people, law firms, etc.) who have legal problems in various legal fields can use this mention app easily worldwide.</p> | | |

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| IR-23 | NAME(S) | Fatemeh Sharifioun |
| ORGANIZATION | The First Institute of Inventors and Researchers in I.R. IRAN | |
| TITLE OF ENTRY | Smart Compact Gadget for Cars | |
| <p>This smart invention is an alarm system for cars that helps people by notifying them of any kind of impact that comes upon the car, and if any other action were needed, the device would do it for the user. Also, this innovation is very small in dimensions and looks like a business card. Moreover, if anything happens to the vehicle, this innovation will know, because of the sensors it has for the temperature, oxygen, etc., and will call the authorities such as the fire department, the insurance company, the police, etc. Also, when the insurance agent is assessing the damage done to your car, you can get a report of the accident using the device and give it to the agent.</p> | | |

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| IR-24 | NAME(S) | Elina Eslami / Kasra Eslami |
| ORGANIZATION | The First Institute of Inventors and Researchers in I.R. IRAN | |
| TITLE OF ENTRY | Smart Die Casting | |
| <p>This invention provides a smart way of cooling or heating in the die casting process. It comprises a temperature sensor, a fan, a heater, a controller, and a display. The temperature sensor and heater are connected to a cast, and the fan circulates air around the cast. The controller turns the fan and heater on and off according to the cooling curve of the molding material in the cast. So, the die casting cooling curve is controllable and can be used for a reliable die casting process.</p> | | |

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| IR-25 | NAME(S) | Maede Mostaghimi / Mohammad Sadeghi |
| ORGANIZATION | The First Institute of Inventors and Researchers in I.R. IRAN | |
| TITLE OF ENTRY | Half gloves preventing arthritis of the thumb joint | |
| <p>This invention can help prevent osteoarthritis of the thumb joint using existing sensors. When the thumb bends too much, it can alert the person with vibration and prevent osteoarthritis with long-term use. The purpose of this invention is to prevent osteoarthritis in middle age and tries to prevent inflammation and pain in the joints of the thumb. One of the functions of this device is to check the level of emotions and feelings such as stress and discomfort, which is calculated by the amount of pressure a person puts on the thumb, and these data are processed and the level of daily emotions of a person can be measured with this half glove. The sensors in this device measure the pressure and bending of the thumb, and the received and processed data are sent to a dedicated application through the Internet of Things.</p> | | |

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| IR-26 | NAME(S) | Somaiyeh Zeinali / Yaghoob Safinia |
| ORGANIZATION | The First Institute of Inventors and Researchers in I.R. IRAN | |
| TITLE OF ENTRY | Design and manufacture of safe peripheral venous catheter to prevent intra-arterial injection error | |
| <p>This invention is designed and developed to provide a solution to the needling injury problem. Needle stick Injuries (NSIs) are injuries that are caused by accidental scratching or cutting of the skin by a variety of needles. Needle stick injury often occurs during activities such as transfusing blood and blood products, sampling, disposing of needles, collecting excreted material, and transferring blood and secretions. In this type of design, there is no change in the main part of the catheter, but by special design and adding the desired part, the needle sticking is prevented. A special design has been made for ordinary catheters, which is used to lock the needle by a cover after using the needle and prevent the damage caused by the needle. In this model, a metal piece is outside the impeller part of the needle. There is a box-like, inside it is a piece that has a spring-like property and after pulling out the needle, it closes the inlet path and causes the needle to be trapped inside the box and prevents the needle from sticking.</p> | | |

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| IQ-01 | NAME(S) | Prof. Dr. Abdulsada A. Rahi / Assist Prof. Dr. Magda A. Ali / Dr. Zaid A. Abdulabbas |
| ORGANIZATION | College of Science, Wasit University | |
| TITLE OF ENTRY | Green synthesis and treatment of silver nanoparticles from <i>Leishmania major</i> in Iraq | |
| <p>Nanoparticles (NPs) play an important role in the diagnosis and treatment of diseases in consequence of their larger surface areas in comparison to the bulk material. Among the variety of nanomaterials, metal nanoparticles (MNPs) present unique physical, chemical and biological properties. The present study was evaluated the anti-<i>Leishmania</i> effect of silver nanoparticles on <i>Leishmania major</i> based on investigation of their action on various cellular parameters of the promastigote and amastigote forms of parasite.</p> | | |

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| IQ-02 | NAME(S) | Prof.dr.Ihsan Edan Abdulkareem Alsaimary / Msc.Hussein Naem Aldhaheeri / Prof.Dr.Murtadha.M.Almusafer |
| ORGANIZATION | University of Basrah – College of Medicine – Department of Microbiology | |
| TITLE OF ENTRY | A novel and modern techniques for early diagnosis of prostatitis and prostate cancer (prostitis) for Iraqi patients by using new biomarkers | |
| <p>In this invention, new and developed new methods were used to detect different receptors (TLRs) isolated from patients with prostatitis by both phenotypic and molecular methods with the study of prostate specific antigen (PSA) titers and the detection of receptors (TLRs) by flow cytometry. This study shows the effect of PSA level on patients with prostatitis and control group, with P-value <0.0001 therefore the study shows a positive significant between elevated PSA levels and Prostatitis.</p> | | |

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| IQ-03 | NAME(S) | Prof.dr.Ihsan Edan Abdulkareem Alsaimary / Dr.Nidham M.Jamalludein / Dr.Wijdan N.Almousawi / Dr.Dania.M.Alturaihi / Dr.Nael H.Alnazal |
| ORGANIZATION | University of Basrah – College of Medicine – Department of Microbiology | |
| TITLE OF ENTRY | Creation and preparation of a new international transport medium (MICROBASMED IQ VTM) for transport and preserve of corona virus (covid-19) samples | |
| <p>A new transport medium used to store samples of samples taken from a patient with Covid-19 virus was used for transmission and diagnosis using internationally approved molecular methods. The new medium is called the green color MICROBASMED IQ VTM. The medium can be used to preserve and transmit viruses with DNA, RNA and DNA. The medium contains in its composition sugar glucose and fetal albumin in addition to containing a group of salts with special concentrations that suit the need of the Corona virus and the infected cell for life and survival.</p> | | |

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| IQ-04 | NAME(S) | Prof.dr.Ihsan Edan Abdulkareem Alsaimary / Prof.Dr.Khalil I.Alhamdi / Prof.Dr.Sundis S.Baker / Prof.Dr.Kawther H. Mehdi |
| ORGANIZATION | University of Basrah – College of Medicine – Department of Microbiology | |
| TITLE OF ENTRY | A new international vaccine candidate for human eczema: <i>Staphylococcus aureus</i> superantigens (Staphylogen) Inducing Atopic Dermatitis/ Eczema Syndrome in Human | |
| <p>A new technique of five steps were used - as a first time internationally-to isolate, purify, identify, and characterize the <i>Staph. aureus</i> exotoxin (staphylogen / or staphylogenic protein as a superantigen), where its purity and molecular weight were evaluated by using Polyacrylamide gel electrophoresis (PAGE 7.5%).</p> | | |

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| IQ-05 | NAME(S) | Prof.Dr.Shemal Younis Abdulhadi Aljbouri / MSC.Othman Akram Mahmood / Prof.dr.Ihsan Edan Abdulkareem Alsaimary |
| ORGANIZATION | University of Mousl – College of Education for Pure Science – Dept. of Biology | |
| TITLE OF ENTRY | Extraction and purification of Lovastatin from a new locally isolate of <i>Laetioaporus sulphureus</i> and evaluate of its anti-cancer activity effectiveness and their role in decrease blood cholesterol. | |
| <p>The meager list of the great fungi discovered in Iraq shows the way we must go, and to bring the world of fungi to the spotlight, survey trips that lasted for six months were conducted deep in the forests of Mosul and separate areas of the city of Mosul and its districts and districts. Different types of basidiomycetes and cysts were given serial scientific codes. The obtained isolates were subjected to preliminary purification and screening, and it was found that the isolate with the scientific code Oi23 produced the most lovastatin in terms of the diameter of the inhibition halo of 34 mm towards <i>Candida albicans</i>, so it was chosen to complete the study experiments.</p> | | |

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| IQ-06 | NAME(S) | Sawsan Attwan Resen |
| ORGANIZATION | Sangel | |
| TITLE OF ENTRY | The addition of a protection system to the planes structure to protect passengers when the plane crashes | |
| <p>A change in Aircraft windows cancel cameras on outside and normal windowlike screen on the inside the shock absorber is distributed with nonpunitive rubber airbags that are distributed on the outside of the airframe There's a door on the top that can open at an emergency, and it comes out with a payoff. Put out a fire suppression system in the wings and around the flying engine it works according to Isaac Newton third law for every action there is an equal and opposite reaction when the first impact is absorbed into the ground the impact is reflected up and up and at altitude the forces on the plane are lost and they come back and they land safely without a crash with the fuselage intact and this an innovation that protects airplanes from all kinds of aviation accidents especially when they land or when they take off they land safely and when there's a breach of the first layer there's a second layer and it lands safely with no loss of life in any part of the world.</p> | | |

| IRELAND  | | |
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| IE-01 | NAME(S) | Rachel Howe / Sandra Nicholson / Carmel Davies / Attracta Lafferty / Thilo Kroll |
| ORGANIZATION | University College Dublin | |
| TITLE OF ENTRY | CAAI: Co-design of an Animal Assisted Intervention by young people for a Children's Hospital in Ireland | |
| <p>The co-design of an Animal Assisted Intervention (AAI) by young people for a Children's Hospital in Ireland is one work package of a PhD research study. A scoping review protocol has been published and the scoping review is currently being completed to inform the co-design process. Children and young will be invited to participate in the co-design process to create a bespoke protocol and subsequent implementation of an animal assisted intervention in one Children's Hospital in Ireland. Innovative participatory research methods will be considered for either face-to-face or online co-design workshops. Proposal plans will be shared and constructive feedback sought.</p> | | |

| JAPAN  | | |
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| JP-01 | NAME(S) | Sir Dr. Yoshiro NakaMats |
| ORGANIZATION | World Genius Convention | |
| TITLE OF ENTRY | Winged Drones | |
| <p>High-speed horizontally flying drones and other aircraft: By installing a propeller for vertical ascent and descent and horizontal flight and wings for horizontal flight, an aircraft that can fly horizontally at high speed and over long distances can be obtained.</p> | | |

| JORDAN  | | |
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| JO-01 | NAME(S) | NUHA ABUYOUSEF |
| ORGANIZATION | N/A | |
| TITLE OF ENTRY | ACTIVATED EYE STICKER | |
| <p>Dry Eye Syndrome or Exposure Keratitis is a common ocular condition associated with Bell's palsy. Patients with Bell's palsy can easily open the affected eye—since the muscle that opens the eye is controlled by a separate cranial nerve—but they are unable to close the eyelid. In such condition if untreated, might lead to a total loss of the cornea, ulcers, eventually blindness. provide for a convenient way to cause a non-healthy eyelid to blink in response to a healthy eyelid blinking. A Special App has been developed for this device.</p> | | |

| KENYA  | | |
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| KE-01 | NAME(S) | Ken-Andrew Muthui Gacheche |
| ORGANIZATION | Subzero Engineering (KE) | |
| TITLE OF ENTRY | Integrated Sonar Echo Eye (I.S.E.E) | |
| <p>I.S.E.E is an invention that was created in-order to be an assistive technology for Visually challenged persons. Much like bats and dolphins, we humans can employ electronic devices to help people with a way to navigate by using sound and echoes. The idea was born after I spent a few days with blind people who would navigate their campus in Addis Ababa Ethiopia from memory alone. However sometimes there could be obstacles lying around along their path which would present a challenge, the idea was rebooted once upon returning to Kenya when I watched a documentary about a boy in the US who would use clicking sounds to get around. This inspired me to use some of my knowledge to come up with a solution for our brothers and sisters and Hence I.S.E.E version 1.0 was born, proof of concept completed Version 2 with improved aesthetics.</p> | | |

KOREA 

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| KR-01 | NAME(S) | CHOI YONG SUN / KOREA WESTERN POWER CO., LTD. |
| ORGANIZATION | JOEUN ENTERPRISE / KOREA WESTERN POWER CO., LTD | |
| TITLE OF ENTRY | Bufferless pH measurement automatic tuning system | |
| <p>This project is a pH analyzer for power plants which is invented for the first time in the world. Measurement of pH is not only a very important factor for facility efficiency in thermal power plants, but also a major item in water quality management. The pH electrode and pH meter used in conventional thermal power plants are periodically calibrated by an operator using a buffer solution, and when calibration is impossible or an abnormality occurs, the entire pH electrode is replaced. The present invention is a system capable of automatically tuning and optimizing control without the user having to calibrate it as it can solve the above issues.</p> | | |

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| KR-02 | NAME(S) | KIL JUHYEONG |
| ORGANIZATION | LOTUS PROSUMING MANAGEMENT | |
| TITLE OF ENTRY | A system for measuring foreign substances in the form of living and inanimate objects in water | |
| <p>The present invention samples inanimate or living foreign substances contained in water in real time to determine the type of foreign substances contained in the water by using an optical method, an electrochemical method, or a photographing method, and can be read with the naked eye through an image. It relates to a foreign material measuring system in the form of living and non-living substances in the water. Objects to be measured by sampling flowing water and measuring the existence of inanimate or living organisms contained in water, it is possible to analyze and prove reliability and confirm the accuracy of measurement, especially in the field of drinking water.</p> | | |

KUWAIT 

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| KW-01 | NAME(S) | Jenan Esam Saleh AIShehab |
| ORGANIZATION | Electrodis Tech | |
| TITLE OF ENTRY | WIRELESS POWER TRANSMISSION SYSTEM | |
| <p>"Electrodis" is proven to transmit electricity wirelessly for long distances that can be useful for charging and activating electronic devices without any wired connections. This transmitter contains only one copper coil and can couple and charge many electronic devices at once. The Invention is proven to transmit electricity to up to 3 meters and longer. This proof was theoretical and practical in the final products. "Electrodis" is a new engineering circuit and power transmission design that is mainly based on the coupling theory of electromagnetic fields between two inductors and transmitter and receiver circuits. The transmitter circuit converts the electrical power to electromagnetic strong and wide waves to couple from up to 3 meters with the receiver circuit that will convert it back to electrical power and start feeding the device which is connected to it whether it is a mobile phone or any other electronic device. This invention provides a new type of technology which is transmitting wireless electricity for a distance that reaches currently up to 3meters and can be increased. It will also minimize the use of messy wires that can cause a fault accident if they were attached. This invention will provide a new service for business owners to attract customers to their shops. Restaurants and cafes by providing wireless charging technology for cell phones, tablets, and laptops.</p> | | |

LEBANON 

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| LB-01 | NAME(S) | Zeinab Mohammad Koeik / Assile Yasser Mohanna / Aya Mustafa El-Khalil |
| ORGANIZATION | Al-Batoul High School | |
| TITLE OF ENTRY | Alarm System for Trout Eggs Culture | |
| <p>The work was done on designing a device that mainly consisted of a temperature sensor and an alarm device. The sensor is linked to the alarm system via a microprocessor that is programmed to detect unwanted temperatures and activate an alarm siren to inform the guard of the need to intervene. The device is placed at the main water source that distributes to all the egg incubators. The alarm is placed in the most appropriate place to deliver the sound to the farm keeper wherever he is.</p> | | |

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| LB-02 | NAME(S) | Mohamad Baker Malek Obeid |
| ORGANIZATION | National Association for Science and Research | |
| TITLE OF ENTRY | Bracket Web Technology | |
| <p>Bracket is a high level, object based, dynamic web programming language and a platform for building web applications. Bracket differs mainly from other web technologies in its simplicity of learning and coding, shorter and meaningful syntax, and very fast getting a website ready. Use Bracket Platform (bracketjs.com) to write Bracket code. How it works? 1. Signup 2. Create Project 3. Create pages and views 4. Save & watch results.</p> | | |

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| LB-03 | NAME(S) | Hani Alloush / Hussein Harb |
| | ORGANIZATION | AL MOSTAPHA HIGH SCHOOL |
| | TITLE OF ENTRY | INSECT MONITOR |
| <p>Agriculture is such an important part of a country's infrastructure as it is considered a bedrock feature to measure the social security in a certain society. A healthy network of farms is the main element for obtaining a well-formed agricultural infrastructure. The key to maintaining a network of healthy farms within a functional ecosystem is the continuous monitoring of the system. Monitoring for pests and diseases is a fundamental first step in creating a proper integrated pest management (IPM) program. Our system proposes an automated IPM program that consists of two main parts the pheromone trap that is used to manually monitor pests in residential areas and the embedded system that will automate the process by the continuous examining the trap.</p> | | |

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| MACAO  | | |
| MO-01 | NAME(S) | LO KA SEONG / U HIO LAM / LEI WENG I |
| | ORGANIZATION | Hou Kong Middle School |
| | TITLE OF ENTRY | A Preliminary Study on the therapeutic effects of Siegesbeckia Herba extract in treating Psoriasis-like scurf formation |
| <p>Psoriasis is an important cause of severe psychological stress and social dysfunction. The clinical commonly used western medicine effect is not obvious, and the side effect is large. According to the anti-inflammatory and antioxidant effects of Herba Siegesbeckiae(HS), this study proposed a method of improving skin danduff by using extracts of HS, carried out optimization research on extraction methods of HS, and explored the efficacy of HS in treating psoriasis. Different methods were used to extract and separate HS, and MTT was used to observe the toxicity of extracts and specific parts on keratinocytes and the inhibition effect of abnormal hyperplasia.</p> | | |

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| MACEDONIA  | | |
| MK-01 | NAME(S) | Mila Dimitrovska / Teodora Blazhevska |
| | ORGANIZATION | Yahya Kemal College, Skopje |
| | TITLE OF ENTRY | Natural Vaseline |
| <p>Although petroleum jelly based vaseline effectively moisturizes the skin, several possibly dangerous effects of vaseline have been discovered, including clogging of pores, and containing potential endocrine disruptors. Our aim was to create a natural vaseline alternative with easily available ingredients. Before preparation began, research was conducted on each ingredient, their benefits and potential side effects. Our research led to the production of a non-comedogenic cream rich in antioxidants and vitamins. The main goal of our research was to test the effectiveness of our natural vaseline as a skincare product and as a functional, non-toxic substitute for petroleum jelly based vaseline.</p> | | |

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| MALAYSIA  | | |
| MY-01 | NAME(S) | Lau Yee Ling / Lai Meng Yee |
| | ORGANIZATION | Universiti Malaya |
| | TITLE OF ENTRY | One step colorimetric detection of SARS-CoV-2 by reverse transcription isothermal amplification (RT-LAMP) |
| <p>High cost of commercial RNA extraction kits limits the testing efficiency of SARS-CoV-2. Here, we developed a simple nucleic acid extraction method for the detection of SARS-CoV-2 directly from nasopharyngeal swab samples. A pH sensitive dye was used as the end point detection method. Clinical testing using 260 samples showed 92.8% sensitivity (95% CI: 87.3-96.3%) and 93.9% specificity (95% CI: 87.3-97.4%) of RT-LAMP. The simple RNA extraction method minimizes the need for any extensive laboratory set-up. We suggest combining this simple nucleic acid extraction method and RT-LAMP technology as the point-of care diagnostic tool.</p> | | |

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| MY-02 | NAME(S) | ASST PROF DR NORZALIFA ZAINAL ABIDIN / KALAM BIN PIE / NURUL AINA SUHAILA BT MOHD NIZA |
| | ORGANIZATION | JUNGLE SCHOOL GOMBAK MALAYSIA |
| | TITLE OF ENTRY | JUNGLE SCHOOL MENTORING FOR SUSTAINABLE EMPOWERMENT |
| <p>THE PROJECT IS EMPHASIZING ON THE SUSTAINABLE MENTORING FOR CONTINUOUS TRADITIONAL KNOWLEDGE SHARING OF THE INDIGENOUS ORANG ASLI COMMUNITIES TO THE PUBLIC AND OTHER COMMUNITIES, FOR IMPROVEMENT ON THE SOCIAL MENTAL HEALTH WELLNESS AND FAMILY SOCIETAL BONDING. THEIR CULTURAL WAYS IN SURVIVING IN THE JUNGLES WITH HEALTHY LIFESTYLE AND PRESERVING THE JUNGLES AND RIVERS ARE CONTINUOUSLY SHARED IN SCAFFOLDING LEARNING ENVIRONMENT. THE SHARING OF KNOWLEDGE ARE SHARED VIA ON SITE AND ONLINE SOCIAL MEDIA CAMPAIGNS COVERAGE VIA TV MEDIA AND RADIO TALKS, AND SOCIAL MEDIA COPY WRITINGS. THE REPLICATED MENTORING ARE APPLIED TO OUTREACH MORE COMMUNITY MEMBERS AS CONTINUOUS EFFORTS TO HELP TO IMPROVE ALL COMMUNITIES UPON RECOVERING THE PANDEMIC COVID.</p> | | |

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| MY-03 | NAME(S) | Abdullah Mohd Noh |
| ORGANIZATION | University Selangor (UNISEL) | |
| TITLE OF ENTRY | Ensuring Radon-Avoidance in the Layout Design of the Upcoming Malaysian Green Building | |
| <p>Radon monitoring and detection is a service product that provide solutions to avoid its inhalation. Only rooms with certain specification need to have more investigation for its high Radon concentration. Radon mitigation is a healthy required situation needs to have many options to avoid its cause of lung cancer. Implementing the most creative, innovative, and costless procedures of Radon mitigation is one of the ongoing efforts for disease prevention associated with respiratory system.</p> | | |

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| MY-04 | NAME(S) | GOMATHY SANKARAN |
| ORGANIZATION | SJKT KANGKAR PULAI | |
| TITLE OF ENTRY | ROBOTIC FOOTBALL PLAYER | |
| <p>According to Newton's second law, acceleration is produced when a force acts on a mass. The greater the mass (of the object being accelerated) the greater the amount of force needed (to accelerate the object). This theory easy can teach the students by using a simple Football player model. This model help my student as to carry out investigation about force and energy (topic 2 in year 6) By using my football player model my students able to carry out the experiment, design the experiment and produce the experiment report. Students able to define the relationship between the amount air pressure in the ball and distance travelled by the football rather than height of ramp, mass of ball and amount of force. To make the force constant and to relate the robotic in science experiment I created robotic football player model.</p> | | |

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| MY-05 | NAME(S) | PROFESSOR DR. ABDURAHMAN HAMID NOUR / PROFESSOR DR. ROSLI MOHD YUNUS / ASSOCIATE PROFESSOR DR. AZHARY HAMID NOUR / ALI HASSAN ABDULRAHMAN AL-SAGGAF |
| ORGANIZATION | UNIVERSITY MALAYSIA PAHANG, UMP | |
| TITLE OF ENTRY | EMULSIFICATION OF HEAVY CRUDE OIL USING A NOVEL SUNFLOWER OIL BASED SURFACTANT FOR PIPELINE TRANSPORTATION | |
| <p>With the increasing energy crisis and prices and the drive to reduce CO2 emissions, universities and industries are challenged to find new technologies to reduce energy consumption, to meet legal requirements on emissions, and for cost reduction and increased quality. This invention, suitable surfactant (NS-20-2) has been formulated in the laboratory and characterized using standard analytical instruments. Further the formulated surfactant has been utilized to prepare o/w emulsions of heavy crude oils collected from different oil fields. The formulated surfactant characterized as environmentally friendly, economically competitive, and technically visible.</p> | | |

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| MY-06 | NAME(S) | FARAH EZATI BINTI SAINDI / ABDURAHMAN HAMID NOUR |
| ORGANIZATION | UNIVERSITY MALAYSIA PAHANG, UMP | |
| TITLE OF ENTRY | Water-in-Diesel Emulsion, WiDE: Characterization with an Environmentally Friendly Surfactant | |
| <p>To achieve sustainability, it is necessary to normalize the use of environmentally friendly fuel. Because it reduces CO, CO₂, and NO_x emissions, water in diesel emulsion is a better alternative to pure diesel. As a result, the engine's performance has been enhanced. To be mass-produced, the method of producing the fuel must be low-cost and environmentally friendly. An experiment was carried out in this study to investigate the efficiency of WiDE using an environmentally friendly surfactant. A surfactant is required to emulsify the water in the diesel. Span 80 is the most effective commercial surfactant at the moment. Span 80 is expensive and contains oleic acid, which is harmful to the body. Sunflower oil is chosen because it has similar properties to oleic acid.</p> | | |

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| MY-07 | NAME(S) | Dr. Latifah Binti Omar / Kavitha A/P Rajan / Visvini A/P Lohanathan / Mohd. Hasyrin Hassan / Cassandra Sarah David |
| ORGANIZATION | Universiti Putra Malaysia Bintulu Sarawak Campus | |
| TITLE OF ENTRY | Refuses Become Resources for Urea Retention Improvement | |
| <p>Our invention introduces transformation of refuses such as rejected sago starch, paddy husk, spent mushrooms become resources that being used as organic amendments to boost soil and cash crop productivity that translates into agronomic, economic, and environmental efficiency. Our invention is a lucrative way of producing organic based fertilizers to facilitate organic farming using unwanted agricultural wastes to produce cheaper fertilizer compared with chemical fertilizers alone.</p> | | |

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| MY-08 | NAME(S) | GOMATHY D/O SANKARAN (TEACHER) / YOGEN S/O SUGUMARAN (STUDENT) |
| ORGANIZATION | SJKT KANGKAR PULAI, JOHOR, MALAYSIA | |
| TITLE OF ENTRY | GREEN BIO HERBAL PAPER | |
| <p>This paper aims at determining the feasibility of using herbal plants leaf fibres for paper production. Samples of natural material that is herbal leaves such as Moringa, Neem, Curry leaves, Bael leaf fibre were mixed with cane-bagasse in different ratios namely, 20:80, 40:60, 60:40, 80:20,100:0. Herbal leaves fibres were also mixed with wastepaper in the same ratios. Pulping of herbal leaves was achieved through soda pulping at a concentration of 15%w/v for 90 min at 90 °C. The papers obtained were tested for their physical and mechanical properties. The average thickness of all the papers produced, ranged from 0.232 mm to 0.304 mm showing an increase in paper thickness with increasing grammage from 58.19 g/m² to 63.3 g/m². The most absorbent paper (1.19 s) was found to be the 100% herbal leaves which also demonstrated the highest Tensile Index and Burst Index (6.5 Nm/g and 0.84 kPa m²/g respectively). The herbal leaves composite of ratio 40:60 was found to be the most abrasion resistant paper with 21 turns and a weight loss of 0.86% with the use of emery paper of grade zero as abradant and 200 g load cells. The most crease-resistant paper was the herbal leaves composite of ratio 80:20 with a crease recovery angle of 59.8°.</p> | | |

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| MY-09 | NAME(S) | Dr. Jamelaa Bibi Bt Abdullah / En. Wan Shamsuddin Bin Wan Salleh / Pn. Zauyati Bt Zainal Mohamed Alias / En Affendi Bin Zulkifeli / En. Hanifah bin Veerankutty |
| ORGANIZATION | INSTITUT AMINUDDIN BAKI GENTING HIGHLANDS BRANCH | |
| TITLE OF ENTRY | SMART-OPIC | |
| <p>Smart-One Page Instructional Coaching (SMART-OPIC) is an innovation product for the purpose of implementing, recording, and monitoring instructional coaching teaching and learning using digital platform. Smart-OPIC is produced by using the Design Thinking method that produces an easy and quick way to apply instructional coaching systematically. SMART means all the information that needs to be entered in the OPIC online form using the Google Classroom platform and displayed in the dashboard. This to ensure an effective monitoring process of school leaders and IAB lecturers in implementing training improvements. SMART-OPIC gave an impact on teachers' development in teaching and learning within seven days.</p> | | |

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| MY-10 | NAME(S) | Dr. Siti Ainor Mohd Yatim / Dr. Nur Intan Raihana Ruhaiyem / Dr. Nooraini Zainuddin / Dr. Iskandar Shah Mohd Zawawi |
| ORGANIZATION | School of Distance Education, Universiti Sains Malaysia / Universiti Teknologi PETRONAS / Universiti Teknologi Mara, Shah Alam | |
| TITLE OF ENTRY | HIGH ORDER IMPLICIT NUMERICAL SOLVER FOR ATMOSPHERIC CHEMICAL KINETIC EQUATIONS : AIR POLLUTION FORECAST | |
| <p>Air pollution models play a critical role in atmospheric environment research. While chemical kinetic equation is an important component of air pollution models. In numerical analysis, these chemical kinetic equations exhibit high-order nonlinearity and tend to be highly stiff. Numerous researches about chemical kinetic equation solvers have been published. However, these solvers are frequently accompanied by a phenomenon known as order reduction and coinciding with the classical order. Hence, a detailed mathematical analysis, and computation on an efficient solver were carried out based on high order implicit scheme for solving chemical kinetic equations that will improve the air pollution forecasting.</p> | | |

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| MY-11 | NAME(S) | MOHD NAZRI BIN MUHAMMAD / AZLI BIN AWANG / MOHD LAZIM BIN MAT SALLEH / MOHD NASARUDDIN BIN HYDR ALI / SITI FATIMAH BINTI MAT ZIN |
| ORGANIZATION | SEKOLAH MENENGAH KEBANGSAAN MULONG, KOTA BHARU, KELANTAN.MALAYSIA (RURAL SECONDARY SCHOOL) | |
| TITLE OF ENTRY | MINYAK ILHAM MULONG (MIM OIL) | |
| <p>Minyak Ilham Mulong (MIM OIL), an oil produced through a mixture of herbs and natural ingredients that are cooked perfectly to treat pain on the outside the body by placing or rubbing on the skin part that feels uncomfortable, sore or injured. MIM OIL has perfect healing abilities based on user testimonials on menstrual pain, small wound, neck, waist and stomach pain, vein cream, foot peeling, swelling and body aches, itchy mosquito bites, bee and wasp stings and burns from motorcycles exhaust pipes.</p> | | |

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| MY-12 | NAME(S) | Noor irinah Omar / Suhana Mohamed / Ilyani akmar Abu Bakar / Yusliza Yusuf / Toibah Abdul Rahim |
| ORGANIZATION | Universiti Teknikal Malaysia Melaka | |
| TITLE OF ENTRY | Enhancement the adhesion strength of cold sprayed pure TiO₂ on stainless steel by chromium oxide for photocatalysis application | |
| <p>Cold spray method has appeared as a promising process to form ceramic nanostructured coating without significantly changing the microstructure of the initial feedstock materials due to its low processing temperature. However, deposition of ceramic powders by cold spray is not easy due to brittle characteristics of the material. Moreover, the bonding mechanism on how the ceramic coating was formed on the substrate is still unclear. On top of that, the adhesion strength of pure TiO₂ coating is low, thus, hindering the adoption of this new technology breakthrough into the society.</p> | | |

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| MY-13 | NAME(S) | HARYATI YAACOB / ZAID HAZIM ALSAFAR / MOHD KHAIRUL IDHAM MOHD SATAR / RAMADHANSYAH PUTRA JAYA / MAHMOOD KHLEEL SALEEM |
| ORGANIZATION | UNIVERSITI TEKNOLOGI MALAYSIA | |
| TITLE OF ENTRY | PAVEMENT RECYCLING USING MALTENE | |
| <p>Recycled asphalt pavement (RAP) materials are associated with several environmental and economic advantages. This study had used maltene as a rejuvenator in aged bitumen. Maltene has been added into of RAP and was found to have similar physical properties to fresh asphalt. The results showed that maltene had been effective in mitigating the aging effect of RAP asphalt, while the rejuvenated mixture exhibited considerable enhancement, compared to the conventional fresh asphalt mixtures. Maltene generally was found to improve and regenerate a new pavement with high amount of RAP which could provide economic benefits for road maintenance.</p> | | |

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| MY-14 | NAME(S) | Mr. Ong Thor Guan / Mr. Koay Kai Bin / Mr. Choong JinKooi / Assoc. Prof. Dr. Foo Keng Yuen / Dr. Lee Lai Kuan |
| ORGANIZATION | TG Ocean Health Food Industries Sdn. Bhd., Malaysia / Universiti Sains Malaysia | |
| TITLE OF ENTRY | Oat King® | |
| <p>The present invention, Oat King®, is a unique patented formulation of multigrain product, that has been specifically designed to offer a variety of health benefits, notably constipation relief, high blood pressure and HbA1c level reduction, regulation of total cholesterol, LDL cholesterol and blood glucose levels, amelioration of total body fat and visceral fat compositions, and improvement of peripheral antioxidant capacity. It is free from preservatives, artificial coloring, flavoring, sugar, aflatoxins, heavy metals, and microorganisms. The novel functional ingredients, specifically featured with low glycemic index, high dietary fiber, beta-glucan, vitamins, and different trace elements, have been proven to significantly reduce the disease activity of Type II diabetes mellitus patients via human clinical trials, signifying a new breakthrough in the multigrain product development.</p> | | |

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| MY-15 | NAME(S) | MOHD FARUHI BIN JOHARI / MUHAMMAD SHAZWAN BIN AZMI / ANNIE YASMIN BINTI AZHAN / NUR AINATUL MARDIAH BINTI SAZALI / AINUR YASMEEN BINTI SHAZRIE AZAM |
| ORGANIZATION | ALOR SETAR TECHNICAL SCHOOL | |
| TITLE OF ENTRY | HYBRID QB | |
| <p>HYBRID QB is an abbreviation for Quiz Board, produced by students and a teacher of Alor Setar Technical School, in search of learning methods through games that is believed to be fun and yet educational. Hybrid QB aligned with 21st century teaching and learning, can be carried out for all subjects in schools, by simply providing sufficient questions. Hybrid QB definitely promotes fun in learning.</p> | | |

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| MY-16 | NAME(S) | DR. NOOR ZARINA ABD WAHAB |
| ORGANIZATION | UNIVERSITI SULTAN ZAINAL ABIDIN | |
| TITLE OF ENTRY | DHUHAA: A NATURAL APPROACH FOR EMBARRASSING HERPES INFECTION | |
| <p>Here we report the potential of goniotalamin (GTN) as potential antiviral drug against human herpes virus (HHV) in <i>in vitro</i> and <i>in vivo</i> studies. Initially, the cytotoxicity of GTN was determined with the concentration that cause 50% of cell death (CC50) was 8.747 µg/mL. GTN was also found to be selective towards the virus with the concentration needed to act on virus was less than the CC50 values with selective indices (SI) between 6 to 19 for HHV clinical and acyclovir (ACV)-resistant isolates. The antiviral mechanism as indicated in the <i>in vitro</i> screening showed that anti-HSV-1 of GTN was most effective when given after Vero cells were infected (post-treatment), not virucidal or when pre-treated and deviates from ACV. With the ability to affect <i>in vitro</i> virus infection, we proceed to determine the antiviral activity in <i>in vivo</i> studies. Using two GTN incorporated formulated products that were predetermined to display non-cytotoxicity and antiviral activity, we proved that antiviral activity was exerted when given at early infection stage. The <i>in vivo</i> studies showed GTN has potential as topical antiviral product.</p> | | |

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| MY-17 | NAME(S) | HU LAEY NEE / NORSARIHAN AHMAD / TAN YOONG MING / MUHAMMAD HARITH MOHD ALI HANAFIAH |
| ORGANIZATION | INSTITUTE OF TEACHER EDUCATION, SARAWAK CAMPUS, SARAWAK, MALAYSIA / SJKC MANONG, KUALA KANGSAR, PERAK, MALAYSIA | |
| TITLE OF ENTRY | CRACK THE NUMBERS 2.0 (CTN2.0) | |
| <p>The transition phase of global pandemic Covid19 to the endemic phase has seen a changing environment in teaching and learning vis-a-vis in a classroom with strict Standard Operating Procedures. The use of Online learning platforms and application has slowly been put to a minimum. Thus, Crack the Numbers 2.0 (CtN2.0) has developed a creative gameboard by maximizing learning to help Primary school pupils master Mathematics skills. CtN2.0 gameboard allows the pupils or teachers to design the game which suits their creative learning nature. Findings showed positive improvement in mastering the activity and exceptional communication skills, social skills, and thinking skills.</p> | | |

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| MY-18 | NAME(S) | Associate Prof Dr ASMA ABDUL RAHMAN / Col Prof Dr KHAIROL AMALI AHMAD / Prof Dr HANAN A. ALJEHANI / Dr AHMAD ABDUL RAHMAN / Miss MARYAM ABDUL RAHMAN / Dr MOHD NIZWAN MUSLING |
| ORGANIZATION | | Universiti Sains Islam Malaysia / Princess Nourah Bint Abdulrahman University |
| TITLE OF ENTRY | | HYPERLINKED RELATIONAL LATENCY LEXICOLOGY-SEMANTIC "LEXICOLSEM" ANALYSIS A NEW MODEL FOR COMPOSITION QURA'NIC ILLUSTRATION USING "METHODODOLOGY OF GENERATIVE GRAMMAR AND TRANSFORMATIONAL (MGG&Tf/MTBP&Tf) |
| <p>Al Quran is a divine text which represents the purest and most authentic form of the classical Arabic language. To understand the meaning of each verse, a deep knowledge of Arabic linguistics is essential. Therefore, our scholars have made their efforts by engaging themselves in the works of explaining al-Quran's words, interpreting its meanings into Arabic and other languages. Currently, more people are interested in knowing the content of al-Quran, especially for non-Muslim, after 9/11 tragedy. Thus, a flexible model that can represent Qur'anic concept is required for people to understand the content of the Quran. In this research, we propose a Multi-Relational Latent Lexicology- phonology -Semantic Analysis Model (MMRLLXICOLPHONOSEMC) based on a combination of Arabic Phonology Semantic and six multiple relations between words, which are synonym, antonym, hypernym, hyponym, homonym, and meronym, to precisely extract Qur'anic concept.</p> | | |

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| MY-19 | NAME(S) | RAYNER ALFRED / JANUARIUS GOBILIK / JOE HENRY OBIT |
| ORGANIZATION | | UNIVERSITI MALAYSIA SABAH |
| TITLE OF ENTRY | | A novel two-tier Convolutional Neural Network to predict the health of Beef Cattle for Sustainable Beef Production |
| <p>Monitoring cattle's health is crucial and most common parameters used for monitoring livestock health are live-weight, blood pressure and heart rate. Traditional methods of weighting cattle involve individually weighting cattle manually by pushing them into the weighting machine. This method is both costly and highly time consuming and thus prediction the health of the beef cattle cannot be made robustly. Thus, the novel two tier deep learning framework was implemented to address this issue. With this invention, the health of the cattle can be predicted automatically based on the cattle's live weight deduced from a deep learning approach and temperature and amount of activity of each cattle that are captured using a wearable collar or tag, battery-powered sensors.</p> | | |

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| MY-20 | NAME(S) | RAYNER ALFRED / RAYMOND ALFRED / RAYMOND VICTOR / NOSIUS LUARAN |
| ORGANIZATION | | Faculty of Computing and Informatics, Universiti Malaysia Sabah |
| TITLE OF ENTRY | | An integrated Conjoined Recurrent and Convolutional Neural Network Approach to Classifying Time-Series Forests Hyper-Spectral Images for automated Carbon Stock Estimation |
| <p>Deforestation and degradation of forests can cause significant damage to the forest areas, affecting biodiversity and infrastructure and leading to different estimation of High Carbon Stocks in forest areas. The conjoined optimized recurrent convolutional neural network is an algorithm that was designed to address this issue. The prototype of the conjoined optimized recurrent and convolutional neural network framework that is capable to perform classification of time-series forest hyper-spectral images to identify and classify forest types for estimating high carbon stock. An optimization process has also been integrated into this algorithm to optimize the classification results.</p> | | |

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| MY-21 | NAME(S) | AMAL A.M. ELGHARBAWY / NOR AZRINI NADIHA AZMI / HAMZAH MOHD SALLEH / ADEEB HAYYAN / MAHAR DIANA BINTI HAMID |
| ORGANIZATION | | International Islamic University Malaysia (IIUM) |
| TITLE OF ENTRY | | Novel fish oil-based nanoemulsion for cosmetic applications |
| <p>Nanoemulsions have a lot of benefits making it suitable to be used in cosmetics products. In this project, oil in water nanoemulsion were successfully produced using catfish by-product's oil, lemon oil, surfactant and co-surfactant and water. Nanoemulsion with desirable characteristics were obtained using ultrasonication method. The nanoemulsion have excellent antioxidant, anti-inflammatory activity, antibacterial activity and not toxic to the skin and could possibly be a good anticancer agent. This project successfully includes fish oil from catfish by-products in nanoemulsion which is a good candidate to be used as cosmetic products.</p> | | |

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| MY-22 | NAME(S) | Alya Nadhirah Bt Azman / Nur Damia Qistina Bt Sirajul Fikri / Nurul Izzah Binti Zailani / Muhammad Haziq Badli Bin Sanusi / Wan Nurul Ain Najihah Bt Wan Pauzi |
| ORGANIZATION | | SMK TENGGU MAHMUD |
| TITLE OF ENTRY | | "Green Shadow Puppet (GSP) as a Creative Art Craft" |
| <p>This project is to make shadow puppet using green paper (GSP) that been made from outer part of banana trunk. We choose outer part of banana trunk because this type of paper is less absorb of water, long lasting and high tensile strength. This product is an environmentally beneficial product and we have demonstrated that it will degrade naturally in a short period of time and eco-friendly. This paper may be used to manufacture creative art craft that can show our culture such as shadow puppets that is one of Terengganu Heritage. Other than that, this Green Shadow Puppet also can absorb light. Its shows that this GSP is suitable to use for shadow puppet shows.</p> | | |

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| MY-23 | NAME(S) | Khairul Azhar Bin Abdul Rahim / Ir. Dr. Jegalakshimi Jewaratnam / Nor Hanifah Binti Sukardi / Mohd Suhaimi Bin Mohd Daud / Associate Prof. Dr. Che Rosmani Binti Che Hassan |
| ORGANIZATION | Kuala Langat National Youth Skills Institute & University Malaysia | |
| TITLE OF ENTRY | Occupational Hearing Conservation Index (OHCI) System | |
| <p>Noise Induce Hearing loss (NIHL) is the most reported occupational disease worldwide. To prevent it, the implementation of Hearing Conservation Program (HCP) has been enforced. However, compliance with HCP implementation in the workplace remains poor. Occupational Hearing Conservation Index (OHCI) System is an Internet of Things (IoT) device invented as a holistic NIHL intervention product that can manage HCP, improve hearing protection practices, and generate a novel graphical index for HCP compliance. This invention consists of an audiometer that operates via Wifi and a web-based system. Field studies showed OHCI system has great potential in preventing NIHL disease.</p> | | |

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| MY-24 | NAME(S) | Dr Thaw Zin (In-charge) / Dr Aloysius Yapp / Dr Avneet Kaur / Ms Lim Chai Kim / Dr MA Razzaq / Prof Ngeow YF / Dr Pok WF / Teh Kheng Yee (SA) / Chen Fun Sheng (SA) / Kang Shu Ting (SA) / Alicia Ho Pei Shan (SA) |
| ORGANIZATION | Universiti Tunku Abdul Rahman (UTAR) | |
| TITLE OF ENTRY | Digital interactive technology in medical science education. - Gamification Level 1 | |
| <p>We have designed and developed this game with an aim to prepare a platform for teaching and learning of medical ethics in medical education, especially meant for online education (Post-Covid). Also planning to delve into a broader social dialogue on the implications of new technologies for privacy, autonomy and liberty as well as promoting greater knowledge and reflection with regard to the practical and moral dimensions of these aspects in every medical curriculum.</p> | | |

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| MY-25 | NAME(S) | Karmila Rafiqah M. Rafiq / Harwati Hashim / Melor Md Yunus |
| ORGANIZATION | Faculty of Education, Universiti Kebangsaan Malaysia | |
| TITLE OF ENTRY | ME4STEM (Mobile English for STEM): Leveraging English language learning for STEM Education | |
| <p>ME4STEM is a novel mobile application created to enhance English language learning, specifically for STEM learners to improve their English vocabulary. It was designed and developed using the Design and Development Research (DDR) Type 1, referring to three phases in the ADDIE model. ME4STEM serves as a bridge between STEM and the English language, and it is one of the earliest mobile applications combining English and STEM.</p> | | |

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| MY-26 | NAME(S) | Evelyn Foo Yifei / Nimexsionre Sulani / Nur Ilyana Syahida binti Ariffin / Nurin Sofea binti Zulkifli / Saifulbasri bin Rusli |
| ORGANIZATION | Kolej GENIUS@Pintar Negara UKM | |
| TITLE OF ENTRY | i-Insight | |
| <p>A problem arises with the general young community being uninterested in politics. The youth find the topic mundane and dislike learning about it, thus the low percentage of young voters in the last Malaysian election despite the minimum age being lowered to 18 years recently. Our invention, i-Insight, is a website that allows users to experience mock voting via the online platform. Through the website, we aim to educate teenagers, specifically 17-year-old youths, about the voting system in Malaysia through hands-on experience. With i-Insight, we hope to increase the number of young voters in Malaysia and all around the globe.</p> | | |

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| MY-27 | NAME(S) | Daveena Ashwini Dhana Raj / Rabiatul Adawiyah binti Zaharuddin / Puteri Aira Safiyah binti Mohd Reezal / Muhammad Izz Hafiy bin Mohd Izzwan / Premanarayani Menon |
| ORGANIZATION | Kolej Genius@Pintar Negara | |
| TITLE OF ENTRY | Refrigerator Efficiency Detector (R.E.D.) | |
| <p>Saving energy is a hard task nowadays since a lot of things require electricity to function. One household device that we realized consumes a lot of energy is the refrigerator. Although there are refrigerators that are more efficient, they can be quite expensive. The main objective of our invention, the Refrigerator Efficiency Detector, is to encourage consumers to use their refrigerators, no matter the age, more efficiently. This helps them consume less energy and also lowers their electricity bills. Our invention is much cheaper than the new hi-tech refrigerator. This results in a better way to save energy and money.</p> | | |

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| MY-28 | NAME(S) | Chang Phang Wei / Zarul Fitri Zaaba |
| ORGANIZATION | Universiti Sains Malaysia | |
| TITLE OF ENTRY | myHomeWaste (mHW) | |
| <p>Malaysia is prone to face a waste generation crisis due to high Municipal Solid Waste (MSW) volume, with household solid waste at 65.3% of the total waste. The situation worsens as residents are unaware of their waste collection companies and services. Also, the current waste collection services are still inefficient. Moreover, Solid Waste Management Facilities (SWMF) are hard to locate by residents. myHomeWaste (mHW) bridges the gaps by proposing a mobile and web application to ease residential waste collection tracking, support the process of waste collection services, and complement residents to SWMF.</p> | | |

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| MY-29 | NAME(S) | HAIDA UMIERA HASHIM / PROF. DR MELOR MD YUNUS / ASSOC. PROF. TS. DR HELMI NORMAN |
| ORGANIZATION | FACULTY OF EDUCATION, UNIVERSITI KEBANGSAAN MALAYSIA | |
| TITLE OF ENTRY | “AReal-Vocab”; The New À La Mode of English Vocabulary Learning for Children with Mild Autism Spectrum Disorder | |
| <p>The American Psychiatric Association defines autism spectrum disorder as a neurological illness, in which children with the disorder have trouble communicating socially or have a set of behaviours that are recurrent or restricted. As a result, an innovation of an augmented reality smartphone application, called 'AReal-Vocab', was created to assist children with mild autism in acquiring English vocabulary. Not only the application has helped mildly autistic children learn English vocabulary in a more engaging and meaningful way, but it also serves as a platform for instilling leisure learning at home, as well as stimulating pronunciation skills and language articulation.</p> | | |

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| MY-30 | NAME(S) | IWANA IVY ABDULLAH |
| ORGANIZATION | SMK KOLOMBONG | |
| TITLE OF ENTRY | SiMoPTek | |
| <p>SiMoPTek is a science Teaching Aid created to improve students' understanding and remembering skills on the topic of the earth's tectonic plates. Students had difficulty remembering the concept of tectonic plate movement. SiMoPTek's primary materials are cardboard and homemade slime. Students enjoy playing with slime while learning (a fun learning environment). Examination of the results of the analysis of test papers showed an increase in the percentage of students passing from diagnostic tests (43.3 %) to achievement tests (100 %). The student's feedback questionnaire analysis showed an overall mean of 4.76 (high level). Student interviews provided a fun learning response.</p> | | |

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| MY-31 | NAME(S) | IWANA IVY ABDULLAH (TEACHER IN CHARGE) / NATELY HENNY MONICA BINTI MARSHALL / SITI SARLENNIA LEN KON CHUN / ADRIA FREDELLA RADIANA / RICYNTRIE FADIUS |
| ORGANIZATION | SMK KOLOMBONG | |
| TITLE OF ENTRY | P-CANE | |
| <p>P-CANE is a product from the combination of palm oil wastes (P) and sugar-cane wastes (CANE). Empty Fruit Bunches (EFB) from palm oil waste and bagasse from sugar-cane waste pollutes the environment by causing major disposal problem as it is being dumped evenly. The pollution can be reduced by reprocessing the waste into a new valuable product and can be reusable which is P-CANE. From the analysis, the smaller the particles of wastes, can make stronger structure and long-lasting product. It has high commercial value and can increase socioeconomic value.</p> | | |

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| MY-32 | NAME(S) | NATELY HENNY / MONICA BINTI MARSHALL / RABIATUL ADAWIYAH BINTI ABDULDAN / IWANA IVY ABDULLAH (Teacher in Charge) |
| ORGANIZATION | SMK KOLOMBONG KOTA KINABALU / SM ALL SAINTS KOTA KINABALU- (RABIATUL ADAWIYAH BINTI ABDULDAN) | |
| TITLE OF ENTRY | BOB THE CLEANING BOT | |
| <p>Nowadays, manual sanitation and cleaning require a lot of walking and bending, which cause backaches. This objective is to clean and disinfect the area, with a robot that will do it automatically. The robot is tested in three different situations depending on the need for the consumption or the type of the area to clean and disinfect. As a result, it is proven that the robot can vacuum, sweep and sanitise the floor simultaneously or separately as instructed by the consumer. This invention will make our work more comfortable and manageable. This robot has high commercial value for cleaning purposes.</p> | | |

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| MY-33 | NAME(S) | Nur Nabila MOHD NAZALI / Assoc. Prof. Ts. Dr. Nor Fazli ADULL MANAN / Prof. Ir. Dr. Jamaluddin MAHMUD / Dr. Nur Shakirah ZANIAL KHIR / Assoc. Prof. Dr. Mohd Juzaila ABD LATIF |
| | ORGANIZATION | Universiti Teknologi MARA (UiTM) Shah Alam / Hospital Shah Alam Selangor / Advanced Manufacturing Centre, Universiti Teknikal Malaysia Melaka (UTEM) |
| | TITLE OF ENTRY | Gelatine Skin as a New Hyperelastic Healing Patch |
| <p>Gelatine skin has a good elasticity and applicable on human skin. The future healing patch should have a good hyperelasticity properties, optimum absorption rate and compatibility on human skin. This project begun with material selection with different type of adhesive, following the peeling test, tensile test and closure with numerical analysis. As a result, the mechanical properties in gelatine skin are in a good condition as predicted. As long as the graph presentation does not follow the Hooke's Law, the curve fitting is acceptable. In the future, we able to create a biodegradable healing patch without depending on skin grafting.</p> | | |

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| MY-34 | NAME(S) | MOHD ARIF MAT NORMAN / JAMALUDDIN MAHMUD / AZIZUL HAKIM SAMSUDIN / SYED MAHATHIR AL-ATTAS / ABDUL MALEK ABDUL WAHAB |
| | ORGANIZATION | UNIVERSITI TEKNOLOGI MARA (UiTM) |
| | TITLE OF ENTRY | AJ NatFreP: AJ Natural Frequency Predictor |
| <p>AJ Natural Frequency Predictor (copyrighted as "AJ NatFreP", MyIPO CRLY2021W03077), is a newly developed engineering tool, which has been proven to accurately predict the natural frequencies and modes shape of vibrations for composite and hybrid composite laminates. The main system runs on a novel MATLAB-SIMULINK program, which embeds Composite Lamination Theories and Navier's solutions. The exciting, interactive and user-friendly Graphical User Interface (GUI) has speed up the input-process-output time in comparison to many finite element software. Most importantly, the interface presents the visualisation of data and modes shape behaviour, which is crucial for designing composite structures.</p> | | |

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| MY-35 | NAME(S) | Dr. Aidee Kamal Bin Khamis (Inventor) / Dr. Umi Aisah Binti Asli / Dr. Nazrin Bin Abd Aziz / Mohamad Azzuan Bin Rosli / Mohd Azlan Bin Jalal |
| | ORGANIZATION | Innovation Centre in Agritechology for Advanced Bioprocessing (ICA), Universiti Teknologi Malaysia Pagoh Campus |
| | TITLE OF ENTRY | Sustainable Bioelectricity from Ultisols for Insecticide Control by Using Insect Zapper |
| <p>This invention is to achieve insecticidal-free agriculture which can reduce cost, conserve the environment and avoid food contaminants from the chemicals used. At the same time, this system was designed to be sustainable with locally produce bioelectricity from Ultisols. The amount of bioelectricity produced can be determined, stabilized, and good enough for commercial use. More local soil will be utilized to produce local bioelectricity which can operate the insect zapper. This will contribute to insecticidal-free agriculture which is more environmentally friendly. This research project also contributes to the Sustainable Development Goal (SDG) programs number 7 (Affordable and Clean Energy) and 11 (Sustainable Cities and Community). Due to the cost reduction from the insecticidal application, this invention/project will be one of the best choices for a farmer or all agriculturists. Through this application system also, which can be sustainable in operation, the potential for application in the future is a must.</p> | | |

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| MY-36 | NAME(S) | Prof Dr Ir Nor Aishah Saidina Amin / Dr Wan Nor Nadyaini Wan Omar / Cheok Jing Xian |
| | ORGANIZATION | Universiti Teknologi Malaysia |
| | TITLE OF ENTRY | OzBiONY 2.0 For Natural Nanocellulose Fiber From Oil Palm Biomass |
| <p>OzBiONY® is a novel biomass pre-treatment system to fractionate biomass into cellulose-rich (OzyCELL) and lignin-rich (OzyLIG) fractions without damaging their natural properties. The process is simple, and no waste is produced. OzyCELL contains 5% loss of drying, ~50µm of diameter and high L/D ratio (17.2) which is comparable to commercial microcrystalline cellulose (MCC). OzyCELL could be converted into cellulose nanocrystals (BioZ-CNC) for food and beverage, paint and coating, petroleum and cosmetics application. The commercialization of invention is potential for solving the solid waste management problems in the palm oil mills and increase the sustainability and circular economy of oil palm industry.</p> | | |

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| MY-37 | NAME(S) | MUHAMMAD SYARIFUDDIN A RAHIM / MUHAMMAD FAUZAN MOHD ZAKI / MOHD ZAKI AYOB |
| | ORGANIZATION | UNIKL BMI |
| | TITLE OF ENTRY | MOBILE FLOOD DETECTOR ALERT SYSTEM (F.D.A.S) |
| <p>The invention is an electronic device fitted onto 4WD vehicle, making it mobile that has the capability to drive through flooded road. It can measure flood levels and pinpoint the GPS location. The device uses IoT front-end dashboard as a monitoring platform and Multimedia Messaging Service (MMS) Telegram platform that needs to be requested by users to get the current location of the device from F.D.A.S. bots. This invention enables motorists to make informed decision; should they pursue the same route, or whether they will have to take a detour away from heavy flood areas.</p> | | |

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| MY-38 | NAME(S) | Muhamad Sharan bin Musa / Cheang Mun Kit |
| ORGANIZATION | School of Materials & Mineral Resources Engineering, Universiti Sains Malaysia | |
| TITLE OF ENTRY | High crystallinity of MyCelluNat Nanocrystals Extracted from Cotton Linter | |
| <p>MyCelluNat Nanocrystals were isolated from cotton linter through acid hydrolysis with the controlling variable of acid concentration and hydrolysis temperature. The particle size (~260 nm) and zeta potential (~-52 mV) of MyCelluNat Nanocrystals were observed highest at 30°C with 55% sulphuric acid. X-Ray Diffraction (XRD) analysis showed a high crystallinity of ~80 %. Characteristic MyCelluNat Nanocrystal peak was observed from the spectrum at 1375. The thermal analysis (TGA & DSC) showed almost good thermal observation. A small amount of filler ~max 5 wt.% into carboxylated nitrile butadiene (XNBR) had significantly impacted the mechanical & biodegradable properties of XNBR biocomposite films.</p> | | |

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| MY-39 | NAME(S) | MOHD ROSNIZAM BIN MOHD YUSOFF / NORMAHIRAH BINTI AMIR HASSAN / NUR QURRATU QISTINA BINTI MOHD RADZI / MIFTAHUL AHLAM BIN SHAHRUZAMAN / ALIA MAISARAH BINTI NOR AZMAN |
| ORGANIZATION | KOLEJ VOKASIONAL (PERTANIAN) TELUK INTAN | |
| TITLE OF ENTRY | CATTAPA: ORGANIC TREATMENT FOR AGRICULTURAL PURPOSE | |
| <p>The product, named CATTAPA, is an alternative treatment and organic farming technology for plants and livestock. CATTAPA is produced in the form of liquid, powder and planting tape. Through the studies and observations carried out, CATTAPA acts as a rooting hormone, treats primary wounds, treats wounds in fish farms, treats injuries to police and ruminants' livestock, maintains water clarity and treats soil. CATTAPA in the form of a planting film also makes planting work easier by protecting seeds from fungus and bacteria attacks, spacing out plantings and preventing the growth of the clump. Through laboratory tests at UPM, the presence of tannins, flavonoids, alkaloids, triterpenoids, steroids, resins, saponins and indolole butyric acid makes the leaves of the Ketapang plant anti-bacterial, herbicide and therapeutic. Therefore, it is hoped that CATTAPA will be able to be used as agricultural treatments for various uses and promote the country's agricultural industry.</p> | | |

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| MY-40 | NAME(S) | VVY YEN ZHI YING / CHRISTINE WONG YIENG YING / TERESA CHIENG LI XUAN / JOANNE WONG CHII JIE / LEONG SIEW CHOON / JOYCE LANG TEE KHIN |
| ORGANIZATION | SMK TINGGI SARIKEI | |
| TITLE OF ENTRY | ONE-OFF SYRINGE | |
| <p>One-off syringe generally relates to the improvement in the structure of a needle. There is known that needle sharing promotes the spread of blood-borne diseases especially in the developing countries. The present invention discloses a one-time use syringe because of the present of a one-off mechanism in the hypodermic needle. The mechanism involves a specific pathway and a circular seal, which can disable the draw of the fluid the second time when the syringe is used. If the users try to remove the mechanism, they will break the needle too. In other words, one-off syringe can only be used once.</p> | | |

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| MY-41 | NAME(S) | Hassimi Abu Hasan / Siti Rozaimah Sheikh Abdullah |
| ORGANIZATION | Universiti Kebangsaan Malaysia | |
| TITLE OF ENTRY | Innovative Biofilm Carrier for Water Filtration | |
| <p>Effective water filtration is needed to prevent water pollution worsening. Water treatment can be categorized to chemical and biological treatment. The design of innovative biofilm carrier for growth of biofilm in filtering water was conducted. This carrier can attract more biofilm to attach on it, thus increase contact area to microorganism in filtering the pollutants through degradation, biosorption, and bioaccumulation mechanisms. The biofilm carrier was tested to treat palm oil mill effluent, coffee mill effluent, domestic wastewater and other. The invention shows a good performance in filtering the water within a short period compared to other biological processes.</p> | | |

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| MY-42 | NAME(S) | Anitawati Mohd Lokman / Saidatul Rahah Hamidi / Shuhaida Mohamed Shuhidan / Shamsiah Abd Kadir / Ismail Amat |
| ORGANIZATION | Universiti Teknologi MARA, Shah Alam / Universiti Kebangsaan Malaysia / Kansei Resources | |
| TITLE OF ENTRY | THE LOKMAN EMOTION AND IMPORTANCE QUADRANT (LEIQ)TM | |
| <p>Emotional responses differ between individuals or groups of people who share common interests or life experiences. The LEIQTM model was developed based on Kansei philosophy, which concurs the notion. LEIQTM provides opportunities to comprehend human experience towards things they interact with in their daily lives. It allows people to express their positive or negative experiences, describe the factors that influence their experiences and how important they are to them. The output of LEIQTM will reveal the factors that significantly influence people's experiences, which can then be used by decision makers and other stakeholders to develop effective strategies for future improvements.</p> | | |

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| MY-43 | NAME(S) | Mohamad Zaki Bin Mohamad Saad / Leong Wan Teng / Nathaniel Maikol / Nur Hafizatun Binti Ramlian |
| | ORGANIZATION | Marvel Enterprise, Section Unilink Society |
| | TITLE OF ENTRY | E-Waze A Solid Waste Management Apps |
| <p>The country's tremendous economic growth shows that Malaysia's waste management system falls short of global standards. A person generates 1.17 kg of trash daily, and Malaysia generates 39,000 tonnes daily. Based on difficulties observed in the Malaysian community, our team, consisting of Unilink Society members, has developed a new concept and approach capable of controlling and utilising waste through our mobile application, E-Waze. According to International Solid Waste Association (ISWA), Industry 4.0 offers new opportunities to prevent, reduce, and even eliminate waste in some sectors and streams, improve resource recovery, reach high treatment and disposal standards, and decrease pollution.</p> | | |

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| MY-44 | NAME(S) | Dr. Dayang Rafidah Syariff M.Fuad / Dr. Roziah Rusdin / Dr. Vivemarlyne F. Mudin / Mrs. Helena Sangau / Mrs. Dymnah@Nirwaanah Dominic |
| | ORGANIZATION | Institute of Teacher Education Keningau, Sabah Malaysia |
| | TITLE OF ENTRY | The development of WARCT (Web Augmented Reality Computer Aided Design) technique and it's integration with teacher's trainee practical in single-phase electrical circuit wiring |
| <p>This WARCT technique is a teaching and learning pedagogical strategy developed to assist the Design and Technology students in practicing single-phase electrical circuit wiring and installation. A total of 60 students from the Teachers Trainee Program were involved in this innovation. This technique was developed through the integration of Web Augmented Reality and Computer Aided Design. The 3D informational display will be able to provide detailed information to students in helping them perform their wiring task. SPSS Analysis showed that a significant relationship between the innovations and students' facts, knowledge and understanding.</p> | | |

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| MY-45 | NAME(S) | Dr. Dayang Rafidah Syariff M.Fuad / Dr. Khalip Musa / Dr. Mat Rahimi Yusof / Dr. Shukor Beram / Mrs. Aziah Samichan |
| | ORGANIZATION | Institute of Teacher Education Keningau, Sabah Malaysia / Universiti Pendidikan Sultan Idris / Universiti Utara Malaysia / Kolej Matrikulasi Perak |
| | TITLE OF ENTRY | The influence of Principal Innovation Leadership on the Innovation Culture and Organisational Innovation of National Secondary School in Sabah |
| <p>The main purpose of this study was to test the influence of principal's innovation leadership model on the innovation culture and organizational innovation of national secondary school in Sabah, Malaysia. A total of 478 teachers from 32 urban secondary schools in Sabah were involved in this study. The developed model meets the model fit indices (RMSEA=0.079, CFI=0.967, TLI=0.960, Chisq/df=4.019) and has a significant influence on the school's innovation culture ($\beta = 0.56, p < 0.05$) and Organizational Innovation ($\beta = 0.29, p < 0.05$). Innovation culture also has a strong influence on organizational innovation ($\beta = 0.84, p < 0.05$). The culture of innovation in the school had also been proven to be a partial mediator between Principals' Innovation Leadership and Organizational Innovation.</p> | | |

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| MY-46 | NAME(S) | MDM ASMA' BINTI AHMAD / MDM BIBI FARHANA BINTI AHMAD / MISS SITI NORKIAH BINTI AZMI / MISS ASHA IVANA ALLAN CASAL / MISS AINA ELYSSA BINTI MOHD NIZAR |
| | ORGANIZATION | TUANKU MUHAMMAD SCHOOL / UNIVERSITI SAINS ISLAM MALAYSIA |
| | TITLE OF ENTRY | ICT In Counselling:TMS Care for Keluarga Malaysia (Malaysian Families), the Self Defense Awareness |
| <p>> Education Blog And Youtube as an alternative medium to educate teenagers about a dangerous of substance and a drug > Utilize ICT technology facilities provided by the school to disseminate Drug Prevention Education and HIV / AIDS. > The online learning environment is an integral part of activities conducted during the COVID-19 pandemic in schools. > During Covid 19 since 2020 pandemic all over the world. Malaysia as one of the country has seen an unprecedented change to the dynamic and culture of education due to the COVID-19 pandemic, causing schools and varsities to halt operation at certain period. > Hence, the millions of students across the country to fully utilise their laptops or devices and start learning from home via online > Our blog link is https://www.youtube.com/c/AsmaAhmad/videos and https://ppdatms.blogspot.com/</p> | | |

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| MY-47 | NAME(S) | Adeeb Hayyan / Mohamed E. S. Mirghani / Haneef F. Hizaddin / M.Y. Zulkifli / Fahah DH. Alajmi / Ahmaad Kadmouse Aldeehani / Khaled H. Alkandari |
| | ORGANIZATION | University of Malaya (Malaysia) / Qassim University (Saudi Arabia) |
| | TITLE OF ENTRY | Fingerprint of vegetable oils using geometric method |
| <p>Geometric Method is new technology for authentication the source of vegetable oils and was patented in 2011 and received granted patent in 2017. In this simple and cheap technology, we managed after collecting data of fatty acid composition in the past 40 years ago and for the first time to identify the fingerprint of palm oil from all countries producing palm oil in the world. This technology can add value in the field of analytical chemistry and for detection oil source and its saturation level.</p> | | |

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| MY-48 | NAME(S) | Amirul Afif Mohd Syahkirin / Amirul Amin Mohd Syahkirin / Mas Syahrul Anuar Bassirun / Nasrul Anuar Abd Razak / Noraini Ahmad |
| ORGANIZATION | MRSM Gemencheh (MARA Junior Science College Gemencheh) | |
| TITLE OF ENTRY | SMART SENSOR DEVICE FOR BLIND PEOPLE | |
| <p>As the world is now growing rapidly, it will be a big problem for blind people to navigate themselves and survive. Blind people use sticks to find out if there are obstacles in front of them. However, this stick is inefficient in many aspects. The objective of this project is to provide a better navigation tool for the blind people by designing a smart sensor device for them using electronic devices, ultrasonic sensors, GPS tracking system and Arduino coding. This prototype design demonstrates an innovative way of navigation for the blind people at an affordable price.</p> | | |

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| MY-49 | NAME(S) | JAYA KUMAR KRISHNAN / KALAIARASI SONAI MUTHU |
| ORGANIZATION | MULTIMEDIA UNIVERSITY | |
| TITLE OF ENTRY | Sentiment Analysis Tool for Malay Language and Bahasa Rojak (Malay and English Words) | |
| <p>Sentiment analysis is a field of research under analytics which uses computational techniques by reading raw data to make sense. This is called sentiment analysis. By using sentiment analysis, written expression can be evaluated with the following output: favourable, unfavourable or neutral. People use different types of social media like newspapers, Twitter, YouTube, and blogs. The first sentiment analytics tool for Malay Language and Bahasa Rojak (Malay and English Words) was developed in Malaysia. It is suited for the Malaysian local context and capable of analysing Malay and English text. We collect the data from various social media using web scrapping techniques and it's compared against trained machine which can be positive, negative and neutral. In this various machine learning techniques are used. Finally, displays the processed data using data visualization tool like trending topics, top products, geo-location, pricing, and packaging.</p> | | |

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| MY-50 | NAME(S) | KALAIARASI SONAI MUTHU / JAYA KUMAR KRISHNAN |
| ORGANIZATION | MULTIMEDIA UNIVERSITY | |
| TITLE OF ENTRY | Brand Knowledge: Feature and Sub-Features Extraction for Malay Language and Bahasa Rojak (Mixture of Malay and English Words) | |
| <p>Brand knowledge is determined by customer knowledge. The opportunity to develop brands based on customer knowledge understanding has never been greater. Social media as a set of leading communication platforms enable peer to peer interplays between customers and brands. The first data analytic tool for Malay Language and Bahasa Rojak (Mixture of Malay and English Words) was developed for a telecommunication company in Malaysia to cater for their product and services. We collect data from various social media like newspapers, Twitter, YouTube, and blogs. Next, the tool will analyze the data and determine the keywords or topics, features, and sub-features using various machine learning techniques. Finally, displays the processed data using data visualization tool like trending topics, top products, pricing, and packaging.</p> | | |

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| MY-51 | NAME(S) | CHNG CHERN WEI / FANG WEI JIE / ALEX LAW TENG YI / TEE ENG HONG / WAI CHUN VOON |
| ORGANIZATION | NEW ERA UNIVERSITY COLLEGE | |
| TITLE OF ENTRY | IOT AIR ENVIRONMENT MONITORING SYSTEM | |
| <p>In the past 10 years, global air quality has continued to decline. The issue of declining air quality has become one of the biggest problems facing the world. According to a report from the World Health Organization, exposure to air pollution causes 7 million premature deaths every year and causes the loss of millions of healthy lifespans. (WHO, 2021) The decline in air quality not only affects children's lung development but also restricts lung function and leads to respiratory infections and aggravation of asthma in children. Among adults, many premature deaths are caused by air pollution, such as ischemic heart disease, stroke, and neurodegenerative diseases. In modern times, the severity of air pollution issues can be compared with other major global health risk factors such as unhealthy diet and smoking. Therefore, the invention an air quality detection system to detect indoor air quality to monitor whether the indoor air quality is at a normal level is important and essential.</p> | | |

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| MY-52 | NAME(S) | Dr. Fanny Kho Chee Yuet |
| ORGANIZATION | Sultan Idris Education University | |
| TITLE OF ENTRY | D' FANNY TeLCy 2.0 | |
| <p>D' FANNY TeLCy 2.0 is the first Teacher Leadership Competency (TeLCy) model in Malaysia. It was developed based on Transformational Leadership Theory and four existing teacher leadership models. It confirmed the existence of four guiding principles: i) Fostering a Collaborative Culture, ii) Facilitating Improvement and Establishing Standards, iii) Modeling Leadership Attributes and Skills, and iv) Performing as a Referral Leader. This invention also highlights the new norm of teachers' values-driven leadership in the Malaysian educational context. It also contributed to the development of the Teacher Leadership Framework in Preparing Quality Teachers for the Future under the 5 million Niche-Research Grant Scheme (NRGS), Ministry of Higher Education Malaysia. Hence, D' FANNY TeLCy 2.0 is a more unique, comprehensive, impressive, ubiquitous, and suitable model for educational leaders in a VUCA world.</p> | | |

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| MY-53 | NAME(S) | Nur Farhanah Najihah / Nurul Izzati binti Mohd Saleh / Wan Mohd Yusof Rahiman / Ahmad Azmin Mohamad / Mohd Remy Rozainy |
| ORGANIZATION | | Universiti Sains Malaysia |
| TITLE OF ENTRY | | Auto Select Drone Parameters using Machine Learning based on Payload Information |
| <p>This research studies the suitable minimum drone specifications to lift the heavy load and minimum power required for the drone to lift the heavy load. The data are obtained from the Multicopter Calculator (eCalc). The datasets were then trained using machine learning to predict the best drone specification to lift specified load.</p> | | |

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| MY-54 | NAME(S) | WAN MOHD YUSOF RAHIMAN / MOHD REMY ROZAINY / MOHAMAD ANUAR KAMARUDDIN / MOHD SHARIZAL ABDUL AZIZ / MUHAMAD FAIZAL PAKIR MOHAMED LATIFF |
| ORGANIZATION | | UNIVERSITI SAINS MALAYSIA / UNIVERSITI TEKNOLOGI MARA |
| TITLE OF ENTRY | | NI myRIO and LabVIEW as Platform to Build Autonomous Mobile Shooting Robot |
| <p>The robot will be completely programmed using National Instruments LabView software. The FPGA being used to interface the program with the hardware mechanisms present in the robot is myRio. The robot works by moving autonomously using object and colour sensing, then detects ping pong balls using Logitech C922 Pro HD Stream Webcam. A picking mechanism collects the ping-pong ball and places the ball into the shooting mechanism. The goals of the project is to design mobile robot and develop the algorithm such that the robot autonomously collects the ball and shoots to the target holes.</p> | | |

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| MY-55 | NAME(S) | MUHAMMAD AMIN BIN MOHAMAD / NURADLIN NADHIRAH BINTI BORHAN / WAN MOHD YUSOF RAHIMAN / AHMAD AZMIN MOHAMAD / MOHD REMY ROZAINY |
| ORGANIZATION | | UNIVERSITI SAINS MALAYSIA (USM) |
| TITLE OF ENTRY | | Performance Evaluation of Autonomous Surface Vehicle (Boat Drone) |
| <p>This project focuses on the development and performance evaluation of an Autonomous Surface Vehicle (ASV) for hydrodynamic vessel experiment. The ASV is equipped with a Pixhawk autopilot to enable its performance to be controlled wirelessly in a natural environment. Pixhawk also makes the vessel trackable as its fully supports the GPS. The hull of the ASV is also measured using an Arduino MEGA 2560 equipped with several strain gauge sensors. For each upgrade on the ASV, data will be collected and then a suitable calculation method will be implemented to determine which upgrade improve its performance.</p> | | |

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| MY-56 | NAME(S) | Muhammad Syafiq Bin Ahmad Khairi / Dr. Sharifah Mashita Binti Syed Mohamad / Dr. Nur Hana Binti Samsudin / Dr. Mohd Hafidz Bin Jaafar |
| ORGANIZATION | | Universiti Sains Malaysia |
| TITLE OF ENTRY | | Campus Safe – Safety Hazard Identification & Risk Management System |
| <p>A project to develop a portal system for an accident report and Hazard Identification, Risk assessment and Risk Control (HIRARC) system. The system aims to identify hazards and control the risk around the Universiti Sains Malaysia (USM) campus. This HIRARC Report will be based on the "Hazard Identification, Risk assessment and Risk Control (HIRARC)" guideline. This project is named "Campus Safe – Safety Hazard Identification & Risk Management System". This system will provide a checklist for the user to evaluate and calculate the risk. The system will also provide a suitable method based on the risk level to keep the risk under control. This system will have a dashboard platform for responsible authorities to manage and track the risk. This dashboard will also be able to provide insights on the hazard using a classification technique called tagging. The first version of the system has been deployed to the USM server and is ready to be used. The motivation to develop the system is to respond to USM's top management recommendations to reduce hazards on campus.</p> | | |

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| MY-57 | NAME(S) | Nor Azmira Salleh / Noorashrina A. Hamid / Suhaina Ismail / Wan Mohd Yusof Rahiman / Ahmad Azmin Mohamad / Mohd Remy Rozainy |
| ORGANIZATION | | Universiti Sains Malaysia |
| TITLE OF ENTRY | | Application of Chitosan as Biopolymer Binder for Graphene Electrode in Supercapacitor Fabrication |
| <p>Binder is a crucial material in stabilizing the cycling efficiency and mechanical properties of the electrode for the supercapacitor. This innovation reports the effect of different weight percentages of chitosan binders in the graphene electrode on the distribution and electrochemical behaviour of supercapacitors. Cyclic voltammetry and galvanostatic charge-discharge are employed to investigate the electrochemical performance and life cycle of these electrodes for supercapacitor application. The best weight percentage of chitosan binder is 10 wt%, leading to good homogeneity and bonding. The highest specific capacitance of this electrode is 135.65 F g⁻¹, with a retention of 87.2% over the repeated charge-discharge cycle.</p> | | |

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| MY-58 | NAME(S) | Nor Azmira Salleh / Noorashrina A. Hamid / Suhaina Ismail / Wan Mohd Yusof Rahiman / Ahmad Azmin Mohamad / Mohd Remy Rozainy |
| ORGANIZATION | | Universiti Sains Malaysia |
| TITLE OF ENTRY | | Flexible Graphene-Chitosan Binder Electrode for Supercapacitor Application |
| <p>Flexible supercapacitors show great potential for applications in wearable consumer electronics due to their significance. In the project, the fabrication of a graphene electrode with chitosan binder on nickel foam was introduced as the flexible electrode. The morphology and the electrochemical properties of the graphene-chitosan electrode were characterized at different bending states. The morphology and electrochemical performance of the graphene-chitosan electrode at different bending states do not show a difference from the original states. It demonstrates that the as-prepared materials have a great bending performance and could be an ideal applicant for wearable devices.</p> | | |

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| MY-59 | NAME(S) | AZWATI AZMIN / WAN MOHD YUSOF RAHIMAN / SAMIHAH ABDULLAH / SONYA H.Y. HSU. |
| ORGANIZATION | | UNIVERSITI SAINS MALAYSIA / UNIVERSITI TEKNOLOGI MARA / UNIVERSITY OF LOUISIANA LAFAYETTE (USA) |
| TITLE OF ENTRY | | LoRa Based IoT Point of Care Screening for Personalized Healthcare Body Monitoring System |
| <p>The term of Internet of Things (IoT) refers to a wide range of interconnected objects and devices that harvest information from an environment through sensors, then analyze it and act back on the physical world through actuators. Specific to the healthcare sector, using IoT devices, or also known as Internet of Medical Things (IoMT), it may support core functions of health-related services. IoMT will allow the integration of IoT communication protocols with medical systems and devices, in order to support the remote patient monitoring and treatment system in real time basis. Most of the communication protocols have not been specifically designed for the needs of connected medical devices, therefore, it need to evaluate the available IoT communication technologies which suitable in the context of medical devices. The aim of this project is to transmit the gathered data from bio-medical sensors to IoT platform by implementing a wireless system with LoRa. The data from temperature sensor and heartbeat sensor automatically processed by Arduino Uno at the transmitter part then sends the collected sensors data to NodeMCU via LoRa module. NodeMCU will upload the received data to Blynk cloud and notified the doctors/caregivers for the monitoring or further proceedings of medical records.</p> | | |

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| MY-60 | NAME(S) | Mardiana Said / Nor Azmira Salleh / Noorashrina A. Hamid / Suhaina Ismail / Wan Mohd Yusof Rahiman / Ahmad Azmin Mohamad / Mohd Remy Rozainy |
| ORGANIZATION | | Universiti Sains Malaysia |
| TITLE OF ENTRY | | Application of microwave hybrid heating for microstructure of Sn-3.0Ag-0.5Cu/Cu solder joints analysis |
| <p>This project aims to investigate the morphology of Sn-3.0Ag-0.5Cu (SAC305) solder alloy under the influence of microwave hybrid heating (MHH). Si wafer was used as susceptor in MHH for solder reflow. Microwave operating power for medium and high ranging from 40 to 140 s reflow time was used to investigate their effect on the microstructure of SAC305/Cu solder joints. Intermetallic compound layer formation transformed from scallop-like to elongated scallop-like structure for medium and scallop-like to planar-like structure for high operating power. Microwave parameters with the influence of Si wafer in MHH in soldering have been developed and optimized.</p> | | |

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| MY-61 | NAME(S) | Firdaus Bin Mohd Nazri / Dr. Ahmad Sufriil Azlan Mohamed / Dr. Mohd Hafidz Bin Jaafar |
| ORGANIZATION | | Universiti Sains Malaysia |
| TITLE OF ENTRY | | Movement Estimation using Artificial Intelligence: (METAL) |
| <p>The purpose of this project is to develop a system that can track a person's body movement from a video source while augmenting the labelled skeleton joints onto the person's body. This project has endless applications in the real world, especially in the physical-demanding working environment and the sports industry. This project aims to be implemented using deep learning techniques, which are mainly for recognising the joints in a person's body. The expected outcome from this project is a working system that is able to correctly identify and label the skeleton joints on a person's body as well as perform various calculations such as movement velocity and the angle of joints which could be crucial for determining whether specific body movements could result in injuries either in the short or long term period.</p> | | |

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| MY-62 | NAME(S) | Mohamad Hazwan Bin Mohd Ghazali / Wan Mohd Yusof Rahiman / Muhammad Affan / Ahmad Azmin Mohamad / Mohd Remy Rozainy |
| ORGANIZATION | | Universiti Sains Malaysia |
| TITLE OF ENTRY | | Optimized Configurations for UAV-Based LoRa Communication Networks |
| <p>Lora is a low-power, wide-area wireless network (IPWAN) protocol for Internet of Things (IoT) applications. The coverage of large areas is based on reduced infrastructure and low energy consumption. This project aims to determine the optimized configurations for the UAV-based LoRa communication networks. The configurations involved are transmit power, antenna gain, and antenna angle, whereas the focus of the LoRa performance is based on the signal strength and packet reception rate (PRR). The experiment is conducted in indoor and outdoor locations, with direct line-of-sight and the presence of obstacle conditions.</p> | | |

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| MY-63 | NAME(S) | Muhamad Zulhasif bin Mokhtar / Mohamad Hidayat Bin Jamal / Mohd Remy Rozainy bin Mohd Arif Zainol |
| ORGANIZATION | Centre for River and Coastal Engineering (CRCE), School of Civil Engineering, Universiti Teknologi Malaysia | |
| TITLE OF ENTRY | Immobilizing Pb in water drainage system using Hydroxyapatite as outer coating | |
| <p>Lead (Pb) poisoning now becoming major concern in environmental and human's health. Pb ions are very toxic and easily reside in our bone for decades. We found that a bio-material called Hydroxyapatite (HAP) or known as 'synthetic bone' can effectively adsorb and contain Pb. HAP was synthesized by wet precipitation method and mixed with cement at desirable ratio before applying to concrete drain's surface. The proof-of-concept adsorption experiment shows that more than 98% of artificial Pb can be adsorbed by every 300 cm² of HAP paste applied on the concrete surface. The application of HAP on drain's surfaces is straight forward and commercialization or up-scaling is very promising.</p> | | |

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| MY-64 | NAME(S) | Muhamad Sharan bin Musa / Cheang Mun Kit |
| ORGANIZATION | School of Materials & Mineral Resources Engineering, Universiti Sains Malaysia | |
| TITLE OF ENTRY | High crystallinity of MyCelluNat Nanocrystals Extracted from Cotton Linter | |
| <p>MyCelluNat Nanocrystals were isolated from cotton linter through acid hydrolysis with the controlling variable of acid concentration and hydrolysis temperature. The particle size (~260 nm) and zeta potential (-52 mV) of MyCelluNat Nanocrystals were observed highest at 30°C with 55% sulphuric acid. X-Ray Diffraction (XRD) analysis showed a high crystallinity of ~80 %. Characteristic MyCelluNat Nanocrystal peak was observed from the spectrum at 1375. The thermal analysis (TGA & DSC) showed almost good thermal observation. A small amount of filler ~max 5 wt.% into carboxylated nitrile butadiene (XNBR) had significantly impacted the mechanical & biodegradable properties of XNBR biocomposite films.</p> | | |

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| MY-65 | NAME(S) | Mohd Sharizal Abdul Aziz / Jamaluddin Abdullah / Muhammad Fauzinizam Razali / Mohd Remy Rozainy Mohd Arif Zainol / Muhamad Faizal Pakir Mohamed Latiff / Mohamad Anuar Kamaruddin / Wan Mohd Yusof Rahiman Wan Abdul Aziz / Adzli Mohd Yusof |
| ORGANIZATION | School of Mechanical Engineering, Universiti Sains Malaysia | |
| TITLE OF ENTRY | 3D printed ankle-foot orthosis using carbon fibre composite | |
| <p>Neuromuscular problems and traumas, such as cerebral palsy, spinal cord injury and stroke, can cause foot-drop, which can make walking extremely difficult. Ankle foot orthoses (AFOs) or splints have been recommended for many years to reduce the ankle's range of motion, provide support, and aid in rehabilitation. In this innovation, an AFO's are designed and fabricated utilizing 3D scanning and 3D printing techniques using carbon fiber filament. Static structural analysis is performed to replicate the behaviour of the AFO designs under static loading conditions as the result of the ground reaction forces exerted on the AFO by the ground. By incorporating an interchangeable carbon fibre, particularly at the ankle joint, the design will result in a stronger, more comfortable, and more adaptable AFO that restricts ankle movement for a variety of activities.</p> | | |

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| MY-66 | NAME(S) | NOORASHRINA A. HAMID / AHMAD FUZAMY MOHD ABDUL FATAH / AHMAD AZMIN MOHAMAD |
| ORGANIZATION | UNIVERSITI SAINS MALAYSIA | |
| TITLE OF ENTRY | HIGH POWDER DENSITY LSCF-ZNO CATHODE FOR IT-SOFC | |
| <p>Lanthanum Strontium Cobalt Ferrite (LSCF) perovskite is a high-efficiency mixed-ionic-electronic conductor (MIEC) cathode material for solid oxide fuel cells (SOFC). LSCF mixed with zinc oxide (LSCF-ZnO) is a good cathode material for an IT-SOFC because it has a high electrical conductivity and a good ability to reduce oxygen. Impedance spectrum research reveals that a higher amount of oxygen reduction occurs in the LSCF-ZnO symmetric cell than in the bare LSCF cell. The addition of 5% zinc oxide to LSCF significantly increases the peak power density and allows for higher power output as compared to the bare LSCF.</p> | | |

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| MY-67 | NAME(S) | Junaidah binti Abdullah / Mohd Remy Rozainy bin Mohd Arif Zainol / Mohd. Fazly bin Yusof / Muhammad Zaki bin Mohd Kasim / Muhamad Nurfasya bin Alias / Nor Azazi bin Zakaria |
| ORGANIZATION | River Engineering and Urban Drainage Research Centre (REDAC), Universiti Sains Malaysia | |
| TITLE OF ENTRY | Hydraulic Performance Study of Subsurface Drain Module for Application in Field Condition | |
| <p>Subsurface drainage is a part of components of sustainable drainage system. This component indicates the infiltration of stormwater into subsurface drainage system in order to provides flow attenuation. This study was carried out with the aim to investigate the flow characteristics of subsurface drainage components in field condition. Half modules components by <i>RainSMARTS</i> were verified in the laboratory at three different slope gradient and the data that obtained in these experiments in term of flow depth and flow velocity. As a results, the profile of the flow and velocity for this subsurface drain components have been experimentally developed.</p> | | |

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| MY-68 | NAME(S) | Mohd Amirul Mahamud / Narimah Samat / Mohd Azmeer Abu Bakar |
| ORGANIZATION | School of Humanities, Universiti Sains Malaysia | |
| TITLE OF ENTRY | SPT-Sim | |
| <p>Urban growth rate differs within a region depending on its location, such as close to the city centre and availability of public amenities. However, most developed urban growth models implemented a uniform rate of urban growth to predict potential future urban growth outcomes, which is different from the real-world situation. Thus, the SPT-Sim was developed where the model allows non-uniformity in urban growth rate. Furthermore, agent-based model (ABM) technique were applied to increase the accuracy of the model in replicating the real-world situation. Understanding the urban growth system is the first step towards achieving future sustainable urbanisation.</p> | | |

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| MY-69 | NAME(S) | VINNAVAN KANESHWARAN / MEDINA JASMYNA BINTI AHMAD DANIAL / HANNAH BIN MUHAMMAD FIRZA / PN. NURUL AYUNI BINTI AHMAD FUAD / PN. SITI NADIA BINTI MOHAMAD / PN. THENDRAL A/P SIVABALAN / PN. NORAZEAN BINTI MOHD GHAZALI / EN. ZAIMY BIN SHAH BHARI |
| ORGANIZATION | Sekolah Kebangsaan Taman Universiti | |
| TITLE OF ENTRY | Speedy Lock | |
| <p>Speedy lock is a simplified version of Speedy Padlock Therefore, a specific innovation was performed on this padlock. This is to ease the process of users unlocking their padlock much faster and safer too. The idea of innovating this padlock immersed prior to the increase of theft happening during unlocking padlocks at a premise. People take time while manually unlocking padlocks that they unintentionally overlooked on their surroundings. Eventually they become the victims of theft, losing their valuables and sadly some get injured during the event of theft. Therefore, Speedy Lock has the solution.</p> | | |

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| MY-70 | NAME(S) | Mohamad Anuar Kamaruddin / Mohd Remy Rozainy Mohd Arif Zainol / Muhamad Faizal Pakir Mohamed Latiff / Mohd Sharizal Abdul Aziz / Wan Mohd Yusof Rahiman Wan Abdul Aziz / Mohamad Haziq Muhammad Hanif / Muhd Nazmi Ismail |
| ORGANIZATION | School of Industrial Technology, Universiti Sains Malaysia | |
| TITLE OF ENTRY | ENVIRONMENT AUDIT MATRIX SYSTEM (EMAXs) IOT | |
| <p>Environment Audit Matrix system (EMAXs) is web-based application developed to ease the auditor, regulatory body, and stakeholders to manage projects. We utilize the internet of things (IoT) for application development and leveraging on the best available technique (BAT) for erosion and sediment control. The availability of the cloud storage for data and records keeping for future reference and real time monitoring system for enforcement authorities The product can be use easily and real and quick monitoring systems information (georeferences, photos, control measures, action taken, remarks, recurring activity). The records and data retrieval from cloud storage are easily available which also provides offline feature available if user is located at remote area (no mobile network)</p> | | |

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| MY-71 | NAME(S) | Dr. Herni Halim / Muhammad Zuhairi bin Zakaria / Ts. Ir. Dr. Izwan Johari / Dr. Rosnani Alkarmiah / Dr. Nik Azimatolakma Awang / Dr. Mohd Amirul Mohd Snin / Dr. Nurul Farhana Binti Mohd Yusof / Wan Mohd Amri Wan Mamat Ali |
| ORGANIZATION | Universiti Sains Malaysia | |
| TITLE OF ENTRY | Sound absorption performance of sustainable concrete infused with coconut coir fiber | |
| <p>In Malaysia, coconut plantations generate a large amount of garbage that is not utilised and is frequently disposed of as agricultural waste. Coconut fibres are one of the components that may be marketed, recycled, and used in building materials to help reduce solid waste while improving environmental circumstances. Coconut fibre can be utilised as a sustainable alternative to concrete. This connection could be one of repurposing waste resources to create new materials that are of higher grade than typical building materials.</p> | | |

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| MY-72 | NAME(S) | MUHAMAD FAIZAL PAKIR MOHAMED LATIFF / MOHD SAMSUDIN ABDUL HAMID / MOHAMAD ANUAR KAMARUDDIN / MOHD REMY ROZAINY MOHD ARIF ZAINOL / MOHD SHARIZAL ABDUL AZIZ / WAN MOHD YUSOF RAHIMAN WAN ABDUL AZIZ / NUR HAZWANI MOHAMED NASIR |
| ORGANIZATION | Universiti Teknologi MARA, Cawangan Pulau Pinang / UNIVERSITI SAINS MALAYSIA / POLITEKNIK SEBERANG PERAI | |
| TITLE OF ENTRY | PERFORATED FLAP GATE FOR DISCHARGE CONTROL | |
| <p>The flap gate as one of the coastal defence structures needs a high water level as the flap gate can only be opened to allow the water to flow through it. This can cause a high energy level of water flow coming from the upstream area to the coastal area which leads to the erosion of the coastal area. It is dangerous to its surrounding as it produces bigger turbulence of water on the hydraulic jump. Therefore, the objective of this study is to determine the occurrence of hydraulic jump when the various discharges of water flow through a perforated flap gate and to analyse the energy loss of water from the upstream to the downstream area when the various discharges of water flow through perforated flap gate. The perforated flap gate has the potential to be used as a defence structure at the coastal area since it can dissipate energy and reduce erosion in low and high tide conditions.</p> | | |

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| MY-73 | NAME(S) | Mohd Azmeer Abu Bakar / Narimah Samat / Sha'in Sreeni / Asyirah Abdul Rahim / Mohd Amirul Mahamud |
| ORGANIZATION | School of Humanities, Universiti Sains Malaysia | |
| TITLE OF ENTRY | Framework for Connecting 17 Sustainable Development Goals (SDGs) | |
| <p>Rapid urbanization has caused cities to expand and acquire more resources to satisfy the demand of growing population. This phenomenon has brought many challenges such as urban sprawl, greenhouse gas emissions, inadequate water supply, inadequate waste management, traffic congestion, urban poverty and threat to human health. Cities are places with high risks as majority of the populations and economic activities are in cities, however, cities are also place of opportunities to accelerate sustainable development 66 of the world's population is expected to live in cities by 2060 and rapid urbanization puts a huge strain on urban systems. It has become increasingly important to monitor cities' performance in reaching sustainability As urban systems are complex, a common way to simplify monitoring is the use of indicators to developed a framework for measuring SDGs achievement. The framework was based on 5 Ps to achieve sustainable development which comprise of SMART, SUSTAIN, and RESILIENCE.</p> | | |

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| MY-74 | NAME(S) | Mohd Samsudin Abdul Hamid / Muhamad Faizal Pakir Mohamed Latiff / Mohd Remy Rozainy Mohd Arif Zainol |
| ORGANIZATION | Universiti Teknologi MARA, Cawangan Pulau Pinang / School Of Civil Engineering, Universiti Sains Malaysia | |
| TITLE OF ENTRY | Response Surface Model of Eco-Efficiency Index for Green Reinforced Concrete Residential Houses (RSM-EERC) | |
| <p>The concept of a sustainable environment generally refers to the development that creates a balance between the resources consumption pattern and the rate of natural resources depletion. This innovation presents an analytical study that focused on establishing a correlation of eco-efficiency index for concrete residential housing in Malaysia using statistical technique and performed response surface method. 3D model graphs were developed for structural concrete containing fly ash, and blast furnace slag (BFS), which was assigned to the structural members in a single and double story housing. The study has concluded that the correlations established between the cost and carbon emission, economic & environmental scores, and the eco-efficiency index have shown a linear trend for single story housing and a cubic for the double story housing. It is also determining that not all waste material is green material where examining the composition is important to classify its sustainable level. The model is applicable for designing sustainable reinforced concrete structure to meet Criteria 6 (Innovation) in Green Building Index.</p> | | |

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| MY-75 | NAME(S) | MOHAMAD AZIL MUZAMMIL BIN BAHARUDIN / ASSOC PROF DR MOHD HAFIZAL BIN MOHD ISA |
| ORGANIZATION | UNIVERSITY SAINS MALAYSIA | |
| TITLE OF ENTRY | MODULAR SYSTEM FOR FUTURE LIVING (URBAN MOTION) | |
| <p>The objective of developing this housing modular mechanism was to address the urban poor problem that exists among the low-income community. This home design mechanism, which employs an architectural modular system, will become a cost-cutting option by enhancing the flexibility and portability of dwelling types. The current housing price is prohibitively expensive for low-income buyers, and the developer may face difficulties if sales are lowered. The modular house may be built, dismantled, and transported to any location using the same mother structure system, allowing the developer to offer a wider range of housing options to the user.</p> | | |

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| MEXICO  | | |
| MX-01 | NAME(S) | Maritza Alejandra Sanchez |
| ORGANIZATION | University of Connecticut | |
| TITLE OF ENTRY | Development of a sustainable fuel cell for the generation of clean energy through the treatment of polluted river wastewater | |
| <p>A microbial fuel cell (MFC) is a type of bio electrochemical fuel cell system that generates electric current by the action of microorganisms. Microbes such as bacteria found in polluted wastewater were used, which catalyzed electrochemical oxidations and reductions at the anode and cathode, respectively, to convert chemical energy to electrical energy. In total, the system was capable of producing a voltage of 0.5 V and lowering wastewater contamination levels by 72%. Various factors, such as the length of salt bridge, amount of supersaturated sugar solution, and aeration were studied as well. The study shows promising results for future applications of the device with additional research.</p> | | |

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| MOLDOVA  | | |
| MD-01 | NAME(S) | Victoria Danila / Stela Balan / Antonela Curteza |
| ORGANIZATION | Technical University Gheorghe Asachi Iasi | |
| TITLE OF ENTRY | INTELLIGENT CLOTHES SYSTEM FOR CHILDREN | |
| <p>The benefits of the products are the intelligent system for obtaining information about the child's health, the shape of the product, it easily allows the integration of a system for monitoring the child's vital parameters. The design of smart products consists of flat elements with minimal seams, which are safe and comfortable and at the same time monitor the state of health. The product provides information to medical staff and parents about the child's condition in a short time.</p> | | |

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| MD-02 | NAME(S) | Valentina Moscovici / Constantin Moscovici |
| ORGANIZATION | Junior Achievement Moldova | |
| TITLE OF ENTRY | DanceR PT | |
| <p>Innovation provides the child to relax by dancing, this object helps the child to relax his body, it is a wood with which you dance on the back, it helps to keep your back straight is against scoliosis, children sit incorrectly on a chair, bed, school, back is destroyed, the spine grows crooked, this product helps not only children but also adults because the person's age bends and the column weakens considerably, this delicate invention has a secret that helps rejuvenate the body and relax it, but it is mandatory to dance with it on back. The number one condition is not to be removed from the back for 30 minutes when dancing with him, so it has no effect and the person, child or adult will not be treated. We can kinotepetucally treat scoliosis through procedures that will last 3-6 months depending on the severity of the child's problem, the adult can perform daily for prophylaxis and back regeneration. This object has no value if it is not applied to the back and does not dance correctly, being fixed with the hands on the center of the back columns. It has no contraindications and is not foreseen, it is not allergic, it is made of oak wood.</p> | | |

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| MD-03 | NAME(S) | Denis Kalinkov / Ala Brodetchi |
| ORGANIZATION | Junior Achievement Moldova | |
| TITLE OF ENTRY | Sport TEF | |
| <p>Round silicone plate that attaches to the knees while doing sports or running, this support treats the knees and keeps the feet healthy, in this product there is a natural gelatinous element that helps to keep the wrists from getting worn and do not creak over a period of time. It does not cause allergies and has no contraindications. It is recommended for children 7-14 years old who practice football intensively or run in the park. It is also recommended for active adults and athletes.</p> | | |

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| MD-04 | NAME(S) | Muntean Angela / Silvia Scortescu |
| ORGANIZATION | Junior Achievement Moldova | |
| TITLE OF ENTRY | Secret Book | |
| <p>This is a book-shaped toy is placed at the elbow, in which all can keep the secrets of a teenager are hidden, funny themed keychains, preferential jewelry, basic necessities, house keys, car keys, it is very colorful like a teenager's life. The book is made of fluffy cloth and staples with medical magnets, does not cause allergies and is not dangerous for babies.</p> | | |

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| MD-05 | NAME(S) | Bolocan Catalin |
| ORGANIZATION | Junior Achievement Moldova | |
| TITLE OF ENTRY | Full-Lamp 2 BC | |
| <p>Lamp- lantern with many inputs and outputs, recycled from old object, used lamp that I found in the closet. The purpose of the invention, the use of solar energy, solar battery that provides us with free energy. It is very useful, wireless, portable, easily charges the phone, computer and lights the room. It is very useful in camping, in tourism, at sea, in the mountains. You can also easily save electricity in the country for grandparents, because the Sun is free from God. The invention is very current, it is modern, very useful and it is not disposable, it lasts the solar battery with a 25-year warranty, as long as the battery works, we will have free energy. It is not dangerous, I made it myself, the adapter made of batteries made in Germany, I provided the amps of energy myself to produce a quantity of energy ready to provide 24 of 24 energy from the sun that is free and available to anyone. I have been working on this project for 5 years, I continue to progress and advance through discoveries in physics at school.</p> | | |

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| MD-06 | NAME(S) | Chiriac Victor |
| ORGANIZATION | Junior Achievement Moldova | |
| TITLE OF ENTRY | BNB-SPIRULINA | |
| <p>Spirulina has cell regeneration properties, silver particles stop cancer being in contact with spirulina, research has shown that spirulina and silver particle pills treat and destroy parasites and cancer-negative cells.</p> | | |

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| MD-07 | NAME(S) | Grizuc Renata |
| ORGANIZATION | Junior Achievement Moldova | |
| TITLE OF ENTRY | APuN THERAPY GR | |
| <p>Magnetotherapy has long been appreciated and applied as a beneficial treatment for the health of the body, because everything we inhale are metals and everything we eat is chemical, the human body has metals but when it exceeds the measure there is intoxication or self-destruction, so we normalize the amount and the magnetic field, because the tone that surrounds us is biology, chemistry and physics. My invention is created for medicinal purposes, children go camping, school, sit down on the grass come into contact with insects, air, pollution, intoxication or allergies. We created a backpack-blanket with personalized pillow with copyright, APuN, the law of physics speaks, if the object that holds magnets drives away insects and protects the human body from unwanted things, cold earth means destroyed health, cold, blanket helps protect the body from colds, muscular pains and dangerous insects because the magnetic waves protect and we have security. Of course we can store things in this blanket when we tighten it and we can easily go with it anywhere for walks, forest, grandparents, with colleagues at school because it is healthy and very useful. It does not cause allergies, it is soft, comfortable and nice and very, very useful not only for children or teenagers but also adults who prefer original and healthy things.</p> | | |

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| MD-08 | NAME(S) | Buca Felicia |
| ORGANIZATION | Junior Achievement Moldova | |
| TITLE OF ENTRY | Felis-Panda MAGNO FP | |
| <p>I love animals very much, I have a Mona puppy and a Sam puppy boy at home, they participate and go to competitions and are trained, dogs and cats, unlike humans, age quickly, my pets suffer like humans, they squeal in pain paws, they are forced to endure immense pain, they are not like people to say what they miss or what they are intoxicated with. I decided to produce my own invention for my pets, a garment that seals the back and belly where all the nerves are located, there are medicinal magnets that will help treat and relieve muscle and bone pain, my pets too that people come in contact with dust, chemicals or threaten something poisonous and are daily at risk but the law of physics says everything around us attracts and therefore animals suffer. We created a Felis-Panda coat that will be a remedy and treatment for an easy and safe life for four-legged animals. It is not dangerous, it is a waterproof cloth that resists moisture, because it rains, it snows and the animals walk and the coat will be protected, it does not cause allergies, on the contrary it removes all insects, it is at an advantageous price.</p> | | |

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| MD-09 | NAME(S) | Matei Caolina / Silvia Scortescu |
| ORGANIZATION | Junior Achievement Moldova | |
| TITLE OF ENTRY | Mupi | |
| <p>Mupi is a medicinal lollipop made of maple syrup with the addition of medicinal plants, the purpose of production is to treat viruses and seasonal colds, the person is treated when administering for 10 consecutive days the lollipop also made with linden.</p> | | |

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| MD-10 | NAME(S) | Rusu Constanta / Silvia Scortescu |
| ORGANIZATION | Junior Achievement Moldova | |
| TITLE OF ENTRY | Tuk-Puk | |
| <p>Organic teddy bear biscuits made from millet, contains sesame seeds, is administered in the morning on an empty stomach, remove bloating, also contains a secret ingredient that keeps you until 2 p.m.</p> | | |

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| MD-11 | NAME(S) | Chiriac Victor / Muntean Alexandru / Mariana Lozinschii |
| ORGANIZATION | Junior Achievement Moldova | |
| TITLE OF ENTRY | Nano-Tehno Stofix | |
| <p>Stofix -material that does not absorb odor, does not get wet, heat-resistant, are very flexible and elastic. Durable over time.</p> | | |

MONGOLIA

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| MN-01 | NAME(S) | Myagmarsuren Tsanjid |
| ORGANIZATION | Uranqar Urtal NGO | |
| TITLE OF ENTRY | Mongolian Khalkh doll and handbags | |
| <p>The KHALKH doll: A pair of KHALKH dolls are 21cm tall. It is crafted using the macramé art with colorful threads. The dolls are crafted using a combination of the ancient and the modern style of KHALKH nation. The dolls are made of metal. The decoration of the female doll's hat made using a piece of silver.</p> | | |

MOROCCO

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| MA-01 | NAME(S) | Hassan Ammor / Karli Radouane |
| ORGANIZATION | Mohammadia Engineering School, Mohammed V University | |
| TITLE OF ENTRY | A New Smart Microwave Imaging Scanner for Breast Cancer Detection | |
| <p>Our project involves the invention of an antenna array system in microstrip technology for microwave imaging. It is intended for recent radiological systems allowing a study of internal organs without irradiation of the body for the detection of infra-millimeter tumors of breast cancer. This system is unique in its operation and design. He will have great success in the medical fields nationally and internationally. In fact, the microwave tomography technique of the breast uses the diffusion of signals by the tumor, which has electrical properties different from those of healthy breast tissue. From an economic point of view, our antenna network will ensure savings of over 80% of the cost of mammography. This will allow wider use especially on a rural scale, in Africa and in the world. Other features of this antenna array show its efficiency, it is lighter, smaller and not harmful to health. This will allow it to have a commercial success. Our system will be a technological revolution. The advantage of our invention is to be able to treat this cancer more easily and to limit the sequelae linked to certain treatments.</p> | | |

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| MA-02 | NAME(S) | Mohamed Amine Gadi / Yassine Aboudrare / Safae Merzouk / Ssadiq Charadi / Brahim Elbhiri |
| ORGANIZATION | EMSI | |
| TITLE OF ENTRY | Smart marine survey system | |
| <p>The present invention is a Smart marine survey system. It consists mainly of a network of double-sided robots able to float and navigate the water sea independently. These robots are each composed of several sensors to collect maritime and weather information. According to the concept that we propose, the system can cover a large marine area by multiplying the number of robots integrated in the network. The various robots are intelligently connected to each other via a suitable communication network in order to communicate all of the data collected to the user via a gateway.</p> | | |

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| MA-03 | NAME(S) | Hatim Ez-Zaglazi / Yassine Aboudrare / Safae Merzouk / Brahim Elbhiri |
| ORGANIZATION | EMSI | |
| TITLE OF ENTRY | Intelligent system for collecting donations "DONATE" | |
| <p>Generally, donation and charity collectors use acrylic collection boxes, transparent or not with key lock. The invented DONATE System has a creative and innovative design that can be installed in a private or/and public place, which is made up of several blocks allowing the collection and display of light shows or messages, according to each use of the theme collection of donations in a secure and attractive way. Donate is able to distinguish between any type of currency or others through an integrated block at the global system level allowing the reading and receipt of any type of donation received by each user, and It is based in its operation on a green energy source (of any type) or other and ensuring the overall power supply of the system. Also, this invented system can control and give the state of the collection through a communication and control block, in order to have visibility on the donations and to make the link between the user and the recipients of the donations.</p> | | |

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| MA-04 | NAME(S) | Mohamed Amine Gadi / Yassine Aboudrare / Safae Merzouk / Ssadiq Charadi / Brahim Elbhiri |
| ORGANIZATION | EMSI | |
| TITLE OF ENTRY | Intelligent UV-C disinfection system | |
| <p>The present invention consists in contributing to the field of health through the development of a solution allowing regular prevention against viruses, bacteria or others, whatever their areas of existence either in water, air, on surfaces or others through an intelligent system based on UV- C technology. This designed system is installed along public places such as: hospitals, offices, shops, schools, museums and public transport or others. This intelligent system uses UV-C technology in its operation and has a set of integrated sensors detecting the presence rate of viruses, bacteria or others, in each zone concerned, giving instructions for the operation of the said system on a regular basis.</p> | | |

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| NETHERLANDS  | | |
| NL-01 | NAME(S) | Chen Zhuo |
| ORGANIZATION | N/A | |
| TITLE OF ENTRY | Fixed receiver Solar collector | |
| <p>The invention is a solar thermal energy collector, where a condenser lens focuses sunlight onto a fixed point. The receiver is installed in this position so that the receiver and heat pipe are easy to link, so the temperature and efficiency will be higher. The present invention is very suitable for solar thermal power station and domestic heating.</p> | | |

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| NEW ZEALAND  | | |
| NZ-01 | NAME(S) | Jonathan P. Olds / Winston K.G. Seah / Ramesh Rayudu |
| ORGANIZATION | Victoria University of Wellington | |
| TITLE OF ENTRY | AccuMM – Accurate to the MilliMetre | |
| <p>Knowing where and when a landslide will occur is currently more of an art than a science. We use low-cost solar-/battery-powered wireless GPS-based sensors, together with our specialized, cloud-based algorithm to calculate the location of each sensor, relative to a fixed-based station. Costing less than 5% of existing solutions, yet providing sub-centimeter accuracy, our system can be deployed in-situ for long-term continuous landslide movement monitoring. This enables more points on a landslide to be monitored continuously without the need for site visits nor intervention for five years or more, giving geotechnical engineers data to help them in landslide risk assessment.</p> | | |

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| PAKISTAN  | | |
| PK-01 | NAME(S) | Muhammad Ayad |
| ORGANIZATION | Gifted child | |
| TITLE OF ENTRY | The youngest toddler (2.5) with 18 records and 2 honorary doctorates | |
| <p>The youngest omniscient and honorary doctorate degree holder with 18 national and international records at the age of 2.5 years. In Pakistan, he is the trend setter in the entire history of Pakistan. He is a motivation for his age fellows. Many people follow him in Pakistan and copies what he does. His achievements allowed many followers to finish the age limit for talent at 18 months. He is being interviewed by BBC Urdu, Hindi, Punjabi. He is a sensation for talented toddlers. He is a gifted child, so your encouragement would push him further to achieve more future goals.</p> | | |

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| PK-02 | NAME(S) | ASMA MUNIR / DR. REHANA NASEER |
| ORGANIZATION | GOVT COLLEGE WOMEN UNIVERSITY, FAISALABAD, PAKISTAN | |
| TITLE OF ENTRY | BIOTREATMENTS OF NUTS TO MAINTAIN NUTRITIONAL QUALITY AGAINST MYCOTOXINS DURING STORAGE | |
| <p>Essential oils have been used for centuries as food additives and for the treatment of a variety of disorders (Ayala-Zavala et al., 2011). In Pakistan, however, there is no reliable evidence that the EOs of these plants are fungal inhibitors or anti-aflatoxigenic against aflatoxigenic <i>Aspergillus</i> spp. The goal of this study was to evaluate how EOs affected <i>Aspergillus</i> spp. growth, spore formation, and mycotoxin generation, and if they may be used instead of synthetic chemical preservatives.</p> | | |

PALESTINE 

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| PS-01 | NAME(S) | Hisham Ali H.Shriam |
| ORGANIZATION | HEIC - Higher Council for Innovation & Excellence | |
| TITLE OF ENTRY | AGRIOTEC | |
| <p>AGRIOTEC is a precision technology system that provides an effective solution for safe agricultural production, and monitoring of chemicals & pesticides, focusing on greenhouse farmers. AGRIOTEC tackles the random consumption issue of agricultural resources by providing customized guidance and directions to farmers, in addition to a centralized monitoring system, to increase their yield and decrease production costs. Its system adopts machine learning methods that support the farmer's performance within the agricultural activities and will help increase the production of the crops and reduce costs.</p> | | |

PERU 

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| PE-01 | NAME(S) | Loyda Luz Guevara Castañeda / Carlos Alberto Farje Gallardo / Policarpio Chauca Valqui / Tello Vargas Fernando Enrique / Tello Vargas Carlos Alfonso |
| ORGANIZATION | UNTRM | |
| TITLE OF ENTRY | DEVICE FOR REMOVING TONSIL STONES | |
| <p>The TONSIL STONE REMOVER DEVICE is a device that includes a head with two active ends, one to press the tonsillar crypts without lacerating them and the other to remove the stone. This tool is used to remove the stones that form in the folds, grooves and crypts avoiding surgical cut, scraping, aspiration or tonsillar brushing. Therefore, this device improves oral hygiene by eliminating potential infectious reservoirs; since reports indicate a 30.65% prevalence in calcifications in soft tissues of the head and neck in the tomographies of the Oral and Maxillofacial Radiology Service they correspond to tonsilloliths.</p> | | |

PHILIPPINES 

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| PH-01 | NAME(S) | Matteo Raphael A. Goco |
| ORGANIZATION | Holy Infant Academy of Calapan | |
| TITLE OF ENTRY | Wearable UV Sensing Device with Bluetooth Monitoring Through Android Application | |
| <p>This invention /study aimed to have wearable UV sensing device which will be the guide on how we can benefit from sun and give us warnings when sun already became detrimental to our health. It is believed that through the device, we can properly plan what to do and what to wear to adapt with environment especially during summer. The device measures the UV rays of the sun and provides an indicator thereof, which can be very helpful for the wearer to determine how much sun exposure he/she should have or when to go outdoors.</p> | | |

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| PH-02 | NAME(S) | Antonio Gabriel A. Goco |
| ORGANIZATION | Holy Infant Academy of Calapan | |
| TITLE OF ENTRY | IR Snake Robot – A Search, Surveillance, Rescue and Retrieve Device | |
| <p>Presently, robots are used widely for different uses, including for search and rescue in disaster areas. However, at the moment robots aren't nearly as nimble as humans when it comes to traversing uneven and unpredictable ground (like that you would expect to find after an earthquake or flood). In this study, an IR snake robot is designed and developed specifically for search and rescue operations. The IR snake robot was built to fit into places humans can't. Robots can travel through small tunnels underground, pass through small gaps, or fit into tiny pockets of air beneath fallen buildings. It is also equipped with sensors to detect air-quality in the environment.</p> | | |

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| PH-03 | NAME(S) | Cageo D. Berongoy |
| ORGANIZATION | Rizal inventors and Innovators Society Inc. | |
| TITLE OF ENTRY | Pressure Release Reaction Pump | |
| <p>The present invention generally relates to a pumping means, but more particularly to pressure release reaction pump, to operate with the use of free sources of energy, such as, solar thermal energy or energy from any combustible and discarded materials, pressure release reaction pump, a first water pump ever, a vacuum suctioned working principle, without friction, no engine, no electrical energy. After released the pressurized hot water, as predicted in third law of motion formulated by, Isaac Newton, that for every action there is an equal and opposite reaction, creating vacuum or suction effect the opposite reaction the released pressurized hot, lifting water from a lower elevated, uses such as, farm irrigation purposes or collecting tanks for other multitude of purposes, pressure release reaction pump, that needs minimal maintenance to thereby function under a minimal cost and constitute a negligible input in agricultural operations, and giving a broader natural services.</p> | | |

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| PH-04 | NAME(S) | Cageo D. Berongoy |
| ORGANIZATION | Rizal inventors and Innovators Society Inc. | |
| TITLE OF ENTRY | An Obtain Aratiles Fruit Juice | |
| <p>An obtain aratiles fruit juice discloses, a novel process of obtaining aratiles fruit juice or muntingia calabura fruit juice, throughout the world there are so many studies aratiles fruit juice or muntingia calabura fruit juice cure chronic diseases, but so far no one has yet produced aratiles fruit juice already commercially, a drinking of the organic juices, such as, vegetables juices, and fruit juices, it a juices, just a parts of a modern healthy lifestyle, aratiles fruit or muntingia calabura fruit, reputed to have more a anti-oxidant, anti-inflammatory, anti-bacterial and anti-viral properties, who take drinks, an 10 obtain aratiles fruit juice 100 ml. daily regularly is enough protection and defense against chronic diseases and obtain aratiles fruit juice product use for preservative of other herbal medicines, no need to boil herbal medicines, fruits or fruit juices extracted, just soak or mix it to an obtain aratiles fruit juice, with in 1 month before serving and that it is preserved, increased its nutrients and also increased the cures effectiveness.</p> | | |

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| PH-05 | NAME(S) | Cageo D. Berongoy |
| ORGANIZATION | Rizal inventors and Innovators Society Inc. | |
| TITLE OF ENTRY | Bark Scale Anti Cancerous Lesion | |
| <p>The bark scale is a plant, it is the Dischidia Imbricata, in the Philippines given local name, it is called bark scale, living creeping, and clinging on the bark tree like wood scale, that herb is a main ingredient this utility model, bark scale anti cancerous lesion. In various parts of the world many studies how wounds heal that does not heal any kind of anti-biotic treatment, if patients the wound is diagnose a cancerous lesion, they risk not of break one part of their body, due to their disability also lost their career and self-confidence, many patients who tries therapist treatment although costly and only a small percentage would heal them. This utility model Bark Scale Anti Cancerous Lesion is treatment to the cancerous lesion, it forms to a ointment applied externally patching wiping to the cancerous lesion and also treatment of any wound and skin diseases. In various parts of the world more specialized doctors and scientists who study and researched but so far, no effective medicine available to use treatment patching a hole or simply wiping to the cancerous lesion.</p> | | |

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| PH-06 | NAME(S) | Cageo D. Berongoy |
| ORGANIZATION | Rizal inventors and Innovators Society Inc. | |
| TITLE OF ENTRY | Multi-Functional Circuit Breaker | |
| <p>AC and DC circuit breaker, in general will switch OFF the connection, when have a short circuit and faults touching. Multi-functional circuit breaker it a new, can be AC or DC circuit breaker and variable voltage. Throughout the world no one has ever made a multi-functional circuit breaker, already on the market, meaning it has many functions, such as, switch it OFF if there is a short circuit. Switch it OFF when is an impact even without a short circuit, switch it OFF when brownout, protection on any gadgets and appliances damage in electricity power surge when electricity returns switch it ON delay automatically or manually, so gadget and appliance is protected from voltage surge. Switch it OFF when someone steals electricity, or anti electricity theft, detects it, though the changes electricity waves signal, switch it OFF when loose connection to avoid strips fire burning the properties. In renewable energy Dc circuit breaker is very important but until now not yet really develop, because the low voltage DC circuit breaker at present it has a fuse meaning it is not a perfect it can fail and the fuse its replacement to cut OFF or switch OFF the connection</p> | | |

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| PL-01 | NAME(S) | Marcin Kremieniewski / Miłosz Kędzierski / Ewa Kałna |
| ORGANIZATION | Oil and Gas Institute – National Research Institute | |
| TITLE OF ENTRY | A composition of lightweight cement slurry | |
| <p>The invention is a composition of lightweight cement slurry with increased tightness for sealing boreholes and for use in building industry, as well as for special applications where it is important to obtain low permeability of the product. Lightweight cement slurry for boreholes with a high risk of gas migration, where high tightness is required.</p> | | |

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| PL-02 | NAME(S) | Jarosław Markowski / Grażyna Żak / Michał Wojtasik |
| ORGANIZATION | Oil and Gas Institute – National Research Institute | |
| TITLE OF ENTRY | A new pallet made of a mixture of miscanthus and dry sewage sludge with improved mechanical strength | |
| <p>There was developed solid fuel in form of pellets in order to manage two types of biomass - miscanthus and dry sewage sludge, which are produced in large quantities. The mechanical strength of the pellets has been increased by addition of bio-coal obtained in microwave pyrolysis of coniferous trees sawdust. It allowed to increase the mechanical strength from more than 18% to more than 21% in relation to the pellet made of a mixture of miscanthus and dry sewage sludge that does not contain this additive.</p> | | |

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| PL-03 | NAME(S) | Grażyna Żak / Michał Wojtasik / Jarosław Markowski / Robert Wojtowicz / Mateusz Rataj / Tadeusz Kwilosz / Stefan Ptak |
| ORGANIZATION | Oil and Gas Institute – National Research Institute | |
| TITLE OF ENTRY | Agglomerate of a mixture of sawdust from coniferous wood and miscanthus enriched with a composition of additives | |
| <p>The subject of the invention is an agglomerate of a mixture of sawdust from coniferous wood and miscanthus enriched with a composition of additives (potassium carbonate and iron (III) oxide) that reduces the level of emission of toxic exhaust components. The enrichment of the agglomerate with a composition of allows to reduce the emission of organic carbon compounds from its combustion of approx. 99% and CO by approx. 98% compared to agglomerate of a mixture of sawdust from coniferous wood and miscanthus without additives. The invention is intended for use by individual consumers of heating plants.</p> | | |

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| PL-04 | NAME(S) | Stefan Ptak / Wojciech Krasodomski / Artur Antosz / Magdalena Żóły / Agnieszka Skibińska |
| ORGANIZATION | Oil and Gas Institute – National Research Institute | |
| TITLE OF ENTRY | An innovative way to produce modified lanolin and hardened wax | |
| <p>The application of the MEK-MIBK solvent extraction process into the filtrate and residue for animal wax, lanolin allows to maintain the selectivity of the process while obtaining short filtration times, which is desirable in industrial processes and allows to lower the solidification temperature, resulting in improved low temperature properties at low temperatures and obtaining wax with increased solidification temperatures.</p> | | |

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| PL-05 | NAME(S) | Łukasz Kut / Marcin Kremieniewski / Szczepan Filip |
| ORGANIZATION | Oil and Gas Institute – National Research Institute | |
| TITLE OF ENTRY | Cement slurry composition with increased thermal conductivity | |
| <p>The object of the invention is a slurry with improved thermal conductivity for use in sealing boreholes where priority is given to the thermal conductivity of the product formed. The slurry composition can be used in the petroleum industry to seal deep geothermal boreholes where increased thermal conductivity of the slurry is required. In addition, the slurry has a high density, which allows it to be used in deep boreholes.</p> | | |

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| PL-06 | NAME(S) | Tomasz Siuda |
| ORGANIZATION | Oil and Gas Institute – National Research Institute | |
| TITLE OF ENTRY | Heat exchanger with a burner designed to burn hydrogen | |
| <p>The subject of the invention is a spiral-cylindrical heat exchanger with a burner and a combustion chamber, adapted to burn hydrogen in a safe and effective manner, enabling the heating of the medium used in the heating industry with the main focus on the household sector. The exchanger has a thermal power of 10 kW which corresponds to be a typical heat demand for a single-family house. The exchanger can be used in single-function and dual-function gas boilers.</p> | | |

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| PL-07 | NAME(S) | Artur Antosz / Stefan Ptak / Agnieszka Skibińska / Wojciech Wilk |
| ORGANIZATION | Oil and Gas Institute – National Research Institute | |
| TITLE OF ENTRY | Method of production of the TRAE aromatic plasticizer | |
| <p>A method of producing an aromatic plasticizer with a high content of aromatic hydrocarbons and a low content of PAH polycyclic aromatic hydrocarbons, meeting the requirements for TRAE plasticizer. The refining of deasphaltizate and the extract obtained from it with a mixture of furfural with formamide co-solvent is therefore carried out at higher temperatures than the refining with pure furfural, and thus an improvement in selectivity and an increase in plasticizer efficiency compared to refining with furfural alone are noticeable.</p> | | |

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| PL-08 | NAME(S) | Artur Antosz / Stefan Ptak / Wojciech Wilk |
| ORGANIZATION | Oil and Gas Institute – National Research Institute | |
| TITLE OF ENTRY | Method of treating waste wax from the candle-making process | |
| <p>The object of the invention is a method of purifying waste wax generated during the production of candles in technological lines, in which one of the stages of their production process is the addition of dyes and fragrances. The treatment of the flammable waste wax is carried out using a refining process with a mixture of adsorbent bleaching earths and activated carbon to remove dyes and fragrances, so that the resulting mixture can be reused in the manufacture of paraffin products.</p> | | |

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| PL-09 | NAME(S) | Nina Cielica |
| ORGANIZATION | Youth Palace in Katowice | |
| TITLE OF ENTRY | Hurricane in the cup-vortices' trochoidal motion and the effects of instability during diffusion in liquids | |
| <p>The research presents the vortices' dynamics during diffusion in liquids. The parameters were controlled by the created model, which consisted of a cup placed on a rotating disc and a syringe on a stand located above the vessel. A thermal imaging camera was used to record the phenomenon. The analysis showed that trochoidal motion rules apply and there were structures indicating Rayleigh-Taylor and Kelvin-Helmholtz instabilities. On this basis, simplified computer simulation was created. The results also indicated similarities to larger-scale phenomena, such as the hurricane formation. Therefore, this can improve knowledge about hurricanes, which is important, especially during global warming.</p> | | |

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| PL-10 | NAME(S) | Emil Sasimowski / Łukasz Majewski |
| ORGANIZATION | Lublin University of Technology | |
| TITLE OF ENTRY | Biodegradable polymer composition | |
| <p>The subject of the invention is a biodegradable polymer composition (patent no PL239238) for the production of injection mouldings and extrudates, especially packaging, disposable tableware and cutlery, which undergo natural degradation under the influence of biological factors. The polymer composition consists of a polymer poly(butylene succinate) and a plant derived dried powdered wheat bran filler with a grain size smaller than 0.2 mm and in an amount of 10 to 50% by mass. Composition can be processed using conventional processing machinery, like injection moulding machines or extruders, used for processing of conventional petrochemical plastics, and does not need special equipment.</p> | | |

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| PL-11 | NAME(S) | Tomasz Krakówka / Mariusz Kozak / Rafał Czupryniak / Stanisław Nycz / Paweł Górecki / Jacek Mickiewicz / Kamil Jasiński / Konrad Bożek |
| ORGANIZATION | Sieć Badawcza Łukasiewicz – Przemysłowy Instytut Automatyki i Pomiarów | |
| TITLE OF ENTRY | PIAP FENIX® | |
| <p>PIAP FENIX® is a lightweight reconnaissance robot. It was created for reconnaissance carried out in the immediate vicinity of military operations, including locations inaccessible to humans.</p> | | |

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| PL-12 | NAME(S) | Piotr Sulecki |
| ORGANIZATION | N/A | |
| TITLE OF ENTRY | SEA RESCUE STATION "LIFE STAND" | |
| <p>A marine life-saving station enables a safe and effective rescue operation with rescue equipment by people in the vicinity of a drowning person</p> | | |

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| PL-13 | NAME(S) | Jakub Bis / Karol Sawicki |
| ORGANIZATION | Regionalne Centrum Edukacji Zawodowej w Nisku | |
| TITLE OF ENTRY | Dual Monoblock Stereo Preamplifier MC-2 | |
| <p>DUAL MONOBLOCK STEREO PREAMPLIFIER MC-2 is a HIGH - END class integrated tube preamplifier with a dual monoblock design. Each audio channel is handled separately by a single mono preamplifier made in a common chassis, the separation of the right and left channel electronics provides the best separation between them. In each block there are four efficient electron tubes, 6N2P EB duo triodes responsible for all the amplification. There are brass screens on all electron tubes. The audio signal from the input jacks goes straight to the relays and is then sent to the main prints via short wires. Volume control is controlled by a compensated potentiometric attenuator.</p> | | |

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| PL-14 | NAME(S) | Jarosław Markowski / Krzysztof Netter / Grzegorz Ślaski / Piotr Frąckowiak / Jacek Mądry / Paweł Imilkowski |
| ORGANIZATION | POZNAN UNIVERSITY OF TECHNOLOGY | |
| TITLE OF ENTRY | Liquid filter assembly | |
| <p>The subject of the invention is a liquid filter assembly understood as a housing and a cylindrical filter cooperating with it, enabling the filter replacement without leakage of the filtered liquid. The essence of the solution according to the invention consists in the fact that two additional grooves are provided in the housing to properly direct the leakage liquid during disassembly, and the filter has a corresponding cylindrical body. The following favorable technical and operational effects:</p> <ul style="list-style-type: none"> • replacement of filters without leaks, • keeping the workplace clean, • care for the natural environment and human health, • low cost of the solution. | | |

PORTUGAL

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| PT-01 | NAME(S) | Fernando Maldonado Lopes |
| ORGANIZATION | Inventarium-SRD | |
| TITLE OF ENTRY | SHOCK4SHIELD | |
| <p>Is essentially an electrified riot control shield, designed to provide added protection for Police and military personnel in hazardous crowd control situations. It can be used like any normal shield or activated to provide a less-than-lethal immobilizing shock by the user.</p> | | |

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| PT-02 | NAME(S) | Fernando Maldonado Lopes |
| ORGANIZATION | Inventarium-SRD | |
| TITLE OF ENTRY | JET4BATON | |
| <p>Professional Police & Army Anti-Riot Tactical Batons Exclusively designed to: *Peace Maintenance *Law Enforcement & Prison Control with Incorporated Red Pepper or Tear Gas canister and Front Impact Shock Absorber System; extra protection for police and military personnel in hazardous crowd control situations, able to reach 10 meters of effective defensive range.</p> | | |

QATAR

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| QA-01 | NAME(S) | Mohammed Al-Shahwani / Saoud Al-Shahwani / Ruba Ali / Dr. Mohammad Hassan |
| ORGANIZATION | Qatar University Young Scientists Center | |
| TITLE OF ENTRY | Porous Copolymer Membranes for Industrial Wastewater Treatment | |
| <p>In this project, SIS/MS nanocomposites membrane for oil absorption applications is fabricated. The basic working principle of the newly developed water "filtration" system is hydrophobicity, which means water repellition. The prepared film or membrane has the property of repelling water. In order to test the membrane's ability to absorb the oil and repel the water, a gravity-driven oil filtration experiment is conducted. When the water and oil mixture pass through the membrane the oil is adsorbed on the membrane, and clear water is collected at the bottom.</p> | | |

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| QA-02 | NAME(S) | Dr. Gheyath Nasrallah / Nadin Younes / Azza Abouhashem / Mohamed EL-Hajri / Mohamed Yousef |
| ORGANIZATION | Qatar University Young Scientists Center, Qatar University | |
| TITLE OF ENTRY | Toxicity Evaluation of two surfactants with anti-corrosion properties on the embryonic development of zebrafish | |
| <p>Surfactants researches are fast growing subject due to its widespread use in a variety of sectors, including detergents, fabric softeners, and, most crucially, inhibiting corrosion. There is no prior research that has explored the effects of these types of surfactants; Silicon Q 22 and Poly Q 47 on the ecology and aquatic species. In this project, Zebrafish embryo model was used to examine the possible organ-specific toxicity of 2 surfactants. Mortality rate and teratogenicity assays were conducted. In addition, studied cardiotoxicity, neurotoxicity, and examined cellular stress. These findings contribute to our understanding regarding toxicity of surfactants, allowing us to assure their safety before they are released into the sea.</p> | | |

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| QA-03 | NAME(S) | Prof. Noora Al-Thani / Shahad Alkhair / Enas Elhawary |
| ORGANIZATION | Qatar University | |
| TITLE OF ENTRY | A STEM learning model using design thinking approach: to improve the problem solving and creative skills | |
| <p>This project reports an innovative STEAM-based course that integrates the design thinking process, to empower students' problem-solving and creative skills to create solutions to resolve one of the greatest issues on 21st century, which is food security. Students performed project-based activities related to the properties of the materials by implementing a design thinking approach in the course framework that includes the following steps: Empathize, Define, Ideate, Prototype, and Test. The outcomes indicate the success of our unique STEM learning model in empowering students with creative skills to solve problems utilizing the design thinking approach.</p> | | |

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| QA-04 | NAME(S) | Dr. Allal Ouhtit / Sara Alsada / Noor Al-Badr / Salma Ahmad / Rana Magdy |
| ORGANIZATION | Qatar University Young Scientists Center | |
| TITLE OF ENTRY | Identification of Novel signaling pathways that underpin CD44-promoted tumor cell invasion | |
| <p>To better understand the mechanisms that underpin CD44-promoted BC, this investigation has the potential to validate novel candidate genes that can serve as novel biomarker(s) for diagnosis and/or as novel potential targets to pave the way for the design of efficient targeted therapies against breast cancer. My group has been focusing on understanding the molecular signaling mechanisms that underpin CD44-promoted breast cancer metastasis. We have already validated (as described above in the abstract) three novel signaling pathways that could be targeted to stop breast tumor cell invasion through a design of inhibitors. At long-term these inhibitors could be further validated for the design of efficient targeted therapies against breast cancer.</p> | | |

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| QA-05 | NAME(S) | Dr. Noora H. S. Al-Qahtani / Mrs. Enas Fathy Mohamed Elhawary / Ms. Shahad Alkhair / Mrs. Azza Mohamed Saad Abouhashem / Mrs. Rana Magdy Elsayed Mahmoud Abdou |
| ORGANIZATION | | Qatar University |
| TITLE OF ENTRY | | Education Innovation for Learning Disabilities (W-STEM) |
| <p>Education is a significant investment made by the governments due to its influence on socioeconomic behaviors such as production, the standard of living, health, and population demographics. Children diagnosed with learning difficulties such as dyslexia, dyscalculia, and dysgraphia suffer challenges in reading, arithmetic, and writing, respectively. "w-stem" is a home-based learning kit that can be used by the parents of children with learning difficulties to improve their reading, writing, and math skills. It is designed for children aged 3 to 7, culturally oriented to match the needs of parents in the middle east, available in English and Arabic. It is culturally oriented to match the needs of parents in the middle east.</p> | | |

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| QA-06 | NAME(S) | Mr. Ahmed Bahgat / Dr. Noora Hamad S Al-Qahtani / Prof. Aboubakr M. Abdullah Ali |
| ORGANIZATION | | Qatar University |
| TITLE OF ENTRY | | Study of the In Vitro Biodegradation Behavior of Mg–2.5Zn–xES Composite for Orthopedic Application |
| <p>The work demonstrated the in vitro degradation behavior of Mg–2.5Zn alloy and Mg–2.5Zn–xES composite. The in vitro degradation was carried in a simulated body fluid using electrochemical impedance spectroscopy. The EIS and Tafel plots indicated Mg–2.5Zn alloy has good corrosion resistance. 3ES eco-composite is relatively lower in the corrosion resistance than that of Mg–2.5Zn alloy after 2 weeks of immersion. The pitting corrosion is the dominant corrosion mechanism in all the tested samples. Apatite growth is observed on the eco-composite specimens after two weeks of immersion electrochemical analysis.</p> | | |

ROMANIA

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| RO-01 | NAME(S) | Stolieru Gabriela / Branisteanu Daciana Elena / Sandu Ion / Matei Madalina Nicoleta / Sandu Andrei Victor / Balan Gheorghe / Sandu Ioan Gabriel / Fratila Dragos Nicolae |
| ORGANIZATION | | Romanian Inventors Forum |
| TITLE OF ENTRY | | Procedure for obtaining of mouth-wash for pregnancy gingivitis |
| <p>The invention relates to a process for obtaining mouthwash for pregnancy gingivitis, with multiple implications in the hygiene of the oral cavity and for the prevention of dental caries and the treatment of diseases of the oral cavity, for use in the pharmaceutical and cosmetic industries.</p> | | |

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| RO-02 | NAME(S) | Cătălin-Andrei Tugui / Petrică Vizureanu / Andrei Victor Sandu |
| ORGANIZATION | | Gheorghe Asachi Technical University of Iasi |
| TITLE OF ENTRY | | Hydroabrasive wear test system of metallic materials used in hydraulic machines |
| <p>The invention relates to an installation for testing the abrasive wear of metal materials used in hydraulic machines. The installation according to the invention comprises a command-and-control panel (1), a stirring motor (3), a cylindrical stainless-steel tank (4), inside which a shaft (5) is immersed in a liquid with abrasive particles. operated at different engine speeds (3), having at one end a clamping system (6), on which are mounted some samples (7). Sampling testing is done at adjustable speeds and different contact angles by immersing them in water which may contain different percentages of abrasive particles.</p> | | |

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| RO-03 | NAME(S) | Roxana Ioana Brazdis / Radu Claudiu Fierascu / Anda Maria Baroi / Irina Fierascu / Toma Fistos |
| ORGANIZATION | | National Institute for Research & Development in Chemistry and Petrochemistry – ICECHIM Bucharest |
| TITLE OF ENTRY | | Process and Adsorbent Material for Absorption of Organic Pollutants from Aqueous Solutions (Patent application no. A-00123/2022) |
| <p>The present invention relates to an adsorbent material and to a process for obtaining it, used to reduce the level of organic pollutants in aqueous solutions, at ambient temperature and atmospheric pressure. The adsorbent obtained according to the invention eliminates the disadvantages of current approaches, in that it is presented in the form of a powder, having a specific surface area between 35-55 m²/g, with the crystallites size below 25 nm and the method of obtaining it is easily scalable to industrial scale.</p> | | |

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| RO-04 | NAME(S) | Florin Oancea / Mariana Calin (Constantin) / Diana Aruxandei Constantinescu / Iuliana Raut / Mihaela Doni / Melania Liliana Arsene / Maria Luiza Jecu |
| ORGANIZATION | National Institute for Research & Development in Chemistry and Petrochemistry – ICECHIM Bucharest | |
| TITLE OF ENTRY | Wool-Based Plant Biostimulant Composition and Process for Obtaining it (patent 133240 B1/2021) | |
| <p>This invention is related to the development and use of plant biostimulant based on keratin waste, an abundant and valuable resource, which creates serious problems for the environment due to its recalcitrant nature. The growth parameters (biomass, plant height and diameter, number of branches and leaves per plant) were significantly higher compared to those treated with water. The application of fungal protein hydrolysates can serve as a promising approach for sustainable agriculture.</p> | | |

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| RO-05 | NAME(S) | Prof. Vasile NÁSUI, Ph.D.Eng |
| ORGANIZATION | Technical University of Cluj-Napoca / North University Center of Baia Mare, Faculty of Engineering | |
| TITLE OF ENTRY | ACTUATOR WITH TELESCOPIC SLIDERS | |
| <p>The telescopic actuator with cable and roller transmissions is provided with a gear motor, fixed on a support and which drives through a roller, on which is wound a cable attached at both ends, thus making the movement of the support slide, in which it slides another slide. It has rollers at the ends on which another cable is wound, which has the lower branch fixed to the support by a guided connection in a channel in the second slide and another in the first, and the upper branch of the cable is fixed to the support slide through another guided link, in a channel in the second slide. Thus, when rotating the roller on the reducer, a simultaneous translational movement of the two slides with an increased stroke is obtained, by extending the mechanism.</p> | | |

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| RO-06 | NAME(S) | Bogdan MOCAN / Vasile BINTINTAN |
| ORGANIZATION | Technical University of Cluj-Napoca | |
| TITLE OF ENTRY | LAPAROSCOPIC INSTRUMENT FOR ACCURATE EXTRALUMENAL LOCATION OF A COLORECTAL TUMOR | |
| <p>The invention relates to a laparoscopic instrument which facilitates the accurate position of a tumor in the colon tract in the abdominal laparoscopic surgery and with possible applications in open surgery. Precise location of a rectal tumor is required to decide the appropriate line of distal resection but current methods like bimanual palpation is approximatively and very subjective, lacking the needed "surgical" precision. The principle for precise identification of tumor location is that the tumor will be made "visible" for the laparoscopic instrument by placing sensing trackers close to its margins.</p> | | |

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| RO-07 | NAME(S) | IȘTOAN Raluca / TĂMAȘ-GAVREA Daniela-Roxana / MANEA Daniela Lucia / VASILE Ovidiu |
| ORGANIZATION | Technical University of Cluj-Napoca | |
| TITLE OF ENTRY | SANDWICH PANEL BASED ON HEMP SHIVES AND FIBERS, AND THE MODALITY OF OBTAINING IT | |
| <p>The invention relates to a sandwich panel based on hemp shives and fibers and the method to obtain it, which is applicable in the construction sector. The panel is used as a partition element with significant acoustic and thermal properties. The final product has a positive impact on the environment because it was designed based on the hemp waste (wood and textile fibers).</p> | | |

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| RO-08 | NAME(S) | Pisla Doina / Birlescu Iosif / Vaida Calin / Gherman Bogdan / Tucan Paul / Plitea Nicolae |
| ORGANIZATION | Technical University of Cluj-Napoca | |
| TITLE OF ENTRY | PARALLEL ROBOT FOR THE RECOVERY OF LOWER LIMB MOBILITY | |
| <p>The invention refers to a parallel modular robotic system (RAISE) designed for post-stroke rehabilitation of bedridden patients. The robotic system targets all the major joints of the lower limb: the hip, the knee, and the ankle. The solution covers a white spot in the post-stroke rehabilitation as most existing devices perform gait manipulation which require a standing position for the patient. The solution provides early access for acute post-stroke patients with balance problems and/or high levels of paresis, improving the therapeutic outcome of rehabilitation.</p> | | |

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| RO-09 | NAME(S) | Dr. Eng. Gianina Elena Damian / Prof. dr. Eng. Valer Micle |
| ORGANIZATION | Technical University of Cluj Napoca | |
| TITLE OF ENTRY | Equipment and process of decontamination by washing of heavy metal polluted soils | |
| <p>The process uses a suitable mixing and shredding equipment where the contaminated soil together with the washing solution containing potassium salts of humic acids and chitosan is introduced into the attrition chamber. The stirring of the mixture in the attrition chamber is performed with 12 mixing blades arranged on a rotating shaft that is driven by an electric motor. This decontamination equipment ensures a high contact of the soil particles with the washing solution, which leads to high efficiency. By using it, the need for soil sorting on small particle size prior the decontamination is eliminated. Also, the process is ecological due to the nature of the used washing agents.</p> | | |

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| RO-10 | NAME(S) | OVIDIU NEMEȘ / SIMONA IOANA BORLEA (MUREȘAN) / ANCUȚA-ELENA TIUC / GYORGY DEAK |
| ORGANIZATION | Technical University of Cluj Napoca | |
| TITLE OF ENTRY | MATERIAL WITH SOUND-ABSORBENT PROPERTIES MADE FROM SHEEP WOOL WITH POLYURETHANE FOAM AND THE OBTAINING METHOD | |
| <p>The invention relates to the production of a material with sound-absorbing properties using sheep's wool and rigid bi-component polyurethane foam as raw material and the obtaining process. Were obtained materials composed of three layers. A layer of sheep wool previously processed by hot pressing, a layer of rigid bi-component polyurethane foam and a transition layer, resulting from the migration of polyurethane foam during the multilayer panel manufacturing process into the wool layer and/or the migration of wool into the polyurethane foam layer.</p> | | |

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| RO-11 | NAME(S) | Mircea-Iosif RUS / Larissa Margareta BĂTRÂNCEA / Adrian-Victor LĂZĂRESCU |
| ORGANIZATION | NIRD URBAN-INCERC Cluj-Napoca Branch | |
| TITLE OF ENTRY | RESEARCH AND DEVELOPMENT ACTIVITY IN THE ALTERNATIVE ENERGY INDUSTRY AND ITS IMPACT ON THE ENVIRONMENT AND POPULATION | |
| <p>Today, the global temperature is 1.1°C warmer than it was 30-40 years ago, although the COVID-19 pandemic has caused a decrease in CO₂ emissions, global warming remains on the wrong trajectory. A 1.5°C rise in the global average surface temperature can have devastating consequences, which can lead to extreme weather events, including sea level rise and other climate changes. This makes it clear that urgent change is needed, and that this can be achieved by using non-polluting resources and generating alternative energy.</p> | | |

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| RO-12 | NAME(S) | Daniela Laura BURUIANA / Puiu Lucian GEORGESCU / Gabriel Bogdan CARP / Viorica GHISMAN / Cristian Catalin STĂNCIC |
| ORGANIZATION | DUNAREA DE JOS UNIVERSITY OF GALATI | |
| TITLE OF ENTRY | IMPROVEMENT OF ASPHALT MIXTURES WITH GRIT SAMBLASTING WASTE AND MICROPLASTICS BASED POLYPROPYLENE | |
| <p>The invention relates to an improved asphalt mixture with waste grit from the process of sanding ship hulls and with polypropylene microplastics, the so-obtained asphalt mixture having improved mechanical resistance and resistance to wear, as compared to the standard asphalt mixture. The asphalt mixture consists of 33.5% crushed siliceous stone chipping with a granulation 4-8 mm, 25% crushed sand with a granulation between 0-4 mm, 25% waste grit with a granulation between 0-2 mm, 10% sort limestone filler with a granulation between 0.063-0.100 mm, 6.2% 50/70-type road bitumen and 0.3% polypropylene-based microplastics with a granulation similar to waste grit particles.</p> | | |

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| RO-13 | NAME(S) | Daniela Laura BURUIANA / Puiu Lucian GEORGESCU / Gabriel Bogdan CARP / Viorica GHISMAN / Tatiana MARDARE |
| ORGANIZATION | DUNAREA DE JOS UNIVERSITY OF GALATI | |
| TITLE OF ENTRY | RECYCLING OF SURGICAL MASKS IN HOT ASPHALT MIXTURES | |
| <p>The invention relates to the technological innovation of introducing used surgical masks in the recipe of the hot asphalt mixture base layer type AB 31.5 bringing enormous environmental benefits by reducing the disasters caused by the COVID-19 pandemic. The hot asphalt mixture of the base layer type AB31.5, according to the invention, consists, in mass percentages, of 40.8% natural aggregate chipboard with a size of more than 4.0 mm, 50% of crushing sand with a granulometry between 0.0 and 4.0mm, 5% sorted limestone filler with a particle size of 0.063 and 0.100 mm, 3.9% road bitumen type 50/70 and 0.3% used surgical masks.</p> | | |

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| RO-14 | NAME(S) | Velescu Bruno Ștefan / Uivarosi Valentina / Anuța Valentina / Șeremet Oana Cristina / Nițulescu George Mihai / Lupuliasa Dumitru / Arsene Andreea Letiția / Dinu-Pîrvu Cristina Elena |
| | ORGANIZATION | "Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania |
| | TITLE OF ENTRY | Ruthenium(III) complex combination with antiinflammatory activity and its synthesis method |
| <p>The present invention relates to the synthesis method of a novel ruthenium (III) complex with ferron (8-hydroxy-7-iodo-5-quinolinesulfonic acid), with in vivo anti-inflammatory activity. The complex was obtained by dissolving the ligand in an appropriate amount of water, to which a saturated aqueous solution of RuCl₃ x nH₂O in molar ratio metal ion:ligand 1:2 was added. The pH of the mixture was adjusted to 8 with a 2M NaOH solution. The mixture was concentrated to dryness on a water bath, cooled on an ice bath and then approx. 20 mL of ethanol was added. The product was stored at 4°C for 2 hours. The precipitate obtained was filtered off under vacuum and washed with ethanol until the washings were colourless. The final product was dried and stored in an exicator. The complex is a dark green microcrystalline powder, water soluble. The complex presented significant anti-inflammatory effect (superior to diclofenac) in two murine models of inflammation induced with carrageenan and kaolin, respectively.</p> | | |

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| RO-15 | NAME(S) | Alina Ortan / Simona Spinu / Radu Fierascu / Anda Baroi / Irina Fierascu / Toma Fistos |
| | ORGANIZATION | University of Agronomic Sciences and Veterinary Medicine of Bucharest |
| | TITLE OF ENTRY | Ecological extracts from burdock waste - obtaining process and potential therapeutic use |
| <p>The present invention relates to a plant extract obtained from a species of the genus <i>Arctium</i>. The process according to the invention involves the use of microwave-assisted extraction method, a process with good extraction efficiency of the active principles. The obtained product is ecological, with two types of simultaneously therapeutic action: antioxidant and antimicrobial; it has potential applications in natural treatments for topical use, which does not involve the use of synthesis substances against which high resistance has developed over time. This work was supported by a grant of the Romanian Ministry of Education, CCCDI-UEFISCDI, PN-III-P3-3.5-EUK-2019-0226, contract 220/2020, PNCDI III.</p> | | |

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| RO-16 | NAME(S) | Neculai-Valeanu Andra-Sabina / Ariton Adina-Mirela / Madescu Bianca-Maria / Porosnicu Ioana / Rimbau Cristina-Mihaela |
| | ORGANIZATION | Research and Development Station for Cattle Breeding Dancu, Iasi |
| | TITLE OF ENTRY | PhytoMAST GEL - Phytotherapeutic formula for boosting udder health during heat stress periods |
| <p>The present invention refers to a multifunctional topical herbal gel with potential applications in boosting udder health and prevent mastitis, (udder inflammation), especially during heat stress periods. Bovine mastitis is the costliest disease in dairy cattle farms and poses serious concerns for public health safety as well. The developed formula is based on natural ingredients (plant extracts, essential oils) and may be used in both conventional and ecological dairy farms. The hydrogel provides a barrier of protection on udder and teat skin by exhibiting an antiseptic, fungicidal, repellent, stimulant, and tonic effect on the cow's udder.</p> | | |

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| RO-17 | NAME(S) | Ciprian BEJENAR / Marian BEJENAR / Mihai DIMIAN / Laurențiu-Dan MILICI / Mariana-Rodica MILICI / Ciprian AFANASOV / Constantin UNGUREANU / Mihaela PAVĂL |
| | ORGANIZATION | Stefan cel Mare University of Suceava |
| | TITLE OF ENTRY | Extension device for the diagnosis of conductive charging systems |
| <p>The invention uses a simple solution from a constructive point of view and allows it to be attached for diagnostic purposes in the extension of any conductive charging system, being suitable as an accessory regardless of the testing equipment and/or system and it has the capability to incorporate an incorporable source of electrical energy and/or universal terminals, facilitating the extension action without the strict need for a human operator, because the device constitutes a monobloc testing probe for the acquisition of the related signals corresponding to the electrical parameters of interest in the process of diagnosis the conductive charging of an electric vehicle.</p> | | |

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| RO-18 | NAME(S) | TOADER Eusebiu / MILICI Mariana Rodica / PAVĂL Mihaela / NIȚAN Ilie / BEJENAR Ciprian / UNGUREANU Constantin / LUPU Elena Daniela |
| | ORGANIZATION | Stefan cel Mare University of Suceava |
| | TITLE OF ENTRY | MOTION CONTROL SYSTEM |
| <p>The motion control system according to the invention consists mainly of a mobile system consisting of two motors which are fed simultaneously or separately, the braking being carried out by means of two nitinol springs, which once fed act on the system braking.</p> | | |

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| RO-19 | NAME(S) | Kamel EARAR / Oleg SOLOMON / Alina-Ramona DIMOFTE / Meda-Lavinia NEGRUTIU / Cosmin SINESCU / Madalina Nicoleta MATEI |
| ORGANIZATION | Dunarea de Jos University of Galati | |
| TITLE OF ENTRY | Facial Arch with extended mechanical and biological functionality and procedure of use | |
| <p>The invention relates to a facial arch with extended mechanical and biological functionality and to a method of use for the three-dimensional transfer of the position of the upper dental arch in the articulator and which is used in the field of dentistry, in the prosthetic rehabilitation algorithm for different types of edentulousness. The facial arch according to the invention consists of a unitary assembly (A) called an "eye line finder", an articulated support (B), having a double-sided transfer spoon and radial extension, an articulation assembly (C) for supporting a transfer spoons, a universal transfer stand (D) for mounting the upper and lower model in the articulator, and a device (E) for controlling the parallelism of the prepared teeth, before the impression and transfer.</p> | | |

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| RO-20 | NAME(S) | Kamel EARAR / Aurel NECHITA / Diana-Andreea CIORTEA / Emil CEBAN / Simona PĂRVU |
| ORGANIZATION | Dunarea de Jos University of Galati | |
| TITLE OF ENTRY | Dietary supplement for the prevention and treatment of diabetes | |
| <p>The invention relates to a dietary supplement for the prevention and treatment of diabetes, which is used in the field of nutrition and medicine. It is developed based on phytocomplexes contained in vegetables, fruits and medicinal plants, which develop hypoglycemic, lipid-lowering, antiradical effects. It is known that the most representative natural compounds that develop beneficial effects in the treatment of diabetes are: phenolcarboxylic acids, coumarin and flavonoid derivatives, anthocyanosides, proanthocyanosides, tannins, triterpene saponosides, thioetherosides, volatile oils, bitter principles, bitter principles. Based on these active principles with hypoglycaemic effects, two systems were formulated, one based on finely ground powders, granulometrically measured, gravimetrically dosed, intimately mixed, and pre-compressed in the form of dragees (tablets) and another in the form of concentrated liquid dispersions of supernatants from juices, infusions and decoctions of vegetables and plants from the native spontaneous flora.</p> | | |

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| RO-21 | NAME(S) | MARSAVINA Liviu / MIHAESCU Vlad / NEGREA Petru / BIRTOK-BANEASA Corneliu / BUDIUL BERGHIAN Adina / SIRBU Roxana |
| ORGANIZATION | Politehnica University of Timisoara - CITT Politehnica 2020 | |
| TITLE OF ENTRY | Increasing the competitiveness of UPT by setting up the Center for Innovation and Technology Transfer Politehnica 2020 - CITT Politehnica 2020 | |
| <p>The growth of innovation in the West Region of Romania (Timis County) can be achieved by establishing and operationalizing a Center for Innovation and Technology Transfer within the Polytechnic University of Timisoara. The purpose of establishing this CITT is to provide support to innovation and technology transfer entities in areas of intelligent specialization, namely: Information and communication technologies, space and security, Eco-nanotechnologies and advanced materials and Energy, environment, and climate change.</p> | | |

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| RO-22 | NAME(S) | Gabriel Petre GORECKI / Daniel COCHIOR / Dan CUSTURA-CRACIUN / Horatiu MOLDOVAN / Radu STOICA / Lucian Florin DOROBANTU |
| ORGANIZATION | Titu Maiorescu University of Bucharest, Faculty of Medicine | |
| TITLE OF ENTRY | Digital videocapilaroscope | |
| <p>Our project proposal regards the creation of an experimental device (HD wireless videocapilaroscope) a hardware and software solution used for an early and non-invasive diagnosis in emergency situations. The videopailaroscope collects both dynamic and morphological data by analyzing the microscopic vessel distribution in the oral mucosa to diagnose and treat (following software processing) the early systemic microvascular changes that precede the onset of septic shock and, consequently, multiple system organ failure. The digital quality of the image is paramount for a correct analysis of the basic morphological and dynamic microvasculature parameters. By the end of the software analysis, the program will elaborate a report regarding every area of interest, which can be printed or stored. The relevant parameters of the oral mucous microcirculation are certified as being pathognomonic for the onset of septic shock, based on correlations between experimental and clinical data.</p> | | |

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| RO-23 | NAME(S) | Daniel Horatiu URSU / Marinela MICLAU / Elisei Stefan ILIES / Aurel GONTEAN / Szilard BULARKA |
| ORGANIZATION | National Institute for Research and Development in Electrochemistry and Condensed Matter / Politehnica University Timișoara / SympH Electronics | |
| TITLE OF ENTRY | Photovoltaic tile based on dye sensitized solar cells for wavelength-selective greenhouse 4.1 | |
| <p>Combining the agriculture and the generation of photovoltaic energy (Agriculture 4.0) is proposed as a possible option to trying to solve simultaneously the energy and food crisis. The wavelength-selective greenhouse could be a promising agrivoltaic system if the trade-off between photovoltaic roofs and plants will be achieved. The invention proposes a photovoltaic tile based on dye-sensitized solar cells for wavelength-selective greenhouse 4.1 which is constructed of 14 dye-sensitized solar cells (DSSCs) with UV absorption connected in parallel. The DSSC component consists of a photoanode based on TiO₂ with complex architecture, iodide/triiodide redox electrolyte, dye DN-F01 and Pt counter electrode.</p> | | |

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| RO-24 | NAME(S) | Florin MICULESCU / Aura MOCANU / George STAN / Iulian ANTONIAC / Mihnea Cosmin COSTOIU / Stefan VOICU / Marian MICULESCU / Ileana MATES / Augustin SEMENESCU |
| ORGANIZATION | | University POLITEHNICA of Bucharest |
| TITLE OF ENTRY | | MANUFACTURING PROCESS OF A PRODUCT DESTINED FOR BONE DEFECTS RECONSTRUCTION, BASED ON HYDROXIAPATITE AND BIOGENIC BIPHASIC CALCIUM PHOSPHATE |
| <p>The invention relates to the manufacturing process of a product destined for bone defects reconstruction, based on hydroxyapatite and biogenic biphasic calcium phosphate, with a controlled ratio between hydroxyapatite/tricalcium phosphate. All calcium phosphates result from the thermal dissociation of calcium carbonate in form of dolomitic marble and seashells, and treatment of calcium hydroxide solution with phosphoric acid (range: 100–130% x calculated stoichiometric amount).</p> | | |

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| RO-25 | NAME(S) | Florin MICULESCU / Otilia ILIE / Augustin SEMENESCU / Mihnea-Cosmin COSTOIU / Valeriu GHEORGHITĂ / Alexandru MARIN |
| ORGANIZATION | | University POLITEHNICA of Bucharest |
| TITLE OF ENTRY | | CUSTOM MADE IMPLANT FROM BIORESORBABLE MATERIALS FOR INTERNAL FIXATION OF LONG BONE FRACTURES |
| <p>The invention relates to a process for obtaining a unique, biodegradable, customized implant for the internal fixation of long bones, whose physical properties are predetermined by controlling the specific geometric parameters of the holes on its surface.</p> | | |

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| RO-26 | NAME(S) | AVRAM Vasile / SEMENESCU Augustin / CSAKI Ioana / STOICA Nicolae Alexandru |
| ORGANIZATION | | University POLITEHNICA of Bucharest |
| TITLE OF ENTRY | | ANTIFRICTION ALLOYS IMPROVED BY MICROALLOYING |
| <p>The invention relates to antifriction alloys YSn83 micro-alloyed with Ca and Mg conferring properties for improved lubrication properties. The friction coefficient values are between 0.0663 and 0.1286, a value with 59% improved within the base alloy. The present invention represents a technical progress due to the fact the optimized compositions for the antifriction alloy have a uniform structure resulting in the alloy improvement the tribological properties of the mentioned alloy. For this invention we used Ca and Mg since they present a low toxicity.</p> | | |

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| RO-27 | NAME(S) | AVRAM Vasile / SEMENESCU Augustin / CSAKI Ioana / STOICA Alina Maria |
| ORGANIZATION | | University POLITEHNICA of Bucharest |
| TITLE OF ENTRY | | Alloys for tribological applications |
| <p>The invention relates to antifriction alloys YPbSn10Ca and YPbSn10Mg with superior properties in comparison with the commercial alloy YPbSn10. The present invention is the result of a convergence of current non-ferrous metal technologies in a new and unique way and has the advantage that the current optimized compositions of the obtained alloys have a uniform structure, in which the hard and soft phases are evenly distributed in the alloy. It is reflected in the improvement of the tribological properties of the mentioned alloys.</p> | | |

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| RO-28 | NAME(S) | VOICU Ioan Stefan / PALLA-PAPAVLU Alexandra / ANTONIAC Vasile Iulian / MICULESCU Florin / SEMENESCU Augustin / COSTOIU Mihnea Cosmin / MATES Ileana-Mariana / PRISECARU Delia-Alexandra |
| ORGANIZATION | | University POLITEHNICA of Bucharest |
| TITLE OF ENTRY | | SURFACE ACOUSTIC WAVE BIOSENSOR BASED ON GRAPHENE FUNCTIONALIZED WITH ANTI-ALPHA-FETOPROTEIN MONOCLONAL ANTIBODY, FOR THE DIAGNOSIS OF LIVER CANCER |
| <p>The invention refers to a biosensor for the rapid and easy diagnosis of liver cancer by qualitatively and quantitatively determining the tumor marker – alpha-fetoprotein (AFP) directly from the blood (without the need for serum separation). The sensor-sensitive part is represented by the functionalized graphene with anti-alpha-fetoprotein monoclonal antibody that is deposited on the surface of the surface acoustic wave sensor (SAW) by direct laser-induced transfer (LIFT).</p> | | |

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| RO-29 | NAME(S) | Gheorghe Romeo CIOARĂ / Mitruț Vasilică PURICIUC / Aurel Mihail ȚÎȚU / Constantin OPREAN / Cristian PISARCIUC |
| ORGANIZATION | | "Lucian Blaga" University of Sibiu, Romania |
| TITLE OF ENTRY | | TURNING PROCESS WITH INCLINED TANGENTIAL EDGE, TURNING TOOL AND REMOVABLE INSERT FOR IT |
| <p>The invention relates to a lathe tool with an inclined tangential edge, adjustable in value, intended for turning external cylindrical surfaces, to the corresponding process and to the specific removable insert. The tool consists of a parallelepiped body pierced by a conical bore, or only cylindrical, in which it is fixed (by friction) to the desired inclination of the support body of the removable insert. Its edge, straight and of long length, is contained in a plane tangent to the surface to be machined and inclined to the plane determined by the axis of the workpiece and the point of tangency between the active edge of the insert and the workpiece.</p> | | |

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| RO-30 | NAME(S) | Racz Sever-Gabriel / Breaz Radu-Eugen / Oleksik Valentin Ștefan / Pascu Adrian Marius / Popp Ilie Octavian / Gîrjob Claudia Emilia / Tera Melania / Chicea Anca Lucia / Biriș Cristina Maria / Crengăniș Mihai |
| ORGANIZATION | "Lucian Blaga" University of Sibiu, Romania | |
| TITLE OF ENTRY | Flexible modular system for fixing workpieces for the incremental forming process | |
| <p>The incremental forming process is a flexible alternative to conventional cold metal forming processes. One of the main disadvantages of the process is that it allows the processing of a single type of workpiece size, because the working area and implicitly the size of the workpiece sheet that can be processed is fixed. To eliminate this disadvantage, a flexible modular system for fixing the workpiece is proposed, which allows the user to adjust the size of the workspace and implicitly the size of the workpiece.</p> | | |

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| RO-31 | NAME(S) | Mircea MANOLESCU |
| ORGANIZATION | A BETTER LIFE SOLUTIONS | |
| TITLE OF ENTRY | iSentinel Safe City® earthquake intelligent protection and warning solutions for a safe community life | |
| <p>Intelligent proactive customized solutions save lives and protect Buildings, Facilities, Assets, Infrastructure and Environment for an entire city. It triggers protections and starts life support utilities a few seconds or tens of seconds before a major earthquake. A neural network links all the city's intelligent iSentinel® protections, AI driven surveillance cameras, building's structure, infrastructure, and landslides real time monitoring, indicates the right time to act, least risky places to shelter before the earthquake starts and best evacuation path after the end of the earthquake. Rescue teams will know precisely how many persons are in each collapsed building, where to search for survivors and when stop.</p> | | |

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| RO-32 | NAME(S) | Denisa FICAI / Georgiana DOLETE / Alexa-Maria CROITORU / Marcela POPA / Laura-Florentina BOANȚĂ / Dan Eduard MIHAIESCU / Anton FICAI / Ecaterina ANDRONESCU / Carmen CHIFIRIUC |
| ORGANIZATION | University POLITEHNICA of Bucharest | |
| TITLE OF ENTRY | WASTEWATER TREATMENT TECHNOLOGY AT THE LEVEL OF TREATMENT PLANTS CONTAMINATED WITH ANTIBIOTICS, PESTICIDES OR OTHER BIOLOGICALLY ACTIVE SUBSTANCES | |
| <p>The invention consists in the development of a wastewater treatment technology from urban or hospital treatment plants with high risk of antibiotic contamination and implicitly with high risk of generating microorganism resistance genes for antibiotics. The invention consists in the use of natural or synthetic zeolites or more complex mixtures containing additional and adsorbent components such as activated carbon, mesoporous silica, or active components such as photocatalytic nanoparticles: TiO₂ or ZnO for the destruction of adsorbed antibiotics. The proposed technology assumes that in the final stage of treatment, the resulting water is additionally passed through a basin loaded with the adsorbent system and thus the antibiotics are adsorbed without being discharged into the wild. In this way, the microorganisms in the effluent are not exposed to antibiotics, at a sub-therapeutic level that would induce the development of resistance. Given the alarming level of resistance of microorganisms to antibiotics, this technology is especially necessary in the case of treatment plants of antibiotic factories (and not only), hospitals (especially infectious plants), livestock farms, etc.</p> | | |

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| RO-33 | NAME(S) | OPREA Ovidiu-Cristian / FICAI Anton / FICAI Denisa / MOTELICA Ludmila / ANDRONESCU Ecaterina / TRUȘCA Roxana Doina |
| ORGANIZATION | University POLITEHNICA of Bucharest | |
| TITLE OF ENTRY | Antimicrobial composition based on cellulose and ZnO loaded with citronellol for restoring paper from documents affected by the microorganisms | |
| <p>The present invention relates to the production of cellulose-based gel compositions with citronellol-loaded ZnO nanoparticles for the restoration of paper documents, which will provide long-lasting antimicrobial protection.</p> | | |

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| RO-34 | NAME(S) | Petre Lucian SEICIU / Valentin BARBU / Romică Constantin STOICA / Mihaela Anca ALEXE / Georgiana Ionela PĂDURARU / Delia Alexandra PRISECARU / Mihai BERTEANU / Ileana CIOBANU / Alina Nela ILIESCU / Cosmin FRONE / Florian BADEA |
| ORGANIZATION | University POLITEHNICA of Bucharest | |
| TITLE OF ENTRY | MECHATRONIC SYSTEM FOR PELVIC GIRDLE STABILITY AND GAIT MOVEMENT CONTROL FOR PEOPLE WITH NEUROLOGICAL AND MUSCULOSKELETAL CONDITIONS – CoMControl | |
| <p>CoMControl aims to improve the medical rehabilitation of people with locomotor disabilities, by controlling and moving their center of mass during gait. The system is autonomous and assists the movements of the patient's pelvis while ground walking (active walking) or on treadmill (passive walking). CoMControl assists 4 degrees of motion of patient's Center of Mass (COM). The patient can move on straight/curved paths or any combination of them. The system presents an innovative system for patient suspension that support and control the patient posture eliminating, at the same time, the disadvantages of the existing support systems.</p> | | |

SAUDI ARABIA

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| SA-01 | NAME(S) | Naif Saleh Aljilani |
| ORGANIZATION | King Abdulaziz University | |
| TITLE OF ENTRY | Automatic Shower Fiber | |
| <p>An automatic shower fiber has been designed to be fixed on bath wall in order to clean the body during showering without any effort and it can be used by anyone in our day-to-day life especially elder people and some people who have physical challenges as it is very easy to operate. Moreover, it doesn't take a space in bathroom as it is a foldable, detachable after usage, and it can be used under water resource during showering.</p> | | |

SENEGAL

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| SN-01 | NAME(S) | Etienne Thibault |
| ORGANIZATION | N/A | |
| TITLE OF ENTRY | Agglofil | |
| <p>Agglofil is a resistant product that can replace the chipboard wood used in the manufacture of furniture, parquet floors, thermal and sound insulation partitions, etc. It helps prevent the felling of trees. The chipboard wood used in the manufacture of certain products (furniture, parquet floors, etc.) is not very resistant. The manufacture of certain products (furniture, parquet floors, etc.) is based on the felling of trees and contributes to deforestation. Agglofil is more resistant (stronger, resistant to water, shocks and pressure) than the chipboard wood currently used. It helps to slow down deforestation for the protection of the environment and reduce production costs.</p> | | |

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| SN-02 | NAME(S) | Etienne Thibault |
| ORGANIZATION | N/A | |
| TITLE OF ENTRY | Refreshing blanket | |
| <p>There are two types of products using the proposed technology: blankets and mattress toppers. The uses of these products are however very different since the blankets are designed to be used in hospitals in hot countries when the mattress topper is designed to be used by an individual to refrigerate his mattress in hot weather. Cooling blankets work on a simple principle: refrigerate a fluid and circulate it in a blanket designed in a material specially adapted to easily propagate thermal energy. The invention is designed to operate on solar power or 12V direct current, and even 220V alternating current. The piping used to conduct the fluid is soft Kevlar, known for its good resistance to heat and wear. The fabric which serves as a receptacle for this thermal energy is itself adaptable to the needs of the uses. The fluid is therefore cooled in an external box and returned to the fabric at a temperature requested by the user.</p> | | |

SERBIA

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| RS-01 | NAME(S) | Aleksandra Ivetić |
| ORGANIZATION | University of Belgrade | |
| TITLE OF ENTRY | Silage stabilizers | |
| <p>Silage stabilizers present an inventive element in the process of plants ensiling in horizontal silos, silo bags and roll bales. It makes a huge difference from present commercial additives, because only Silage stabilizers eject oxygen from silo mass. Silage stabilizers have numerous beneficial effects on the ensiling process providing a longer period of nutritive value of silage preservation. The novelties of the invention are components of organic origin that are safe for humans and animals and are approved by EU. National Serbian patent application and international WIPO PCT application done in 2020.</p> | | |

SINGAPORE

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| SG-01 | NAME(S) | TAN Wei Kok / Joleen Seto |
| ORGANIZATION | Citizen Innovation | |
| TITLE OF ENTRY | Green Estate Micro-Management System (GEMS) | |
| <p>Green Estate Micro-Management System (GEMS) changes user behavior through developing awareness of green habits. GEMS monitors energy usage from the fuse box and send it to the cloud for analysis. To communicate with the users, an AI personal assistant is connected to messenger and help users reduce their green footprint.</p> | | |

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| SG-02 | NAME(S) | MR LEOW WEE DAR |
| ORGANIZATION | SINGAPORE INVENTORS DEVELOPMENT ASSOCIATION | |
| TITLE OF ENTRY | AIRBORNE PATHOGENS BUSTER (APB) | |
| <p>The Airborne Pathogens Buster (APB) creates a suction force at an air inlet that is positioned around the mouth or nose region of a living being or person. Airborne pathogens exhaled from the person are being sucked into the APB through the air inlet. The air containing these pathogens go through a sanitization process before it is released back to the environment.</p> | | |

SLOVENIA 

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| SI-01 | NAME(S) | Pisnik Srecko / Pisnik Jasmina |
| ORGANIZATION | N/A | |
| TITLE OF ENTRY | J&J Lux Antigravity sound and vibration carrier | |
| <p>Vibrations and magnetic radiation restore the flow of energy in organs and tissues, improves vitality and blood circulation, regulates the spine, improves tissue oxygenation, metabolism, improves blood flow and lymph flow, promotes tissue and bone regeneration, promotes osteogenesis, reduces spastic muscle tone, stimulates the immune system.</p> | | |

SOMALIA 

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| SO-01 | NAME(S) | Abdiqafar Yakub Osman |
| ORGANIZATION | Somalia University | |
| TITLE OF ENTRY | ATTITUDE OF SOMALIAN STUDENTS TOWARDS THE PRIVATE UNIVERSTIES EDUCATION SYSTEM IN BANGLADESH | |
| <p>In concluding our research, we focused several objectives before we done the study and we cover them after getting and gathering data from the respondents which we targeted before doing anything about the research. The researchers found that Somalian students live in Bangladesh are in very well condition and welcoming, there is no problem they regularly face or meet.</p> | | |

SPAIN 

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| ES-01 | NAME(S) | Antonio Sastre Seguí |
| ORGANIZATION | Artindustri Menorca S.L.U. VAT number ESB01900927 | |
| TITLE OF ENTRY | Fore/Aft Sliding Heel Strap Sandal P202200011 | |
| <p>The sandal object of this invention has technical characteristics that allow satisfactorily solve the related problem with the wear and deterioration of the heel strip in the lateral areas of contact with the grooves in the insole of this type of sandals by having this practical configuration where the strip runs freely inside the sandal, thus avoiding its wear and tear because it is not attached to the sandal.</p> | | |

SRI LANKA 

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| LK-01 | NAME(S) | P.D. PASINDU MIHIRAN |
| ORGANIZATION | ANANDA COLLEGE, COLOMBO | |
| TITLE OF ENTRY | MODIFIED YOGHURT CUP TO PREVENT SPREADING OF MOSQUITOES | |
| <p>Epidemic diseases such as Dengue, Malaria, Filariasis are increasing in large numbers in the world. Used food and beverage containers affect this problem in a huge way. Because the bottom of these cups are sealed and water can be collected, mosquitoes can easily breed inside. Large number of innocent lives die as victims for this, and government spends millions of dollars each year finding solutions to this catastrophe.</p> | | |

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| LK-02 | NAME(S) | Wijayapala WELGAMA / Bethmage Punsiri Joseph PERERA / Galkanda Arachchige Dilki Nadeeshani PERERA |
| ORGANIZATION | SRI LANAKA INVENTORS COMMISSION | |
| TITLE OF ENTRY | S.O.S WRIST LIGHT (HUMAN SAFETY) | |
| <p>THE INVENTION IS A HI POWER LIGHT TO BE WORN ON THE WRIST LEFT/RIGHT IN ORDER TO USE AT ANY EMERGENCY LIKE POWER CUT, MAP READING, USE MOBILE PHONES OR COMPUTERS AND SEND SIGNALS ETC. LOOK LIKE A WATCH. BUT FIXED SOLAR RE CHARGEABLE (SOL. PANEL FIXED) BATTERY FOR LONG LASTING. NON- FEAR IN THE DARKNESS</p> | | |

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| LK-03 | NAME(S) | FAROOK MOHAMED MUNEER |
| ORGANIZATION | WINSOFTMAX (PRIVATE) LIMITED. | |
| TITLE OF ENTRY | REMOTELY CONTROLLABLE SMART SWITCHING DEVICE, SYSTEM AND ASSOCIATED METHOD | |
| <p>This invention relates broadly to an intelligent electrical switching device, system, and associated method. It can be operated remotely via App and voice commands and can be operated offline in the absence of internet via remote control which can be customized according to requirements. It can be simply programmed to work at intervals, to schedules, to be light sensitive. It works as a self-intelligent device. This disclosure relates generally to the field of commercial and residential switching devices, systems, and associated methods. I have manufactured motherboard circuit needed for this invention. I have installed and administering a strong remote server with SSL. I have been managing the system analysis, system design and system coding required for the admin application and mobile application with cabling method.</p> | | |

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| LK-04 | NAME(S) | FAROOK MOHAMED MUNEEER |
| ORGANIZATION | WINSOFTMAX (PRIVATE) LIMITED. | |
| TITLE OF ENTRY | MULTI-FUNCTIONAL SMART WATER DISPENSING DEVICE, SYSTEM AND ASSOCIATED METHOD | |
| <p>This invention relates broadly to intelligent water dispensing device, system, and associated method. It can be used indoor and outdoor for multipurpose such as hand, leg, face washing and kitchen works, and is particularly suitable for use in premises where food is prepared or in other premises where regular hand washing is essential and needs to be monitored. And it could be operated manually in the absence of electricity. It works as a self-intelligent device to save water.</p> | | |

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| LK-05 | NAME(S) | Mr. Warnakulasuriya Sampath Ruwan Thamel / Prof. Sudath Rohan Munasinghe / Dr. Senarath Wasala Herath / Mudiyansele Thilina Dulantha Lalitharatne |
| ORGANIZATION | University of Moratuwa, Sri Lanka | |
| TITLE OF ENTRY | Stair-climbing assistive mobility platform | |
| <p>Most of the existing stair-climbing wheelchairs mainly considered about developing a mechanism for accessing stairs and did not pay much attention on providing stable and safe operation specially at the top of the staircase. So, most of the existing designs have some major issues to maintain adaptable arrangement with staircase. To overcome those issues this design proposed a novel stair-climbing assistive mobility platform which can be able to maintain stable postures by creating adaptable arrangements with staircase. Also, through this platform different types of postures can be implemented based on different applications. On the other hand, due to the continuous adaptability of the design can avoid sudden disturbances on the platform. Thus, it provides more comfortable operation.</p> | | |

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| LK-06 | NAME(S) | KUREMPALA RALALAGE CHATHURA MADHUMAL |
| ORGANIZATION | SRI LANKA INVENTORS COMMISSION (SLIC) | |
| TITLE OF ENTRY | WALKING CHARGER | |
| <p>To charge the mobile phone without charge at all costs efficiently spontaneously, it helps to keep the body healthy this feature is unique. All living creatures these creatures use their legs for the most part. We can use the power of man's foot in pairing in pairs. That is, it is free to receive electrical energy through the walking process. We know that in the future we will face a non-renewable energy crisis. This method can be used not only for mobile power generation from renewable sources but also for every electronic device we use every day. When walking, standing, sitting, you can move the device by hand and charge the battery. So, we can charge 75% of the battery within 1.5 hours' time by normal walking speed. These pair of shoes are especially designed for soldiers, travelers, people who exercise daily and busy people. These shoes will be especially wanted and styled by the young generation. By installing this equipment not only to humans be also to animals we can generate energy for free.</p> | | |

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| LK-07 | NAME(S) | B.L. SANJAYA THILAKARATHNE / MEAGHA THILINI KANANKE VITHANAGE |
| ORGANIZATION | UNIVERSITY OF COLOMBO, SRI LANKA | |
| TITLE OF ENTRY | Instant Nutritional Food Supplement (Nutritional Food Cube) | |
| <p>Sri Lankan traditional beverage called "Kola Kanda", herbal porridge or even called as herbal gruel has been used as a medicinal dish for thousands of years in Sri Lanka. Basically, it is prepared with an herb or with a mix of herbs, coconut milk, steamed rice, and a pinch of salt. There are many varieties of Kola Kanda. The invention relates to an instant nutritional food supplement or nutritional food cube which was invented by using the above-mentioned Sri Lankan receipt. The invention relates, more particularly, but not necessarily exclusively, nutritional food supplement cube which having instant dissolving property for making of ready to make beverage (porridge).</p> | | |

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| SUDAN  | | |
| SD-01 | NAME(S) | ABDALBASIT IBRAHIM ADAM ABDALLA |
| ORGANIZATION | AMRICAN UNIVERSITY(AU) | |
| TITLE OF ENTRY | The smart stick for sight-impaired individuals | |
| <p>The smart stick is a very useful tool for the individuals with sight impairment. The stick is designed to solve three major problems, objects, and obstacles alarming, calling for help if needed, and alarming system in case that the stick is lost. There are several important parts that make the components of the device, monitor screen, the virtue of message and notifications, the acoustic alarm and vibration, alarming whistle, in addition to sensors for low and high objects. This innovation is useful, comparing with the old technology that available now, and it found to be reliable, and cost effective.</p> | | |

| SWEDEN  | | |
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| SE-01 | NAME(S) | Dr. Sajad Shabanpourhaghghi / Dr. Neda Bagherian |
| ORGANIZATION | | N/A |
| TITLE OF ENTRY | | USING GENETIC MANIPULATION BACTERIA IN ORDER TO DEACTIVATE THE CORONA VIRUSES THROUGH SECRETION AND SURFACE PRESENTATION OF VIRUS RECEPTOR(ACE2) |
| <p>The invention using genetic manipulation bacteria in order to deactivate the corona viruses through secretion and surface presentation of virus receptor (ACE2) is a method of control and treat diseases caused by corona viruses, SARS, MERS and influenza and all viruses that enter through the ACE2 receptor cell.</p> | | |

| SWITZERLAND  | | |
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| CH-01 | NAME(S) | Ms. Francesca Melera |
| ORGANIZATION | | Frel Solutions Sagl |
| TITLE OF ENTRY | | Ergonomically shaped eyewear holder designed to support eyewear temple tips holding on a wearer's neck |
| <p>An accessory for reading glasses (and sunglasses): a set of two end caps that can be slid over the temple tips of a pair of reading glasses, so the glasses can be worn around the neck when not needed.</p> | | |

| SYRIA  | | |
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| SY-01 | NAME(S) | Dr. Chadi Khatib / Dr. Aoula Moustapha / Dr. Raymond Bchara |
| ORGANIZATION | | Manara University |
| TITLE OF ENTRY | | Preparation of Aleppo Salty Muddy Mask (with Bentonite Clay "Aleppo belouneh", "Aleppo Jabbuli" Salt) for Cleaning, Peeling, Tightening the Skin |
| <p>This recipe consists of a selection of selected natural active ingredients (bentonite clay, organic humic fertilizer, oak gall, "Aleppo Jabbuli" salt). The natural salt helps in both cleaning and soft peeling the skin, and tannins strengthen the skin and tissues. These compounds act synergistically to reduce fat secretion, correct metabolism, clean skin, Areas of the face, neck, abdomen, hip, shoulders, thighs and buttocks, and the bentonite is drying and cleaning superficially, and this unique combination is the secret in the validity of this patent.</p> | | |

| TAIWAN  | | |
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| TW-01 | NAME(S) | Yeh, Chung-Wei / Chiang, Chih-Huang / Hsu, Chia-Wei / Wu, Jia-zhe |
| ORGANIZATION | | Air Force Institute of Technology |
| TITLE OF ENTRY | | CYCLONE DRYING DEVICE WITH WIND GUIDING FUNCTION |
| <p>A cyclone drying device includes a main body, an airflow guiding member, and an exhaust pipe. The airflow guiding member is closed at the open end of the main body, and has an inflow portion connected with the housing space. The inflow portion is connected with a wind guiding equipment, which produces air flow guides into the housing space. The exhaust pipe is disposed along the axis, passed though with the airflow guiding member, and radially provided with a hanger, allowing the air flow to dry the clothes.</p> | | |

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| TW-02 | NAME(S) | LIANG, TIEN-SHOW / LI, WEN-SENG / MENG, EN / CHERNG, JUIN-HONG / WU, SHENG-TANG |
| ORGANIZATION | | GREEN ENERGY NANO TECHNOLOGY CO.,LTD |
| TITLE OF ENTRY | | GreenE Bio-Stamina MPF-tech Circulation-Aid Blanket |
| <ol style="list-style-type: none"> 1. Clinical proof for circulation enhancement had published in international journals: In clinical tests regarding normal person and diabetics, the blanket promotes blood flow volume by 43% and 24% respectively. 2. Purified bio-band far-infrared for excellent bio-effects: 91% of F-IR emission occurs wavelength of 4–14 um, which helps the cell-resonance thermal effect and the liquidity effect by de-bonding water micelle. 3. Outstanding cell proliferation and skin smoothness: A ISO 10993-5 test reports natural cell proliferation by 22%. Another skin test reveals roughness improvement reaching 29%. 4. High safety, hygiene, durability, and convenience: Electricity free, radiation free, 150-time washing and 140°C steaming durable, and all season use with a cotton side and the other fleece one. Textile made of thermal-insulation and F-IR generating fiber: The hollow fiber, which drawn from F-IR energy ball implanted molecular-scale and reagent-grade precious-metal Ge/Ti/π formula and sealed by Si polymer, issues light weight, thermal insulation, and zero loss of bio-band far-infrared energy for life-time use. | | |

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| TW-03 | NAME(S) | YANG PO-CHUN |
| ORGANIZATION | SIMPLY PLUS CO., LTD. | |
| TITLE OF ENTRY | Use of Fermented Milk | |
| <p>The use of a fermented dairy product to reduce apoptosis of myocardial cells. The fermented dairy product was cultured by adding multispecies lactic acid bacterial to the dairy product, so that the fermented dairy product contains γ-aminobutyric acid and metabolism of lactic acid bacteria, wherein the fermented dairy product includes water, purple sweet potato, milk, starch hydrolyzing enzyme, proteolytic enzyme, glutamic acid and whey. And wherein the added lactic acid strains were multispecies LAB strains that contain <i>L. acidophilus</i> BCRC 14065, <i>L. delbrueckii</i> subsp. <i>lactis</i> BCRC 12256, <i>L. gasseri</i> BCRC 14691 and combinations thereof group.</p> | | |

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| TW-04 | NAME(S) | Lee, Chih-Wen / Pei, Yu-Liang / Huang, Wen-Pang / Wu, Ya-Ting |
| ORGANIZATION | Sinphar Pharmaceutical Co., Ltd. | |
| TITLE OF ENTRY | Memoregain Capsules- Use of active substance AIE2 of <i>Cistanche tubulosa</i> extracts to prevent and delay brain aging | |
| <p><i>Cistanche tubulosa</i>, a valuable desert parasitic plants, has been R&D for over twenty years by Sinphar@Group, adopting Phytomics QCTM technology to identify active substances-AIE2 from natural plants. The active substances-AIE2 is for commercial product use over more than 10 countries, and has obtained patent protections in dozens of countries. From in vitro to human study, proven effective by Phase IV clinical trials, it is also first time to use traditional Chinese medicine to developed new efficacy by scientific methods to opened brain revolution of the new era. Sinphar Pharmaceutical was inaugurated in 1977 in Yilan Taiwan, upholding its philosophy, 'public's health is sinphar's ideal', Sinphar Group has accompanied the public for almost 40 years. All these time, the company has always embraced its focus on 'life, health, and technology' in developing therapeutic drugs, health care foods, and medical beauty products to provide the public with the best service for protecting their health and quality of life.</p> | | |

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| TW-05 | NAME(S) | Chen Chin-Chu / Li I-Chen / Li Tsung-Ju / Chen Yen-Po |
| ORGANIZATION | GRAPE KING BIO | |
| TITLE OF ENTRY | The Ameliorative Effect of <i>Phellinus linteus</i> mycelium on Muscle Atrophy | |
| <p>Sarcopenia is a potential healthcare crisis in elderly population. It is a skeletal muscle disorder that involved in age-progressive muscle reduction which causes an accelerated decline in strength, mobility, athletic performance, and basal metabolism. Study has found that sarcopenia also has adverse effects in clinical outcome because they are more likely to fall and become hospitalized. Therefore, early prevention and diagnosis of sarcopenia can reduce the incidence of disability, hospitalization and death. Sarcopenia has become an intense topic to focus on because decreasing muscle degeneration is the most effective strategy to improve the lifestyle at old age. In this study, we first established cellular platform mouse fibroblasts (C2C12) with dexamethasone treatment to induce myotube atrophy. We found that the <i>Phellinus linteus</i> mycelium has the potential to prevent myotube atrophy from dexamethasone damage. Next, we performed seven days cast immobilization (IM) on C57BL/6J mice as our in vivo muscle atrophy animal model. The IM mice were fed at beginning of the trial with <i>Phellinus linteus</i> mycelium (500 mg/kg) for two consecutive weeks. Muscle endurance and grip strength showed significantly improvement when compared with the control after two weeks ($p < 0.05$). The result showed that supplementation of <i>Phellinus linteus</i> mycelium has ameliorative effect on IM induced muscle atrophy.</p> | | |

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| TW-06 | NAME(S) | Chen Chin-Chu / Chen Yen-Lien / Lin Shin-Wei / Chen Yen-Po |
| ORGANIZATION | GRAPE KING BIO | |
| TITLE OF ENTRY | Use of Lactic acid bacteria for manufacturing an antiviral composition | |
| <p>Viruses can infect host cells and cause cell lysis, which can cause cell death and disease symptoms. H1N1 influenza is spread through airborne droplets and contact. People with low immunity are prone to face higher risks of severe illness and increased mortality. This virus is highly changeable, acquiring genetic variations and therefore the annual flu vaccine cannot last from year to year. This invention presents using the probiotics active substances, which have the effect of preventing and inhibiting entry of influenza viruses into the cells.</p> | | |

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| TW-07 | NAME(S) | Pang-Chieh Lin / Huang-Kuang Kung / Shih-Chuan Chang / Sheng-Jie Lin / Wei-Ming Kuo |
| ORGANIZATION | Cheng Shiu University | |
| TITLE OF ENTRY | UWB Smart Auto-tracking Robot | |
| <p>UWB is used to track the target, and MPU-9250 increases the tracking accuracy. The measurement error is within 18 cm, the tracking ability is excellent.</p> | | |

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| TW-08 | NAME(S) | Huang-Kuang Kung / Pang-Chieh Lin / Cong-Jun Chen / Sheng-Jie Lin / Yu-Li Chen |
| ORGANIZATION | Cheng Shiu University | |
| TITLE OF ENTRY | A smart lawn mower for light-rail track system | |
| <p>This creation is a smart automatic lawn mower that can mow grass on the light rail track. In order to run smoothly on the light rail track, this creation has designed pavement and track dual-purpose wheel. The integrated design can reduce the weight of the device and improve the ease of use. The applications of this smart lawn mower not only increase mowing efficiency but also significantly reduce the manpower and time required for grassland maintenance.</p> | | |

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| TW-09 | NAME(S) | Jwo-Ming, Jou / Shao Hsiang, Chiu / Wei Hao, Huang / Chi-Ting, Hsieh |
| | ORGANIZATION | Cheng Shiu University of the Financial Corporation of Cheng Shiu School |
| | TITLE OF ENTRY | The Fatigue Testing Machine of Automatic Power-Off |
| <p>The present invention refers to a Fatigue Testing Machine of Automatic Power-Off, which is composed of a fixed platform group, a fracture sensor, a movable test platform group, a clamp seat, four columns, a connecting rod group, and a disc group. It is composed of a counting sensor, a speed motor group, a speed regulator group, an automatic power-off control group and a base.</p> | | |

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| TW-10 | NAME(S) | Yi-Wen Liao / Ja-Hwung Su / Cheng-Bin Yang / Guang-Wei Jian |
| | ORGANIZATION | Cheng Shiu University |
| | TITLE OF ENTRY | An Intelligent Car Surveillance Management Platform based on Behavior Image Recognition |
| <p>The number of stolen in Taiwan is quite high. Therefore, the goal of this system is to provide the security officer with a car surveillance service based on image recognition techniques.</p> | | |

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| TW-11 | NAME(S) | Chun-Hsiung Lee / Chun - Sheng Lin / Chia - Chun Tsou / Ping - Feng Chen |
| | ORGANIZATION | Cheng Shiu University |
| | TITLE OF ENTRY | Blood Pressure Health Management APP |
| <p>In view of the popularity of mobile devices and the Internet, mobile phones have also begun to have health management functions in recent years. For more accurate personal blood pressure management, in addition to the complex functions of the screen, key values such as systolic blood pressure, diastolic blood pressure, and heartbeat are presented in a simple interface at one time, so that the user can see it at a glance without the need for cumbersome page switching.</p> | | |

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| TW-12 | NAME(S) | Shih, Sung-Tsun / Li, I-Cheng / Wu, Shou-Che / Hsieh, Jen-Yang James |
| | ORGANIZATION | Cheng Shiu University |
| | TITLE OF ENTRY | Facial-Image Identification System and Method Thereof |
| <p>A face image identification system, used to improve accuracy and reliability of recognition on face image. The conventional technologies related to face image recognition cannot identify whether the face image is a real human body (living body) face image or a fake image or a photographic face image, that is, it is impossible to distinguish the actual authenticity of the face image. In view of this, the present invention provides a face image authenticity identification system and method thereof, which captures at least one face infrared image and at least one face image on a face to be identified, and searches for at least one temperature in the face infrared image distribution features, and find at least one face block in the face image and sample at least one face recognition feature, and compare the temperature distribution feature with the temperature parameter of one face block, so as to generate a face authenticity comparison. As a result, the face recognition feature is used to perform a face recognition operation to obtain a face recognition result, so as to greatly improve the accuracy and reliability of the authenticity recognition of the face image.</p> | | |

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| TW-13 | NAME(S) | CHIU, SHENG-PIN |
| | ORGANIZATION | BIOMED HERBAL RESEARCH CO., LTD. |
| | TITLE OF ENTRY | Development Highlights of LIPOMAX LIPOSOME Liposome Coating Structure that Enhances Natural Nutrient Absorption |
| <p>Since liposome is composed of lipid bilayers, it can be used as a carrier for both hydrophilic and hydrophobic functional health ingredients. Hydrophilic substances can be coated inside the liposome, while hydrophobic substances can be embedded in the lipid bilayers; in addition, the composition of the liposome is similar to that of cell membranes, therefore, by coating the liposome, the utilization rate of functional health ingredients can be greatly enhanced through cellular absorption to achieve optimal efficacy. To address the above-mentioned problems and concepts in the application of known nutrients, we developed a "LIPOMAX LIPOSOME" liposome coating structure to enhance the absorption of natural nutrients by coating functional health ingredients with phospholipids to achieve the benefit of improving the overall absorption and utilization of functional health ingredients.</p> | | |

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| TW-14 | NAME(S) | CHIU, SHENG-PIN |
| | ORGANIZATION | BIOMED HERBAL RESEARCH CO., LTD |
| | TITLE OF ENTRY | Development highlights of natural whole food protein peptide carrier particle structure with NDS function |
| <p>We have developed a particle structure with NDS function to fuse with natural whole food nutrients, so that it can effectively assist natural whole food nutrients to pass through the cellular recognition system and enhance the absorption and utilization of natural whole food nutrients in the human body, thus enhancing the effectiveness of the product. Particle structure of natural whole food protein peptide carrier with NDS function. 1. Effectively enhances the absorption rate and residence time of natural whole food nutrients with NDS function. 2. Facilitates the rapid delivery of natural whole food nutrients with NDS function to the desired cells. 3. Prevents natural whole food nutrients with NDS function from being damaged by the external environment, thus enhancing storage stability. Reduces the destruction of digestive enzymes in the gastrointestinal tract, enabling natural whole food nutrients with NDS function to pass the digestive tract and effectively perform their functions.</p> | | |

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| TW-15 | NAME(S) | CHIU, SHENG-PIN |
| ORGANIZATION | BIOMED HERBAL RESEARCH CO., LTD | |
| TITLE OF ENTRY | Multi-Layer Coated Probiotic Particle Structure for Improving Intestinal Flora | |
| <p>With the innovative structure and technical features, this technology can prevent the inner nuclear layer from being damaged by the external environment and reduce the activity of the probiotic, and can extend the shelf life, so that the gastrointestinal tract regulation function of the probiotic can be optimally performed and achieve practical progress. 1. Protect probiotics to resist gastric acid and choline and achieve 100% active rate. 2. Choline resistance test: Survival ratio > 100% 3. Gastric acid resistance test: Survival ratio > 93% Stability test: stored at 40°C for 6 months, survival rate > 85%</p> | | |

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| TW-16 | NAME(S) | CHIU, SHENG-PIN |
| ORGANIZATION | BIOMED HERBAL RESEARCH CO., LTD | |
| TITLE OF ENTRY | Patent LTG-X Low-temperature Grinding Device for Preserving the Activity of Food Ingredients | |
| <p>In order to break through and improve the traditional grinding technology, the patented LTG-X low-temperature grinding device is used to freeze the food ingredients and keep them at a low temperature during the grinding process, effectively avoiding the loss of activity and even deterioration of the food ingredients due to the rise in temperature during the grinding process, thus retaining the better quality and activity of the ground products and achieving practical benefits for the industry such as greatly enhancing the availability, nutrition, economic value and practicality of the ground products. The patented LTG-X low temperature grinding technology can be applied to the preparation of Chinese herbal medicines to achieve higher particle fineness and maintain the color, aroma, taste, and medicinal properties of the medicine.</p> | | |

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| TW-17 | NAME(S) | CHIU, SHENG-PIN |
| ORGANIZATION | BIOMED HERBAL RESEARCH CO., LTD | |
| TITLE OF ENTRY | Total Environmental Control Active Solid-State Fermentation Equipment | |
| <p>The features of the total environmental control active solid-state fermentation equipment are:</p> <ol style="list-style-type: none"> 1. The fermentation chamber has a closed chamber isolated from the outside world. 2. Each unit of the fermentation rack has a partition for air circulation between the adjacent trays. 3. The environmental control module (temperature, humidity, light, etc.) in the closed chamber can be precisely adjusted and monitored. 4. Equipped with air circulation control system to control the air circulation inside the closed chamber. 5. Precise control of cultivation time. | | |

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| TW-18 | NAME(S) | CHIU, SHENG-PIN |
| ORGANIZATION | BIOMED HERBAL RESEARCH CO., LTD | |
| TITLE OF ENTRY | Patent MegaMED Vegetables and Fruits Herbal Fermentation Equipment that Enhances the Enzyme Activity of Superoxide Dismutase | |
| <p>Most of the strains used in the traditional fermentation process are processed in the form of natural fallen bacteria or bacteriological powder, which results in the coexistence of good and bad bacteria, uncertainty about the source and species of strains, and unstable quality of finished products. Based on the above-mentioned shortcomings, a vegetables and fruits herbal fermentation equipment that enhances the enzyme activity of superoxide dismutase was developed, which refers to a vegetables and fruits herbal fermentation equipment that enhances the enzyme activity of superoxide dismutase that completely sterilizes bacteria, adds different recognized safe strains of bacteria according to different fermentation stages, and can produce small molecules of nutrients to achieve the effect of deep fermentation. With freeze-drying equipment, ice crystals can be sublimated under high vacuum, which allows the raw materials to maintain their original beautiful color and properties, while retaining the highest concentration of nutrients intact.</p> | | |

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| TW-19 | NAME(S) | CHIU, SHENG-PIN |
| ORGANIZATION | BIOMED HERBAL RESEARCH CO., LTD | |
| TITLE OF ENTRY | Patent PFD-X Food Freeze-crystal Drying Device | |
| <p>To break through in the method of preserving food, the patented PFD-X freeze-crystal drying technology is used to prevent the growth of bacteria, maintain the quality and freshness of the food, improve the color and taste, and extend its shelf life. This creation is a food freeze-crystal drying device, which freezes the foodstuffs and sublimates the ice crystals in the foodstuffs by using high vacuum to achieve the purpose of drying. It can maintain the stability of the product without consuming too much heat in the drying process.</p> | | |

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| TW-20 | NAME(S) | CHIU, SHENG-PIN |
| ORGANIZATION | BIOMED HERBAL RESEARCH CO., LTD | |
| TITLE OF ENTRY | Patent SVF-MAX Vacuum Concentrated Sugar-free Fermentation Equipment for Fruits & Vegetables | |
| <p>In order to break through the shortcomings of traditional fermentation process which requires a large amount of sugar and a long fermentation time, the vacuum concentrated sugar-free fermentation equipment for fruits and vegetables was developed, which refers to a vacuum concentrated sugar-free fermentation equipment that does not require the addition of sugar and water, shortens the fermentation time, and reduces cross contamination in the fermentation process.</p> | | |

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| TW-21 | NAME(S) | CHIU, SHENG-PIN |
| ORGANIZATION | BIOMED HERBAL RESEARCH CO., LTD | |
| TITLE OF ENTRY | Patent PS-X Protein Hydrolysis Equipment | |
| <p>This creation aims to provide a protein hydrolysis equipment, which by stirring the protein hydrolysis solution and making it evenly matched with the enzyme spraying solution, can significantly increase the contact area between the protein solution and the enzyme to achieve the best mixing effect and hydrolysis. This creation provides a protein hydrolysis equipment. By stirring the protein hydrolysis solution to make it uniform, and together with the enzyme spraying solution, the equipment can greatly increase the contact area between the protein aqueous solution and the enzymes to achieve the best mixing effect and hydrolysis.</p> | | |

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| TW-22 | NAME(S) | CHIU, SHENG-PIN |
| ORGANIZATION | BIOMED HERBAL RESEARCH CO., LTD | |
| TITLE OF ENTRY | Patent SFX-MAX Equipment that Enhances Fermentation Products | |
| <p>The equipment is an innovative and practical advanced fermentation biological equipment that helps to improve the quality and quantity of fermentation products at the same time, solving the problems of poor hygiene, low production efficiency and inconsistent quality of traditional fermentation. The equipment can improve the fermentation product, which can help microorganisms to use the fermentation culture substrate completely, so the microorganisms can survive and grow more easily, and together with the improved mixing and stirring equipment, it can provide a high efficiency fermentation culture environment for the subsequent fermentation operation. This equipment not only enhances the yield of the product, but also further enhances the active ingredients and functionality.</p> | | |

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| TW-23 | NAME(S) | CHIU, SHENG-PIN |
| ORGANIZATION | BIOMED HERBAL RESEARCH CO., LTD | |
| TITLE OF ENTRY | Ultrasonic Food Ingredients Extraction Equipment | |
| <p>Advantages of Ultrasonic Food Ingredients Extraction Equipment: The ultrasonic waves generated by the ultrasonic wave generator are directly applied to the material to be extracted in the delivery tube in order to break the cell wall of the extracted material and improve the extraction efficiency. In this way, the ultrasonic extraction equipment can effectively improve the extraction efficiency, reduce the residue of harmful substances, save raw materials, retain the efficacy of ingredients, and achieve the purpose of environmental protection and safety to ensure a sustainable consumption and production mode, in order to achieve the prospect of sustainable development.</p> | | |

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| TW-24 | NAME(S) | CHIU, SHENG-PIN |
| ORGANIZATION | BIOMED HERBAL RESEARCH CO., LTD | |
| TITLE OF ENTRY | Patent NAP-S Natural Substance Active Extraction Extreme Purification Device | |
| <p>This creation is a kind of extreme purification device that can enhance the activity of natural substance extraction. Its main features include a low temperature grinding unit, a high-pressure extraction unit and a filter, where the low temperature grinding unit is used to grind the natural substance at low temperature to refine the natural substance, increase the surface area and effectively maintain the activity of the natural substance. Then, the finely micronized material is fed into the subsequent high-pressure extraction tank under low temperature and high pressure without switching the device, and the finely micronized natural substance is extracted under extreme purification after grinding, and the solid content of the resulting extract is removed by a filter.</p> | | |

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| TW-25 | NAME(S) | TCI Living Co., Ltd. |
| ORGANIZATION | TCI Living Co., Ltd. | |
| TITLE OF ENTRY | Youtherapy-Condensed Lutein Drop | |
| <p>Drip-style Lutein Supplement, Breaking Limits in Absorption Effectiveness! Fretting about children's reluctance to take capsules and the risk of seniors swallowing solids? Our 50x ultra-concentrated liquid form solves all of this, providing a supplement of 9 mg of lutein with just 1 c.c. when taken daily. The stylish visual design of the exterior conveys the message of high concentration, breaking the established image of health supplements and making eye care fashionable and trendy. The FSC-certified paper is used to make an unibody packaging design, which is convenient for environmental recycling.</p> | | |

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| TW-26 | NAME(S) | TCI Living Co., Ltd. |
| ORGANIZATION | TCI Living Co., Ltd. | |
| TITLE OF ENTRY | Triple Probio-Probiotic-Powered, Ultra Antibacterial, Liquid Soap Series | |
| <p>Triple Probio" and "Nanqiao" jointly developed "Probiotic-Powered, Ultra Antibacterial, Liquid Soap Series" . Combines Nanqiao's proven high efficiency stain removal and natural formula without interface active agent, with Triple Probio's different patented probiotics replace conventional chemical bactericides with the natural law. Laundry Detergent -The world's first bottle that has been proven by the CDC to be effective in killing over 99.9% of COVID-19 variants, and effectively inhibits the growth of bacteria for 168 hours through natural processes! Delicates Laundry Soap- Contains AMA certified hypoallergenic formula as well as patented probiotic to protect your intimate skin from itchiness and discomfort. Proven to effectively clean blood stains, secretions within 20 seconds. Also eliminates 99.9% of the two major harmful bacteria.</p> | | |

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| TW-27 | NAME(S) | Pet Food Biotechnology Co., Ltd. |
| ORGANIZATION | Pet Food Biotechnology Co., Ltd. | |
| TITLE OF ENTRY | Gut Health Powder | |
| <p>Pet Food Biotechnology uses the highest standards of human in manufacturing, so that owners can share it with their pets without worry, to join & delight pet's life. Gut Health Powder selects 3 golden triple effect probiotics from breast milk: TCI 125 Streptococcus thermophilus, TCI633 treptococcus thermophilus, and TCI068 Bifidobacterium longum. These probiotics can jointly establish gut immune barrier network and boost immunity. The product adds kiwi enzymes to change the gut flora and inhibit gut inflammation for your pet's gut health.</p> | | |

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| TW-28 | NAME(S) | Pet Food Biotechnology Co., Ltd. |
| ORGANIZATION | Pet Food Biotechnology Co., Ltd. | |
| TITLE OF ENTRY | Joint Protection Powder | |
| <p>Pet Food Biotechnology uses the highest standards of human in manufacturing, so that owners can share it with their pets without worry, to join & delight pet's life. Gut Health Powder selects 3 golden triple effect probiotics from breast milk: TCI 125 Streptococcus thermophilus, TCI633 treptococcus thermophilus, and TCI068 Bifidobacterium longum. These probiotics can jointly establish gut immune barrier network and boost immunity. The product adds kiwi enzymes to change the gut flora and inhibit gut inflammation for your pet's gut health.</p> | | |

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| TW-29 | NAME(S) | Pet Food Biotechnology Co., Ltd. |
| ORGANIZATION | Pet Food Biotechnology Co., Ltd. | |
| TITLE OF ENTRY | Skin Care Powder | |
| <p>Pet Food Biotechnology uses the highest standards of human in manufacturing, so that owners can share it with their pets without worry, to join & delight pet's life. Skin Care Powder selects probiotics from breast milk: TCI633 Streptococcus thermophilus and TCI369 Lactobacillus johnsonii. Not only can it produce hyaluronic acid from its own source, it provides skin moisture retention for anti-itching. In addition, it can create natural protection against external stimuli, making the fur soft and shiny.</p> | | |

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| TW-30 | NAME(S) | Pet Food Biotechnology Co., Ltd. |
| ORGANIZATION | Pet Food Biotechnology Co., Ltd. | |
| TITLE OF ENTRY | Joint Protection Freeze Dried - Beef | |
| <p>Pet Food Biotechnology uses the highest standards of human in manufacturing, so that owners can share it with their pets without worry, to join & delight pet's life. Joint Protection Freeze Dried – Beef is made by carefully selecting U.S. beef. It is delicious and rich in protein to increase your pet's immunity to diseases. In addition, the product contains TCI857 Lactobacillus paracasei, which promotes the secretion of hyaluronic acid, effectively relieves joint pain and prevents joint degeneration, so that your pet's joint lubrication is always replenished, and wear and tear is no longer a concern.</p> | | |

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| TW-31 | NAME(S) | Pet Food Biotechnology Co., Ltd. |
| ORGANIZATION | Pet Food Biotechnology Co., Ltd. | |
| TITLE OF ENTRY | Gut Health Freeze Dried - Cod | |
| <p>Pet Food Biotechnology uses the highest standards of human in manufacturing, so that owners can share it with their pets without worry, to join & delight pet's life. The Gut Health Freeze Dried – Cod selects Greenland cod from the pure Arctic waters and is rich in potassium, taurine, and nutrients. In addition, the patented probiotic TCI007 Leuconostoc mesenteroides added in the product can regulate intestinal bacteria, promote the growth of good bacteria, and inhibit bad bacteria. Furthermore, the product contains highly effective self-generated anti-allergic probiotics so that pets are no longer have allergies.</p> | | |

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| TW-32 | NAME(S) | TCI Co., Ltd. |
| ORGANIZATION | TCI Co., Ltd. | |
| TITLE OF ENTRY | PROBIO-ARK DELIVERY TECH | |
| <p>TCI's professional R&D team discovered that the traditional embedding method could not achieve a comprehensive protection effect. After the R&D team continued to analyze, innovate and develop, they proposed a new probiotics delivery technology – PBA PROBIO-ARK DELIVERY TECH. This high-affinity carrier created by TCI's exclusive plant formula, effectively protects the probiotic flora and greatly improves acid resistance and intestinal transport capacity; thus, allowing good bacteria to reach the small intestine for maximum effect.</p> | | |

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| TW-33 | NAME(S) | TCI Co., Ltd. |
| ORGANIZATION | TCI Co., Ltd. | |
| TITLE OF ENTRY | Gentiana scabra extract | |
| <p>Gentiana scabra, together with Azalea and Primrose, are known as the three famous natural flowers in China, and it is one of the oldest plants on earth known as the "living fossil of plants." Gentiana scabra contains gentiopicroside, gentiokochianin, gentioflavin and gentiobiose, which has anti-inflammatory, and liver protection effects. TCI confirmed that Gentiana Scabra Extract has antioxidant abilities, can enhance the activity of mitochondria in hair follicle cells, effectively increase the moisture content of the scalp, relieve scalp sensitivity, reduce hair loss and other issues.</p> | | |

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| TW-34 | NAME(S) | TCI Co., Ltd. |
| ORGANIZATION | TCI Co., Ltd. | |
| TITLE OF ENTRY | Kanzan flower liquid | |
| <p>The daily stimulation of UV light produces reactive oxygen species (ROS) and advanced glycation end products (AGEs) to accelerate skin aging. Literature shows that Kanzan Cherry Flower is rich in antioxidants such as polyphenols, flavonoids, and lignin, and contain special sakuranin and sakuranetin, which can reduce AGEs and resist skin aging. However, each Kanzan Cherry Flower blooms for only 14 days. Therefore, TCI uses special extraction to preserve the Kanzan Cherry Flower essence, which has been proved by experiments to reduce ROS, enhance skin activity, and accelerate body metabolism, and activate skin regeneration factors.</p> | | |

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| TW-35 | NAME(S) | TCI Co., Ltd. |
| ORGANIZATION | TCI Co., Ltd. | |
| TITLE OF ENTRY | Relaxmint catnip extract | |
| <p>Catnip can make cats relaxed and happy because of the special phytochemical - nepetalactone. But catnip is not only effective for cats. Since the 11th century in medieval Europe, catnip has been used as a traditional herbal formula into tea for relieving tension and promoting relaxation effects. TCI confirmed that catnip extract has antioxidant abilities, and at the same time increases the expression of anti-depression genes, melatonin, and serotonin related genes, allowing you to soothe, relax, and promote sleep.</p> | | |

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| TW-36 | NAME(S) | TCI Co., Ltd. |
| ORGANIZATION | TCI Co., Ltd. | |
| TITLE OF ENTRY | Kiwiberry extract | |
| <p>The Kiwiberry grows in New Zealand's cold and frosty climate, and has a better resistance to freezing than other fruits. It can bloom even at -22°F. The Kiwiberry is a close relative of the kiwi fruit. It is 3-4 times smaller than the kiwi, but contains 1.3 times more vitamin C than kiwi, and contains polyphenols, carotenoids, micronutrients, and other skin antioxidants. TCI obtained Kiwiberry extract through a special concentration process, and experiments have proven that Kiwiberry extract is effective in enhancing the performance of Sirtuin (SIRT1), the key gene for anti-aging; reducing the level of ROS in skin cells; repairing DNA damage; and resisting aging skin caused by oxidation and inflammation to maintain a youthful appearance.</p> | | |

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| TW-37 | NAME(S) | TCI Co., Ltd. |
| ORGANIZATION | TCI Co., Ltd. | |
| TITLE OF ENTRY | Fermented Geisha (plum) Juice | |
| <p>Strictly selecting the Ri-O plum variety originating from Japan, the plum fruit is huge and are the best among plums. The whole fruit is fermented and extracted to concentrate 3 times the raw material essence of Akihime plum in each millimeter, refining the effective substances by 1.3 times. Through the Geisha anaerobic fermentation process, the antioxidant and whitening ingredients of the Geisha Ferment are effectively increased to inhibit the production of tyrosinase and melanin; thus, fading and reducing visible and deep skin blemishes.</p> | | |

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| TW-38 | NAME(S) | TCI Co., Ltd. |
| ORGANIZATION | TCI Co., Ltd. | |
| TITLE OF ENTRY | ClpB formula (Black tea soybean peptide compound powder | |
| <p>Hafnia alvei is an emerging next-generation probiotic, which produces unique metabolite called ClpB protein that mimics the human anorexigenic peptide α-MSH, which regulates eating behavior. ClpB formula is an integrated nutrient source specifically designed to improve growth of <i>H. alvei</i> in human gut, composed by a golden ratio of patented IBD Kombucha ferment, soybean peptide, L-arabinose and erythrytol. Thus, rapidly increases the satiety hormone ClpB in the body, effectively controlling appetite to lose weight and fat.</p> | | |

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| TAJIKISTAN  | | |
| TJ-01 | NAME(S) | Dr. Shuhratjon Nazarov |
| ORGANIZATION | Technological University of Tajikistan | |
| TITLE OF ENTRY | METHOD FOR REDUCING OXIDIZABILITY OF ALUMINUM-LITHIUM ALLOYS | |
| <p>The invention relates to the field of protection of metals from corrosion, and to a method of sealing the oxide coating on the surface of parts made of aluminum and its alloys and is intended to increase their resistance to chemical corrosion. Invention can be used in aviation, aerospace engineering, instrument-making industry and in construction to obtain parts from aluminum alloys.</p> | | |

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| TANZANIA  | | |
| TZ-01 | NAME(S) | Gideon Joseph Kibure |
| ORGANIZATION | School of St Jude | |
| TITLE OF ENTRY | Trash Genius | |
| <p>In our current world we face many challenges. One of these challenges is Global climate change and poverty caused by lack of employment. It took long time to discover the best solution for these challenges and the best solution was Trash Genius invention whereby it came up with lot of Ideas on how to combat global climate change together with poverty. Through trash genius we are able to recycle used papers, plastic bottles and used batteries that are used to produce building bricks for local and poor communities and to provide employment opportunities in our society.</p> | | |

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| THAILAND  | | |
| TH-01 | NAME(S) | Miss Sasiya Ninvanit / Mr. Jirat Wannaruemol / Miss Pimpichcha Titmuang / Mr. Kanathip Thambancha / Miss Napatthida Puntuy |
| ORGANIZATION | Montfort College / Varee Chiang Mai School | |
| TITLE OF ENTRY | Innovative Testing Equipment for PM2.5 Filter Efficiency of Surgical Mask | |
| <p>Recently, the need of surgical masks for Thai people is vastly increasing as PM2.5 pollution in various areas of Thailand. To evaluate the filtration efficiency of the masks, the experiment would take lots of time and budget, not to mention that there are plenty of limitations. Therefore, we developed an instrument that can measure the PM2.5 filtration efficiency more effortlessly and economically. The equipment was designed to imitate the filtration of the mask to a respiratory system of a human. The designed equipment was able to examine the filtration efficiency and can identify the difference between each type of mask.</p> | | |

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| TH-02 | NAME(S) | Mr. Kan Senklang / Miss Pusanisa Rulaem / Miss Siriapha Panturaporn / Mr. Kritapat Karnna / Mr. Baramee Leelayutthayothin |
| ORGANIZATION | Montfort College | |
| TITLE OF ENTRY | Packaging contains activated carbon from longan seeds, emitting orange essential oil & inhibiting ripening of mango during the transportation | |
| <p>The study attempts to create inexpensive packaging that will inhibit the ripening of the mangoes during transportation to customers. The innovation contains activated carbon made from longan seeds, which acts as a highly efficient absorbent in absorbing ethylene for preserving the mangoes. Furthermore, the activated carbon was impregnated with orange essential oil which used as the anti-fungal substance. This material has ability to inhibit the Aminocyclopropane-1-carboxylic acid, which is a substrate of ethylene formation. According to this research, the orange essential oil impregnated with activated carbon can help to inhibit the typical ripening of mangoes by up to 14 days.</p> | | |

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| TH-03 | NAME(S) | Miss Tipnampa Sokhuma / Miss Pimpawee Phaiboonsapsin / Mr. Phattarawat Kijak / Miss Pornchanok Kengka / Mr. Sapphaya Kattirat |
| ORGANIZATION | Montfort College | |
| TITLE OF ENTRY | An innovation of food packaging from <i>Imperata cylindrica Beauv</i> tissues coated with concentrated tannins | |
| <p>The aim of this innovation is to increase the efficiency of <i>Imperata cylindrica Beauv</i> tissues (cogon grass) to make as fruits or vegetable packaging by using the fermented ebony solution as a coating component. The experiment found that the concentrated ebony solution with a high amount of tannins can inhibit the fungus as <i>Pestalotiopsis sp.</i> Therefore, the fruits or vegetable packaging made from <i>Imperata cylindrica Beauv</i> tissues were coated with concentrated tannins in ebony solution exhibited inhibition of the spread of microorganisms. This invention can prevent the fruits from spoilage and slows down ripening.</p> | | |

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| TH-04 | NAME(S) | Mr. Piyongkoon Trangwatcharakoon / Mr. Keetayu Pujanmuang / Mr. Supachat Parai / Mr. Thanapat Uttrakian / Mr. Phongsaphak Haemrattakul |
| ORGANIZATION | Montfort College / The prince Royal's College | |
| TITLE OF ENTRY | Encapsulation of Vicks VapoRub and red onion extract for Relieves nasal congestion from colds | |
| <p>Encapsulation is the process coating or trapping a material to protect and control the release. This process was used in this project. The objective of this project was produced the capsule of vicks vaporub and red onion extract for Relieves nasal congestion from colds by using sodium alginate and 5% of calcium chloride, to solve out skin irritation from direct contact and eye irritation from red onions. It was found that the encapsulation of vicks vaporub and red onion extract for relieves nasal congestion from colds can reduce eye pain and extend the life of the vicks vaporub and red onion extract.</p> | | |

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| TH-05 | NAME(S) | Miss Patcharitada Wongwattanadara / Mr. Wuttiapat Datpratoom / Miss Siritida Khankaewpab / Miss Kitjawattanee Sawangsang / Miss Thanakamon Wannasan |
| ORGANIZATION | Montfort College / The Prince Royal's College / Yupparai Wittayalai | |
| TITLE OF ENTRY | Get ball contain activated carbon and chemicals for extending the postharvest life of cut rose flowers | |
| <p>Roses are Thailand economic crops that are exported to abroad and make a lot of value. However, the farmers often meet the problem that the roses cannot be stored for a long time because of the wither during transportation or keep at flower shop. It is due to the ethylene produced by the wound on the stem after harvesting. Therefore, this project to develop get balls from activated carbon mixed with chemicals to be used for absorbing ethylene and inhibiting the growth of microorganisms to extend the life of roses after harvesting to help solve problems for rose farmers.</p> | | |

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| TH-06 | NAME(S) | Miss Pimchana Karnna / Mr. Paphawin Roopsri / Miss Kirana Champawan / Mr. Ratchapol Kamolthepprithoon / Mr. Chayut Owatsakul |
| ORGANIZATION | Montfort College | |
| TITLE OF ENTRY | Portable CO₂ capture contained rice husk ash modified with organic amine as adsorbent | |
| <p>Rice husk ash (RHA) produced by burning rice husk as solid fuel from a biomass power plant. It has many interesting properties such as high porosity, light weight, and high surface area. Therefore, it is suitable to be used as an adsorbent in various processes. Rice husk ash is mainly composed of silicon dioxide or silica (SiO₂). When the ash is modified with amines, it has properties that can trap carbon oxides very well. After capturing CO₂ it can be used for plant material to increase photosynthesis rate and accelerate growth.</p> | | |

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| TH-07 | NAME(S) | Ms. Thanyarat Rangbapit / Mr. Nasettapon Navapongsireetorn / Mr. Nitithorn Singkram / Ms. Pusanisa Rulaem / Ms. Araya Samlee |
| ORGANIZATION | Montfort College | |
| TITLE OF ENTRY | The Development of Effective Avocado Ripening Box | |
| <p>Avocado is a highly valuable economic fruit in Thailand, but the problem that avocado gardeners and consumers encounter is avocados ripen quickly and there are difficult to store, this causes is damage. However, the ripening design of avocados can be controlled by temperature and ethylene gas. The control ripening box of avocado were designed by temperature control and inhibition ethylene gas in the box by using orange peel extract in activated carbon. This box was able to prolong the ripening life of avocados up to 5 days when compared to the control.</p> | | |

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| TH-08 | NAME(S) | Assistant Professor Dr. Sukhumaporn Krajangsang / Assistant Professor Dr. Prapakorn Tantayotai / Miss. Rattiyakorn Mahingsapun / Coffee innovation research unit @SWU team |
| ORGANIZATION | Srinakharinwirot University | |
| TITLE OF ENTRY | Fully Washed Process with a Novel Yeast cocktail (FWaNYC) for Arabica coffee fermentation | |
| <p>There are inconsistency and uncontrollability issues with Arabica coffee processing since it relies on natural microbes contained in coffee cherries. This innovation is employed to alleviate this difficulty by utilizing potent starter cultures in wet processing under controlled fermentation. A fully washed process with a novel yeast cocktail (FWaNYC) is a simple approach that utilizes a mixture of four yeast strains in fermentation. This innovation improves taste quality through fermentation conditions in on-farm processing. Farmers can apply FWaNYC in their regular operations without the need for additional equipment. This research could help increase the value of coffee and increase income for farmers.</p> | | |

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| TH-09 | NAME(S) | Ms. Pattaraporn Khamneungsitti / Mr. Marut Wongtepin / Dr. Wipawadee Yooin / Dr. Kwanchanok Wanawananon |
| ORGANIZATION | Chiang Mai University Demonstration School | |
| TITLE OF ENTRY | In Silico Molecular Docking Studies of Flavonoid Substances of <i>Boesenbergia rotunda</i> Extracts for Developing Therapeutic Treatments for Atherosclerosis | |
| Nitric oxide (NO), made from the Endothelial nitric oxide synthase (eNOS), is responsible for dilating blood vessels. Decrease of Nitric oxide (NO) bioavailability and activity leads to endothelial dysfunction, thus causing Atherosclerosis. There is evidence that <i>Boesenbergia rotunda</i> extract exhibited significant vasorelaxation effects in porcine coronary artery rings. | | |

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| TH-10 | NAME(S) | Miss Urai Kummarg / Associate Professor Sombat Muengtawepongsa / Assoc.Prof.Dr.Jinpitcha Sathiyamas Mamom / Miss Peeyanuch Lalaloos / Center of Excellence in StrokeThammasat University Hospital |
| ORGANIZATION | Thammasat University Hospital | |
| TITLE OF ENTRY | Smart TUH-Toothbrushes | |
| Brushing is a common procedure for cleaning the mouth and teeth, but in intubated patients, immobilized/unconscious patients who cannot brush themselves and patients with swallowing difficulties are at risk of aspiration. This toothbrush was created to prevent dysphagia and aspirate in stroke patients, which is the leading cause of pneumonia and mortality. Developing a toothbrush with a rounded brush head for thorough access to every nook and cranny. There is a group of bristles at the front and back that create gaps to allow suction of liquid while brushing, making oral cleaning, reducing germs and preventing choking while brushing teeth. | | |

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| TH-11 | NAME(S) | Assoc. Prof. Dr. Ruttiros Khonkarn |
| ORGANIZATION | Faculty of Pharmacy, Chiang Mai University | |
| TITLE OF ENTRY | Improving the efficacy of cannabidiol by microspheres for prolonging the anti-inflammatory activity in herbal cream | |
| Cannabidiol (CBD) is interesting for anti-inflammatory topical formulation to treat many skin conditions. The results show that double and single-layer microspheres effectively entrap the CBD. CBD- loaded microspheres have small particle sizes (~3 µm) with narrow size distribution. CBD- loaded microspheres have strong anti-inflammatory activity by reducing inflammatory cytokines (IL-1β, IL-6) and the expression of inflammatory proteins (phospho-Nf-kB P65, phospho-IkB-α, COX-2). Moreover, microspheres can effectively control the release of the CBD. CBD-loaded microspheres were then incorporated into the cream. This cream has strong and long-lasting anti-inflammatory action. The cream can be applied only 1 time per day. | | |

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| TH-12 | NAME(S) | Patcharapak Suriwong / Panudet Pramunsin / Dr. Yang Fong (Richard) |
| ORGANIZATION | Nanogene Company Limited | |
| TITLE OF ENTRY | NUTRIX™ Natural Dietary Supplement for Gastroesophageal Reflux Disease (GERD) relief | |
| Nutrix™ is a research-based dietary supplement designed for functional medicine away from conventional approaches to alleviate the symptoms of gastroesophageal reflux disease (GERD) under natural ingredients from botanical extract that provide healing capabilities and anti-inflammatory for the irritated esophagus. By using lesser pharmaceutical drugs, we can bio-enhance the metabolism of botanical extract (quercetin and curcuminoid) while increasing its bioavailability via nano-encapsulation technology, boosting by more than 90% efficiency and efficacy of targeting such illness with instant pain relieve. Our goal is to supply GERD patients with a functional medication and away from medications like proton pump inhibitors, where long term effect causes renal damage and osteoporosis. | | |

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| TH-13 | NAME(S) | Phiyada Khayak / Dr. Yang Fong (Richard) |
| ORGANIZATION | NANOGENE CO., LTD. | |
| TITLE OF ENTRY | Dr.Maethee : Fermented Rice Lotion | |
| Thailand is the world's second largest producer and exporter of rice. Tons of waste are created each year, a mission is to reduce waste via recycling in order to achieve the objective of sustainable development (SDG). Fermented rice extract contains vitamins, amino acids, minerals, and phytonutrients which is extremely anti-inflammatory and anti-oxidant with anti-aging qualities to naturally brighten, antipigmentation, moisturize, and nourish your skin. We created the Dr. Maethee: Fermented Rice Lotion using recycled materials and fermented rice as cosmeceutical ingredients with nano-encapsulation and nano-emulsion technology to assist Thailand's rice production industry by reducing wastage with new income for farmers. | | |

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| TH-14 | NAME(S) | Chayada Saengsookwaow / Panudet Pramunsin / Dr. Yang Fong (Richard) |
| ORGANIZATION | NANOGENE CO., LTD. | |
| TITLE OF ENTRY | AcKlin™; Cleansing Powder for Fruits and Vegetables | |
| <p>The contamination of foodborne pathogens and pesticides in raw or undercooked fruits and vegetables has been particularly concerned. AcKlin™, the cleansing powder-based natural substance synergistic with sodium bicarbonate for cleaner, safer and more durable fresh produce for fruits and vegetables is created. It can oxidize and lyse the main cell wall/cellular structure of pathogens or pesticides resulting in greater than 99.6 % efficiency against foodborne pathogens such as viruses and bacteria and removing more than 90 % of pesticides being biodegradable. Due to its solid-state powder structure, the product is simple to carry and store, eliminating ambiguity and risk.</p> | | |

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| TH-15 | NAME(S) | Asst. Prof. Dr. Natnaporn Aeknarajindawat / Mr. Chalermpol Punnotok / Dr. Nattachai Aeknarajindawat / Dr. Damkerng Asawasuntrangkun / Mr. Burin Hemthath |
| ORGANIZATION | Suan Sunandha Rajabhat University | |
| TITLE OF ENTRY | SAWASDEE NURSING ROBOT | |
| <p>The SAWASDEE NURSING ROBOT is a new step in developing cutting-edge technology to provide life-like patient care for outpatients and inpatients. Outpatient service with modern methods is the first point that acts as a representative of the public relations department, welcoming patients and acting as the department of patient records collection. Screening for symptoms of individual patients, especially during COVID-19, before referring the patient to a specialized department Both serve to provide knowledge and understanding about the symptoms of various diseases. Prevention, treatment, etc. Inpatients or patients who live at home will provide 24-hour surveillance by operating in all conditions.</p> | | |

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| TH-16 | NAME(S) | Dr. Natthachai Aeknarajindawat / Dr. Damkerng Asawasuntrangkun / Asst. Prof. Dr. Natnaporn Aeknarajindawat / Mr. Wattachai Boonsaner / Ms. Natthaphorn Chaiwong |
| ORGANIZATION | Suan Sunandha Rajabhat University | |
| TITLE OF ENTRY | INSTANT COFFEE MIXED RED TAMARIND | |
| <p>Instant coffee mixed red tamarind was developed by spray dry process, mixed with coffee powder, creamer, collagen, oligofructose, etc. and ultimately made into 3-in-1 coffee. The product still retains important substance in red tamarind called "Anthocyanin" (test by IFRPD), which acts as an antioxidant and help to reduce blood sugar, reduce the risk of heart disease, diabetes. The results show that: mean preference scores in terms of color, coffee smell, red tamarind smell, bitter taste, sour taste, oiliness, and overall liking, scores of were in 7.5–7.7, which were moderate to very liked, therefore, it is an alternative product for healthy people.</p> | | |

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| TH-17 | NAME(S) | Srung Smanmoo / Surachet Soontontaweesub / Varinthon Chairorjrat |
| ORGANIZATION | Quantum Biotech Co., Ltd. | |
| TITLE OF ENTRY | Bioactivists™ | |
| <p>The boosting level of nicotinamide adenine dinucleotide (NAD+) has gained a surged interest. Many researches support that NAD+ repairs DNA, regulates the immune system and delays the ageing process. As the NAD+ level decreases to the ageing, less than 50% is left after 40 years. NAD+ intravenous therapy (IV) is the fast track for increasing the level of NAD+ but with high cost of treatment and short-term maintaining NAD+ level. Bioactivists™ is a patented formulation of NAD+ nutraceutical supplement with pre-clinical and clinical supports to increase the level of NAD+ by 85% within 2 weeks and improve bioavailability 71%.</p> | | |

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| TH-18 | NAME(S) | Saran Burapachaisri / Phrom Sriburanasorn / Pollawat Robkob / Phoom Sriburanasorn / Pairat Tangpornprasert |
| ORGANIZATION | Ruamrudee International School / Chulalongkorn University | |
| TITLE OF ENTRY | The design and manufacturing of a prosthetic foot for agricultural applications based on the elastic energy storage of water buffaloes during locomotion | |
| <p>In Thailand, the prosthetic foot for agricultural applications prevents sinkage but lacks energy storage to propel users forward. In this project, a prototype of a prosthetic foot for agricultural applications is proposed based on the distal interdigital ligament - a ligament that stores energy and propels water buffaloes during locomotion. The prosthetic was designed using CAD and Ansys's Finite Element Method. Results show that the prototype can support 80kg of weight, but during static simulation stores 15.5 J of energy compared to water buffaloes' 49.6 J during walking.</p> | | |

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| TH-19 | NAME(S) | Pokkrit Jeerapat |
| ORGANIZATION | Northfield Mount Hermon | |
| TITLE OF ENTRY | Algae paper sapling bag | |
| <p>Thailand have a lot of fish farms and we recognize the problems that most farmers face. There are invasive algae growing in their pond, which they usually remove and burn them out. Therefore, this project is being initiated to bring out the solution. We successfully made paper out of these algae. These papers have similar properties to regular paper, but just a little thicker and rougher. Now, we are using these papers to make sapling bag that will allow us to plant the saplings directly to the soil as the material is biodegradable.</p> | | |

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| TH-20 | NAME(S) | Pokkrit Jeerapat |
| ORGANIZATION | Northfield Mount Hermon | |
| TITLE OF ENTRY | Wiribed | |
| <p>The Wiribed is an affordable bed made from sustainable materials like HMR board, targeting specifically the poor people that couldn't afford more expensive beds. The unique design of Wiribed contains the main functions of those the standard hospital beds have: the patient can switch to different position whether it is sleeping or eating, lift their legs up or down, etc. Moreover, there is no external equipment needed while assembling. As a result, Wiribed is very suitable for mass production in the purpose of donations.</p> | | |

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| TH-21 | NAME(S) | Miss.Nanthiya Somsaruy / Mr.Direk Sueseenak / Mr.Pannatorn Somsaruy / Mr.Manid Dornkham |
| ORGANIZATION | Lampang Rajabhat University | |
| TITLE OF ENTRY | The Development of a Local Product: A Lampang's Horse-drawn Carriage Replica with Personal Cardiac Monitoring System Using Digital Biomedical Engineering Technology | |
| <p>Horse-drawn Carriages have been a tourism symbol of Lampang Province. Tourists can enjoy horse carriage rides featuring unique way of life, art, and culture along the horse carriage tour routes. Horse-drawn carriages are made into replicas as a form of tourist souvenirs to conserve the culture of horse carriage riding. The replicas have been made by downscaling from the real carriage while retaining its complete details. In addition, its value is added up with built in personal cardiac monitoring system using digital biomedical engineering technology for a preliminary health assessment to differentiate the product form other similar local products in the market.</p> | | |

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| TH-22 | NAME(S) | Assistant Professor Dr. Chutima Suraseth / Associate Professor Dr. Prakob Koraneekij |
| ORGANIZATION | Faculty of Education, Chulalongkorn University, Thailand | |
| TITLE OF ENTRY | CU Smart Sociometry: Educational innovation to study the relationship among secondary school learners | |
| <p>CU Smart Sociometry is a responsive web application that can be used anytime and anywhere. It is a tool developed via the R&D process to study the sociometric status among learners and peer groups. Normally, it takes 1-3 weeks to complete the sociometry process. However, in 15 minutes, CU Smart Sociometry can collect, analyze, and create a sociogram of learners (classified by gender, frequency, and groups with the use of colors). Also, it accurately, conveniently, and promptly interprets the results according to the criteria and categorizes students' sociometric status into five types namely popular, rejected, neglected, controversial, and average students.</p> | | |

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| TH-23 | NAME(S) | Associate Professor Dr. Prakob Koraneekij / Assistant Professor Dr. Sresuda Wongwisekul |
| ORGANIZATION | Faculty of Education, Chulalongkorn University, Thailand | |
| TITLE OF ENTRY | NurseSims: High fidelity, cost-saving mannequin simulators, a learning innovation for nursing students | |
| <p>NurseSims, high fidelity, cost-saving mannequin simulator, a learning innovation for nursing students is the research outcome of simulation-based learning innovation in the disruptive technology era for enhancing student nurses' professional competencies and digital intelligence funded by the National Research Council of Thailand (NRCT). NurseSims consists of the mannequin simulator, microcontroller with sensors, and web application for reporting learning outcomes of the practice sessions via mobile devices. This innovation assists nursing students to practice with mannequins, while feedback on the learning outcomes from peers and teachers such as comments, discussions, assessments, and suggestions can be done by a web application.</p> | | |

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| TH-24 | NAME(S) | Associate Professor Dr. Prakob Koraneekij / Assistant Professor Nitcha Chamniyon / Professor Dr. Jintavee Khlaisang |
| ORGANIZATION | Faculty of Education, Chulalongkorn University, Thailand | |
| TITLE OF ENTRY | GamiPlus: Innovation of gamified learning environment for Google Classroom | |
| <p>GamiPlus is a tool that assists teachers to create a gamification environment in Google Classroom. It consists of features such as giving digital badges and displaying leaderboards as well as levels wherein the teachers can manage by themselves. Teachers can use GamiPlus to import student data, subject/course information, and students' grades from Google Classroom. The data can be used to give digital badges, display leaderboard updates, and students' level progress. A link can be generated and easily sent to students or posted as a Google Classroom announcement for the course.</p> | | |

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| TH-25 | NAME(S) | Sarat (Matthew) Lowe |
| ORGANIZATION | Ruamrudee International School | |
| TITLE OF ENTRY | Boost-Walker | |
| <p>Thailand's public healthcare system lacks the resources to adequately support physical therapists and treat patients with mobility disabilities. The Boost-Walker is a smart and inexpensive 4-wheeled walker with an attached harness that provides patients weight support as they are being transported, standing up, or walking. Unlike similar devices, the Boost-Walker has a weight sensor and hand brakes, innovative features designed to make safe physical therapy accessible in hospitals and at home. Ultimately, the commercialization of the Boost-Walker can be managed by a non-profit organization leading to better healthcare standards and earlier recovery among people with mobility challenges.</p> | | |

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| TH-26 | NAME(S) | Mrs.SUREERAT JUYKRAYANG / Miss Pasinee Meekeaw / Miss Sakuna Siwprakhon / Miss Natthida Niparam / Miss Pouyisa Camkhwa |
| ORGANIZATION | Weerawatyothin School | |
| TITLE OF ENTRY | Salted Egg Machine | |
| <p>Salted Egg Machine speed to study 1, working principle of salted egg machine speed 2, efficiency of salted egg machine speed. 1. Making salted eggs using low air pressure makes the brine less dense. increase the osmotic capacity of brine Therefore, salted eggs can be produced faster. 2. At 4 bar of air pressure, salted eggs can be made in 6 days, salted eggs are obtained. 3.3% of the salt in raw egg whites with egg white opaque Egg yolk is a hard ball. and the salinity can be controlled with a shorter period of time.</p> | | |

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| TH-27 | NAME(S) | Phuvipat Atibaed |
| ORGANIZATION | Chulalongkorn University Demonstration Secondary School | |
| TITLE OF ENTRY | "Fridge Buddy" Fridge Inventory System | |
| <p>"Fridge Buddy" is an inventory system that handles food storage in a house up to a community. It minimizes the food waste that costs money, time, and ecosystem. It utilizes RFID system. RFID tags are attached to the food representing food. RFID reader is attached on the fridge lid receiving and sending data to the cloud. Users can check their inventory through the application which shows food details. The inventories can be shared between users to maximize the benefit of the food. The RFID method is more desirable than the imaging method which is not interfered by ice or container.</p> | | |

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| TH-28 | NAME(S) | Asst. Prof.Sirirat Laohaprapanon / Ms. Sarinrat Jitjum / Ms.Thiyanan Suankool / Mr. Puthep Vuna |
| ORGANIZATION | Rajamangala University Technology of Srivijaya | |
| TITLE OF ENTRY | The Development of Body Lotion from <i>Stemona tuberosa</i> Extract | |
| <p><i>Stemona tuberosa</i> is herbicide that can grows well on rubber plantations in Thailand. It seems to be useless but when take it to experiment found that high in antioxidant has phenolic compounds = 869.65±0.65 mg GAE/g, IC50 = 5.80 µg/ml and anti-tyrosinase activity at 35% in intensive at 5 mg/ml. It can develop to be beauty product. Additionally, this product is body lotion contains by <i>Stemona tuberosa</i> extract in 5% intensive. Texture of this lotion is white, no rancidity, no layer separation and no contamination of fungus. The pH is at 5.03 ± 0.47. The irritating Testing result of lotion to skin of 200 volunteers reveal that not found skin allergy and irritating at all. In addition, the satisfaction level of volunteers is at very good level. (P-value at 95%)</p> | | |

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| TH-29 | NAME(S) | Assoc. Prof. Worapong Boonchouytan / Assoc. Prof. Dr.Chatree Homkhiew / Mr.Boonrad Boonratsamee / Miss.Tanwalai Jirandorn / Dr.Pimpisa Promma |
| ORGANIZATION | Rajamangala University Technology of Srivijaya | |
| TITLE OF ENTRY | Eco-Friendly Food Containers Made from Palmyra Palm Leaves | |
| <p>Food containers from palmyra palm leaves. There is a production process that is environmentally friendly. There is no chemical ingredient in every production process. Can decompose naturally the special feature is resistance to water absorption, tensile strength, compressive strength and flexible. Can be used as food containers for consumption and the use of agricultural waste for maximum benefit.</p> | | |

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| TH-30 | NAME(S) | Asst. Prof.Supawadee Mak-on / Assoc.Dr.Pornsil Seephueak / Dr.Kritsada Puangsuwan / Mr.Prachit promsuwan |
| ORGANIZATION | Rajamangala University Technology of Srivijaya | |
| TITLE OF ENTRY | Automatic Schizophyllum Commune Cultivation System for Greenhouses | |
| <p>The control system for Schizophyllum Commune Cultivation System for Greenhouses can control the temperature and relative humidity in the air and the humidity in the greenhouse about 29±2 degrees Celsius, 88±2 %RH and about 89±2 %RH. Cultivation per 7-day cycle can reduce water consumption by approximately 20%. As a result, Schizophyllum Commune have increased yields and have a complete flower appearance and color that are in demand in the market. There are also applications for remote monitoring and control.</p> | | |

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| TH-31 | NAME(S) | Asst.Prof. Dr. Supasit Chooklin / Dr. Sutasinee Thongnok / Mr. Teerapong Muadsri / Mr. Adirek Chairerk |
| ORGANIZATION | Rajamangala University Technology of Srivijaya | |
| TITLE OF ENTRY | Upland brown rice snack | |
| <p>In this study, upland rice snack (Med Fay rice and Sung Yod rice) and cricket (<i>Acheta domestica</i>) was developed with twin screw extruder. Cricket powder has a high protein (60.40%/w/w) and fat (16.92%/w/w), respectively. In which 30%/w/w of brown rice flour (Med Fay 5%/w/w, Sang Yod 15%/w/w), cricket powder 5%/w/w showed that the extrudate had the highest overall liking score (7.67). Moreover, the nutritional value of the extrudate at the package size of 30 g has the energy value, sugar value, fat value, and sodium value was 110 Kcal, < 1 g, 1.5 g, and 100 mg, respectively.</p> | | |

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| TH-32 | NAME(S) | Asst. Prof. Aneak Sawain / Asst. Prof. Hatairat Boonnat / Asst. Prof. Dr. Chanika Saenge Chooklin / Mr. Aukaradach Sivaruak |
| ORGANIZATION | Rajamangala University Technology of Srivijaya, Trang Campus | |
| TITLE OF ENTRY | Bao Bao [Eco-friendly Bags from Rice Sacks] | |
| <p>The new upcycling products, develop with a group of housewives in the Koh Libong, Trang Province, Thailand. Integration and development of innovation with handicrafts according to the basic abilities of the housewives' group that were developed to be community innovators. To create upcycling products to be eco-friendly bags and other products from using rice sacks as the main raw material. The eco-friendly bags produced can be used to replace plastic bags through supporting plastic bag reduction activities for green tourism communities and promoting the sale of upcycling products as eco-friendly bags and other products to tourists, including those who are interested.</p> | | |

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| TH-33 | NAME(S) | Asst.Prof.Arena Esama |
| ORGANIZATION | Rajamangala University Technology of Srivijaya | |
| TITLE OF ENTRY | Banana rope Bag | |
| <p>Development of banana rope bags to comply with change of society or locality at present which the researcher has designed to have a form and more patterns of banana rope handicrafts, then a prototype product is created to pass on the production process to the villagers in the community. Resulting in a variety of products and creating value in banana rope handicrafts, especially the value of artistic beauty, the value of utility and value to the community in various aspects such as economy, social relations local wisdom and mental behavior for members of the community.</p> | | |

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| TH-34 | NAME(S) | Assoc.Prof.Dr.Siseerot Ketkaew |
| ORGANIZATION | Faculty of Engineering, Ramkhamhaeng University | |
| TITLE OF ENTRY | The Application Kit Increase Torque in the Diesel Engine by Applied Ionic Energy | |
| <p>This innovation presents the application kit for increase torque in the diesel engine by applied ionic energy using high voltage power supply which relies on the principle of mini converter using the IC number SG3525 as the pulse signal generator and adjusting the duty cycle at 10 percent, 20 percent, and 30 percent. By maintaining the switching frequency at 20 kHz to drive the power MOSFET number IRF710 to work to control the operation of the high frequency high voltage switching transformer#TLF4T98001 to obtain a high voltage voltage greater than or equal to 1 kVp, using a load cell as an electrode for changing other gases In the air is oxygen gas and then put into the air intake pipe well to increase the amount of oxygen which will make the combustion in the engine room better. The test result is when the duty cycle is increased will increase the high voltage and will increase the reaction in the electrolyte cells respectively which, when testing the torque measurements while connecting the electrodes will see that the duty cycle at 30 percent has the highest voltage which causes the highest reaction. Thus, resulting in the highest amount of oxygen resulting in the highest torque of the engine compared to the torque of the engine that has not yet been connected to the electrodes.</p> | | |

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| TH-35 | NAME(S) | Asst. Prof. Khiensak Seangklieng, Ph.D., ASA. |
| ORGANIZATION | Faculty of Architecture and Planning, Thammasat University | |
| TITLE OF ENTRY | LCDs RESO(r)TEL with Innovative 3 House + Birds' Shelter | |
| <p>The objectives of this invention are to re-develop the problem-based design to enhance the farmer's rubber plantation with innovative resort architecture and to integrate the concept of light-weight materials using for a prototype of Low-cost Design Solution: LCDs. Research-based design is strongly applied as a key principle in both functionality and practicality of resort architecture in the context of climate changes. The space planning responses to the design efficiency according to the challenge situation of the Post-COVID-19 pandemic. LCDs RESO(r)TEL reveals that space organization, materials use, and construction technology would be taken into future design consideration.</p> | | |

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| TH-36 | NAME(S) | Phirath Asawakarn / Pabhada Asawakarn |
| ORGANIZATION | Chulalongkorn University Demonstration Secondary School | |
| TITLE OF ENTRY | AmTell | |
| <p>Ammonia is a soluble alkaline gas. It is a highly toxic chemical substance and common in biological processes. In human and animals, gas ammonia might affect the health status and might becoming fatal in very high concentration. The objective of this invention is to detect and warn against gas ammonia using a simple step, low-cost tool. The utility compositions are made up of indicators which change color when exposed to varying concentrations of gas ammonia. AmTell has the advantage of being easy to use, a short testing time, easy color observation, rapid response, with no professional assistance required.</p> | | |

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| TH-37 | NAME(S) | Varittha Manorotchaturog |
| ORGANIZATION | Ruamrudee International School | |
| TITLE OF ENTRY | Anti-Topple Wheelchair Kit | |
| <p>The Anti-Topple Wheelchair Kit is a wheelchair attachment that makes going up and down steep ramps and slopes safer. It uses a hydraulic system to move the front wheel up and down so that the seat is parallel to the ground. This makes the wheelchair safer and more comfortable for the person in the wheelchair, and the person pushing it because the weight of the person is more evenly distributed throughout the chair. The kit is particularly useful when going up or down paths with a steep slope - like hills and mountains - or on ramps that don't follow the proper standards.</p> | | |

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| TH-38 | NAME(S) | Master Napakapol Pitakteeratham / Master Chatprapat Baikloy / Miss Nonlanee Kittipongwat / Master Puttipat Kittipongwat |
| ORGANIZATION | Thailand Investors Club | |
| TITLE OF ENTRY | AquaPHort | |
| <p>Billions of people globally do not have access to safe drinking water. Drinking contaminated water in daily life lead to several health problems. AquaPHort is aqua technology in forms of IOT home appliance and digital portable flask, linked to a mobile application. AquaPHort Tank is designed to measure cleanliness of water using TDS sensor and installed with eSIM for sending data to server. AquaPHort portable flask converts drinking water into alkaline water and can add nutrient tablets that contain vitamins and minerals to make more healthier drinking water. These database can be used to support government in managing water resources.</p> | | |

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| TH-39 | NAME(S) | Thaninkit Prasitdumrong / Pran Udomsawaengsup / Sirarin Prasitdumrong / Pavidia Thiamchivasin / Jeerasak Jitrotjanarak |
| ORGANIZATION | Chulalongkorn University Demonstration Elementary School | |
| TITLE OF ENTRY | CASE air purifier | |
| <p>CASE air purifier is a two-step function machine with the combination of HEPA filter to filter particles; for examples, PM 2.5 and germicidal UVC lamp to kill bacteria and viruses. The machine will provide clean air and reduce the risk of the air-borne infection; for instance, COVID-19. Due to its compact and luxury design, it can be used in personal home, commercial places and industries as both air purifier and decorative item.</p> | | |

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| TH-40 | NAME(S) | Miss Pranrak Baikloy / Miss Bharawee Nhongharnpitak / Master Bhuricha Nhongharnpitak / Master Kaweevat Santivorapong / Master Yanawatana Krisdathanont |
| ORGANIZATION | Chulalongkorn University Demonstration Elementary School | |
| TITLE OF ENTRY | E-Square : Enjoy Entertain Educate EyeProtect | |
| <p>E-Square is an all-round innovation that maximize the benefits of Facial recognition technology with Behavior Analytic and smart application. Bringing the world of entertainment and education together while providing "EyeProtect" function using data from fatigue pattern analytic. System will let you know when you have high level of eye fatigue and then alert users to move and get away from screen for a break to save kids from "Digital Eye Strain" (known as computer vision syndrome). Kids will enjoy using application from the rewarding system and challenge theme while managing themselves in learning and online entertaining activities together.</p> | | |

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| TH-41 | NAME(S) | Natnaree Ua-arak |
| ORGANIZATION | International Community School | |
| TITLE OF ENTRY | Happy Wheels – Adjustable Wheelchair for Independent Toilet Use | |
| <p>Most wheelchair accidents occur while the user gets on or off the wheelchair--especially during toilet use--while current bathroom wheelchairs are limited in that they require an assistant and function for home use only. This invention, called Happy Wheels, is a wheelchair that enables users to use normal toilets as well as public toilets by themselves. It keeps the user on the seat while the seat lifts and translates to the right position during toilet use. Finally, the wheelchair provides full privacy, saves cost for an assistant, and encourages users to live their lives normally without loss of dignity.</p> | | |

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| TH-42 | NAME(S) | Master Nabuddha Tantipoj / Miss Narita Tantipoj / Master Tos Bovornvanich |
| ORGANIZATION | King's College International School Bangkok / Chulalongkorn University Demonstration Elementary School | |
| TITLE OF ENTRY | Killing Mask | |
| <p>Killing Mask is an innovation to solve the problem of dumping a used face mask. Nowadays, a used face mask is considered an infectious waste. There is an increased risk of infection with COVID-19. This product uses UVC light and a non-touch innovation when people dispose infectious waste to a garbage.</p> | | |

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| TH-43 | NAME(S) | Miss Chayanisa Patanasirimongkol / Mr. Sirawit Assawapongkasem / Miss Pitchayapa Nindupkaew / Master Napakkorn Rojweera |
| ORGANIZATION | Thailand Inventors Club | |
| TITLE OF ENTRY | Med@Home | |
| <p>Med@Home is an innovation that is designed to assist and organize drug storage and collects the expiration & stock data. This smart medication cabinet can connect to a smartphone through an application to determine the frequency and dosages of household medicine. As we foresee problems of medicinal oodles, disorganization of medicine administration and forgetting to take medicine, there are four features to solve these problems, which are smart systems, symptom calculators, remind me and your guardian. These features offer 4S benefits: Smart, Safe, Simple and See after. With Med@Home we can take care of everyone in the family anywhere anytime.</p> | | |

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| TH-44 | NAME(S) | Setsiri Chaiyosburana |
| ORGANIZATION | NIST International School of Thailand | |
| TITLE OF ENTRY | NANO-L | |
| <p>NANO-L is a anti-pathogen coating with silver nanoparticles that is effective in killing pathogens while being produced through an environmentally safe process. In our production of silver nanoparticles, we utilize a biological process through upcycling sugar cane leaves, usually burned by farmers which releases PM 2.5 into the atmosphere. By reusing wasted sugar cane leaves, we reduce PM 2.5 emissions, alleviating global warming. Our bioprocess is also produced without a special environment and with fewer dangers to workers which reduce the cost of the coating by 15%, making it accessible to all people and industries.</p> | | |

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| TH-45 | NAME(S) | Sorakrit Thanyawan |
| ORGANIZATION | Chulalongkorn University Demonstration Elementary School | |
| TITLE OF ENTRY | Pelican – water tracking | |
| <p>Drinking not enough water in long-term can lead to serious problems such as stroke, kidney disease, and joint pain which directly affect the quality of life. Pelican is a glass tray that keeps you hydrated all day long. It designs your drinking habit based on your BMI and alert you to drink the right amount of water at the right time. It reduces the long-term risk of stroke, joint pain, and overweight in the future. At the end of the day, the drinking profile is provided as well as the rewarded token to spend in the Metaverse.</p> | | |

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| TH-46 | NAME(S) | Master Waranyu Kittithawornkul |
| ORGANIZATION | Chulalongkorn University Demonstration Secondary School | |
| TITLE OF ENTRY | Smart Aged Care | |
| <p>Smart Aged Care was invented to be an important platform to provide comprehensive care for the elderly including safety, health, and emergency assistance by linking health data through IoT sensors (e.g., temperature, blood oxygen level, and heart rate), the elderly's lifestyle data will be analyzed and learnt by AI (artificial intelligence) from data of location tracking via GPS. All data will be sent to collect on the Cloud Server and link to the hospital dashboard and relative 's mobile to monitor and take good care the elderly through 24 hours. Smart Aged Care is beneficial to the elderly. Moreover, it can solve the problem of entire Elderly Care System, reduce the mortality rate, save their life from any accidents. The Elderly can be ensured that they will have a good quality of life with intelligent comprehensive care functions and no more suffering in old age. Just wear a smart wristband all the time.</p> | | |

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| TH-47 | NAME(S) | Atsada Israpanich |
| ORGANIZATION | International School Bangkok | |
| TITLE OF ENTRY | Spiral Garden | |
| <p>Although hydroponic farming costs less logistically, there are many limitations to the traditional nutrient flow settings. The structures are required to be large and sturdy. This invention is a spiral design structure, consisting spiral tubes with holes for growing plants. An aerosol watering function makes liquid droplets of nutrients and delivers to plant roots through air flow. The spiral design takes 50% less space than conventional tower gardens. It is a one-pot process, meaning seeding and growing is all in one pot. Finally, the small but multifunctional design can supply home vegetable consumption and is a green and sustainable alternative.</p> | | |

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| TH-48 | NAME(S) | Preme Chaikamnerd / Panyaopnd Keratisuthisathorn / Thitiworada Kumpu na Ayudhya / Nadao Chaiyasit / Chanisara Tharnatham |
| ORGANIZATION | CHULALONGKORN UNIVERSITY DEMONSTRATION ELEMENTARY SCHOOL | |
| TITLE OF ENTRY | STERILOCK | |
| <p>In the new normal during COVID-19 pandemic, more people use online shopping channels instead of going out. Many people have their parcels delivered at office or wherever they are during the day. Some starts to worry about the virus coming with the parcels. So, we want to solve the problem and make everyone happy with the innovation that we create "SteriLock". Just with this box everyone can be sure deliveries are safe from the virus with our four features as follows: Secure DigiLock Contactless, Sterilize UV-care clean, Safety DigiFace CCTV, Solar Power.</p> | | |

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| TH-49 | NAME(S) | KANTAPON PRASARNSUK / SUPAKORN KITTANANUN / THUN MINGKAEW / SARANYAPONG PIYAYOPAB |
| ORGANIZATION | Chulalongkorn University Demonstration Elementary School | |
| TITLE OF ENTRY | Sternitize Locker | |
| <p>How can make sure that everywhere we want to use lockers at a particular location, are clean and germ-free. Sternitize Locker is a locker which, on the inner surface, is coated with Copper Oxide (antivirus, antibacterial) that can complete sterile locker. And also spray benzalkonium chloride 0.05% solution to sanitize the belongings inside the locker.</p> | | |

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| TH-50 | NAME(S) | Supitchaya Hemrungronj / Kullanat Tovikkai / Korn Hemrungronj / Jaomai Tungsiripat / Marjimar Suvichasophon |
| ORGANIZATION | Triam Udom Suksa School / Chulalongkorn University Demonstration Secondary School | |
| TITLE OF ENTRY | Surveyor Walker (Automatic Balance Stair Climbing Walker) | |
| <p>Surveyor Walker is the innovative walker specially designed to assist the elderly and patients with walking balance problem and stair climbing problem. It is made from carbon fibre and Nylon. The design is slim, light weight and easy to fold. Its tilt and height will be adjusted by pressing automatic adjustment button, then the automatic balance level check sensor will calculate and adjust all legs to provide smooth and secure step. The Emergency call device, IOT tracking function and heart rate monitoring system are installed to provide more safety and emergency assistance for user in any unexpected situation.</p> | | |

TUNISIA

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| TN-01 | NAME(S) | Safa Ben Haj Hassine |
| ORGANIZATION | ATAST: The Tunisian Association for the Future of Science and Technology | |
| TITLE OF ENTRY | THE ECONOMIC WATER CONSUMPTION SYSTEM | |
| <p>We all know that water is an invaluable and a priceless gift that we can't dispense it, but we see that people are careless and consume huge quantities of water: in shower, cleaning, washing, gardening which is a big problem. That's why we decided to invent this brilliant project THE ECONOMIC WATER CONSUMPTION SYSTEM. This project is to be able significantly reduce consumption, avoid leakage, and save money. It's a system connected with your mobile phone by a preprogrammed app that shows you, your water consuming and makes you control it. It records your consumption in your mobile phone.</p> | | |

TURKEY

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| TR-01 | NAME(S) | AMIRPOOYAN CHEGIN |
| ORGANIZATION | N/A | |
| TITLE OF ENTRY | Single pipe branching for hot and cold water for all houses | |
| <p>This is a creative idea to remove half of the pipes and fittings in the building. This idea has led to the design of smart faucets and the design of a new generation of packages.</p> | | |

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| TR-02 | NAME(S) | ASHOUR GHELICHI / ABDOLRASHID BEYKIZADEH |
| ORGANIZATION | Turkish Inventors and Innovators Network | |
| TITLE OF ENTRY | FAST CONSTRUCTION STRUCTURES BASED ON NANO-URETHANES AND HARDENING NANO-PAINTS (POLYUREA) | |
| <p>Due to population growth in the world, and the existence of disasters such as Floods, earthquakes, hurricanes, wars, displacement, human injustices, millions of people around the world are homeless, or living in non-standard tents. As a result, children suffer the most. So the existence of structures with the ability to build quickly, easy to carry and cheap with a long life, which can protect against cold, heat, wind, rain, fire, and even sound, is an important human need. Therefore, we were able to design and build structures using the latest technologies in the world, such as Nano-urethanes and hardening Nano-dyes (POLYUREA). In the form of raw materials and in a very small volume, many habitable structures can be built.</p> | | |

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| TR-03 | NAME(S) | MEHRAN BAKHTIARI / Sima hormozdiarycham / Iman Faridzadeh / Mohammad Hajizadeh / Fariborz Agaie Hashjin / Saeideh Najafibaghchehjoughi |
| ORGANIZATION | Turkish Inventors and Innovators Network | |
| TITLE OF ENTRY | Sterile sperm sample transfer box at 37 degrees | |
| <p>The initial purpose of this invention was to design a carrier case for transferring sterile sperm samples at a temperature of 37 degrees which is equal to human body temperature, thus being suitable for long distances transfer of sperm samples from home to the laboratory with no damage to the specimen. The original box was designed with 10 wells for placing samples. But we perfected the design so that this case, which can be adjusted from -10 degrees Celsius to +60 degrees Celsius, in addition to being able to carry sperm samples, can be used to carry a wide variety of research samples from hospitals and treatment laboratories including but not limited to sensitive pharmaceutical test samples, which sometimes have to be placed in a dark environment at a certain temperature, or for sensitive molecular test samples such as bacterial, fungal, viral and parasitology specimens, all types of culture media as well as be used to transfer human body transplants parts with the desired temperature.</p> | | |

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| TR-04 | NAME(S) | Sajjad Khodayari / Javad Ahmadi / Zahra Abbasi / Forouzan Gholami / Morteza Sharifi |
| ORGANIZATION | N/A | |
| TITLE OF ENTRY | Bus internal air purifier | |
| <p>Considering that most cities have a lot of pollution, including polluted air caused by insufficient fuel from cars or industrial centers, over time, this causes irreparable complications, including breathing problems and internal organs. Therefore, the inventors decided to design and invent a device that minimizes air pollution in public vehicles, including buses. In addition to removing dust, this device is also able to remove chemical and toxic pollutants, the purpose of this device's invention is to purify the air entering and present in buses. For example, in oil and gas exploration units as well as oil-rich areas, very toxic and dangerous gases such as hydrogen sulfide and flare fuel, which are generally carcinogenic, are very common. With this invention, physical and chemical pollutants are removed and healthy air for breathing is created inside public transportation. With nano science and considering the many advantages of zinc oxide nanoparticles and iron oxide nanoparticles, the fabric of this filter is composed of zinc oxide nanoparticles and iron oxide nanoparticles, and they have a high absorption capacity.</p> | | |

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| TR-05 | NAME(S) | Morteza Chamanara / Sima Chabi Vaisi Nezhad / Armin Ahanrobay / Amin Ahanrobay / Noushin Ahanrobay |
| ORGANIZATION | N/A | |
| TITLE OF ENTRY | 3D bioprinted natural scaffold for diabetic wound-healing | |
| <p>Diabetic ulcer is a problem that occurs in most people with diabetes. Special flavonoid compounds and wound healing compounds; It can clean the wound area before dressing and play a positive effect in the process of wound healing and rapid acceleration. Herein, a natural hydrogel is presented through feasible processing of fresh egg white, honey and aloe vera, benefiting from the abundant protein contents and physical crosslinking, the gelation procedure of this combination from diverse species was demonstrated by the presented method, the new hydrogel can be kneaded to desired mechanical strength after infiltration of cation solution and directly wrote to well-defined architecture by the 3D printer.</p> | | |

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| TR-06 | NAME(S) | Dr. Khorshid Khorgami / Dr. Mohammad Amiri / Amir Nikan Amiri |
| ORGANIZATION | N/A | |
| TITLE OF ENTRY | Tissue Engineering Using Dental Stem Cell and Biomaterial Scaffolds | |
| <p>This invention is about cell-seeded implant matching the size and shape of teeth defect is required to create an anatomical implant. The aim of this research was to develop a technology of cell-seeded implant creation that has the same shape and size as the bone defect at the site of implantation. The form was filled with biomaterial bacteria nano cellulose and human dental pulp stem cells. The main advantage of this idea is the material used and the procedure that teeth is shaped in a way that is the actual size of a patient teeth just like a 3d-printer.</p> | | |

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| TR-07 | NAME(S) | Farzan Saneei Monfared |
| ORGANIZATION | N/A | |
| TITLE OF ENTRY | Portable Solar Panels and Wind Turbines Energy Harvesting System | |
| <p>This invention is a gadget that is portable and can harvest energy from sun and wind and it can be used as a source of energy for any vehicle. Firstly, the solar panel part is made of a special material that is transparent and does not affect the cars aerodynamic. Secondly wind power has become a popular form of renewable energy, alongside solar power. Transportation and what powers it, is something that has long been in debate. Wind-powered vehicles are subject to relatively low forward resistance and are thus capable of speeds exceeding the winds. Some rotor-powered examples have demonstrated ground speeds over double that of the wind.</p> | | |

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| TR-08 | NAME(S) | Ali Bahreyni / Loghman Alimohammadian / Mohammad Taha Akbari / Ali Salehi shahrehabak / Kianoosh Maghsoodi Nejad |
| ORGANIZATION | N/A | |
| TITLE OF ENTRY | Door handle disinfection device with eye sensor and motion sensor detection mechanism | |
| <p>The door handle disinfection device is placed around the door handle with the detection mechanism of the eye sensor and the motion sensor and covers the glass or plastic protector on the handle in order to avoid contact with germs or viruses or particles suspended in the air in a shield-like manner. Then, when the person approaches the door and tries to use the handle, the eye sensor detects it and the plastic shield like shield moves up or retracts. When the person moves away, the shield is lowered until the person is close to the door and wants to use the handle. The guard will not be closed and covers the handle. At this time, the alcohol spray device will completely disinfect the handle for 3 seconds. The fan device works for 3 seconds and dries the alcohol, and the shield-like protection is placed on the handle until another person comes and uses it to prevent contamination by airborne particles.</p> | | |

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| TR-09 | NAME(S) | Hirad Mokhtari |
| ORGANIZATION | N/A | |
| TITLE OF ENTRY | A tool for electronic filing for patients in medical centers | |
| <p>One of the concerns in the medical system is always speeding up the activities, especially file writing and correct information recording, sometimes it has been observed that the information written in the files is illegible and causes irreparable errors. Therefore, providing a solution to eliminate these errors is very important. So, we looked for a way to solve this problem. This plan is a digital electronic record keeping screen like a tablet that transmits information on hospital computers and has several important features, such as the most used medical orders are written by default and do not need to be rewritten, the drugs are registered, and only need to select them, and the chart of changes in the patient's condition is recorded based on the report of the nurse and the doctor and is compared daily to determine the recovery process, on the other hand, by having a dedicated application that can be installed on the doctor's mobile phone. The changes in the patient's vital signs are sent to the doctor after being recorded in the file by the nurse within the time period that is normal for each group of patients. Document writing This feature is also designed for the software that converts the doctor's voice commands into text and records them in the file so that the patient examination process can be done more accurately and quickly.</p> | | |

UGANDA

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| UG-01 | NAME(S) | KEMIREMBE RACHEAL LOY |
| ORGANIZATION | KRAFT 256 LTD | |
| TITLE OF ENTRY | COWHORN PRODUCTS | |
| <p>Cow horn products are made from natural cow horns that are sourced from slaughterhouses and slaughter centers. There is lots of cow horn raw materials littered in abattoirs in different parts of the country in Uganda, yet they can be used to produce beautiful products like cow horns, horn jewelry box, horn cutlery like Salad Sets, Forks & spoons, Knife & Cutlery Handles, Horn Toggles etc... Kraft 256 ltd is riding on the trend of innovation and creativity where utilization of authentic local available materials can be used to produce an exquisite collection of handicraft items that are in sync with the fashion trends.</p> | | |

UKRAINE

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| UA-01 | NAME(S) | Bohatyr Diana |
| ORGANIZATION | "Junior Academy of Sciences of Ukraine" under the auspices of UNESCO | |
| TITLE OF ENTRY | Ultraviolet Cleaner | |
| <p>UV Cleaner is a device with UV LEDs for disinfection of objects and surfaces. Destroying microorganisms with ultraviolet waves creates additional protection against viruses and bacteria. The disinfectant silicone mat can be used at home, at work or taken on a journey and for all sizes of things. The main advantages of this development are accessibility and versatility. Suitable for disinfection of buttons in elevators and ATMs, as well as for mobile phones. This will ensure targeted surface treatment. May be needed to disinfect medical instruments in wartime in extreme conditions in the absence of classical methods.</p> | | |

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| UA-02 | NAME(S) | Dmytro Davydenko |
| ORGANIZATION | "Junior Academy of Sciences of Ukraine" under the auspices of UNESCO | |
| TITLE OF ENTRY | Smart Greenhouse on Autonomous Power Supply | |
| <p>The greenhouse consists of watering, ventilation, heating, alarm, and carbon dioxide control systems. The research work is devoted to the current problems of automation of processes in everyday life and providing people with vitamins throughout the year. This project reduces human presence in the process of growing vegetables due to the simple and clear programming of the Arduino board.</p> | | |

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| UA-03 | NAME(S) | Anna Fesun |
| ORGANIZATION | "Junior Academy of Sciences of Ukraine" under the auspices of UNESCO | |
| TITLE OF ENTRY | Magnetic fluid in visual art | |
| <p>Research work is devoted to the use of magnetic fluid in the visual art. The work presents theoretical and experimental studies of magnetic fluids made from machine oil, vegetable oil, gel varnish and watercolor paint with iron filings. The work describes in detail the properties of these fluids and the stages of painting with these substances and magnets. Based on the results of the experiments, it has been developed a new direction in the visual art - "Magnetic Painting" - painting with a magnetic fluid and magnets. Magnetic Painting is a promising area for its further usage in art.</p> | | |

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| UA-04 | NAME(S) | Varvara Khimchyk |
| ORGANIZATION | "Junior Academy of Sciences of Ukraine" under the auspices of UNESCO | |
| TITLE OF ENTRY | Invasion of freshwater jellyfish <i>Craspedacusta sowerbii</i> Lankester, 1880 and cytological characteristics of its oogenesis in the Dnieper Reservoir. | |
| <p>In the presented work the features of the course of oogenesis of jellyfish <i>Craspedacusta sowerbii</i> are determined: a sharp increase in the number of their populations is predicted; assessment of the possible consequences of the rapid reproduction and spread of this jellyfish on the ecosystem and fishery use of the Dnieper Reservoir and developed a scheme of gametogenesis of jellyfish, as well as proposed ways to reduce the impact of jellyfish on the ecosystem. At present, the problem of the spread of alien species must be priority for the world community, and the results of this study are an example.</p> | | |

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| UA-05 | NAME(S) | Nazar Korpach |
| ORGANIZATION | "Junior Academy of Sciences of Ukraine" under the auspices of UNESCO | |
| TITLE OF ENTRY | Flight data recorder for UAV | |
| <p>Nowadays UAVs are becoming more and more popular, and this causes demand for cheap and universal flight data recorders. This demand is still unsatisfied. The project aim is to simplify the analysis of UAV accidents via creating a reliable UAV module that will collect flight parameters from sensors and incoming ruling commands and save them for further analysis.</p> | | |

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| UA-06 | NAME(S) | Mykola Koval |
| ORGANIZATION | "Junior Academy of Sciences of Ukraine" under the auspices of UNESCO | |
| TITLE OF ENTRY | CALL AUTOMATION SYSTEM IN THE EDUCATIONAL INSTITUTION WITH TECHNOLOGY OF USE WI-FI WIRELESS COMMUNICATION | |
| <p>Call automation system in an educational institution with WI-FI wireless technology. The research work is devoted to the analysis of ARDUINO integrated environment capabilities and wireless communication technologies in order to implement the Smart School project and develop a device for school call automation system based on ARDUINO UNO R3 (ATmega 328) using Wi-Fi. The version of ARDUINO UNO UNO R3 (ATmega 328) was analyzed and based on the choice of system elements, developed scheme, writing program codes, automated call submission was created. Wireless technologies and features of their application in "smart home" systems have been studied.</p> | | |

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| UA-07 | NAME(S) | Andrii Mavrin |
| ORGANIZATION | "Junior Academy of Sciences of Ukraine" under the auspices of UNESCO | |
| TITLE OF ENTRY | Processing of tires by cryo-vibrating method | |
| <p>Today the world is littered with used tires, which pollute our environment, because only half of the tires are recycled into rubber crumbs. Therefore, the research analyzes modern methods of tire processing, their advantages and disadvantages, and proposes to use a new cryo-vibrating method, the effectiveness of which has been confirmed by experiments. The method consists in freezing and vibrating the tire at the rubber resonant oscillation frequency, after which it breaks up into separated rubber crumb, which can be used as a regenerate for new tires, and steel cord, which can be remelted.</p> | | |

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| UA-08 | NAME(S) | Mikhrin Eduard |
| ORGANIZATION | "Junior Academy of Sciences of Ukraine" under the auspices of UNESCO | |
| TITLE OF ENTRY | Creation of a demonstration installation of Chladni figures on the basis of available modern technologies at home | |
| <p>Thanks to modern technologies and computerization, it became possible to reproduce experiments and demonstrations in a new way. The research work is devoted to the creation of own experimental setup and methods of demonstration of Chladni figures on the basis of available modern technologies. Its cost is calculated. To verify the obtained results, compare and better represent the vibration process, Chladni figures were obtained using a developed computer 3D model in the FEMAP software environment. The created installation can be used to demonstrate the mechanical waves in flat structures of different geometries, strings, rods, rings, shells, springs and Lissajous figures.</p> | | |

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| UA-09 | NAME(S) | Kateryna Peleshchshyn |
| ORGANIZATION | "Junior Academy of Sciences of Ukraine" under the auspices of UNESCO | |
| TITLE OF ENTRY | A way of emergency braking | |
| <p>A new "pedal-actuator" interface has been invented, which will reduce the number of accidents that occur when driving vehicles. The main problem when driving a car is the lack of time to correct the mistake of mixing up pedals. When hitting or pressing any pedal becomes a brake pedal. A four-stage protection system is provided to ensure that the driver does not accidentally switch on the emergency braking mode when the accelerator pedal is operated normally. Experiments on the models show that the invented interface can increase the safety of driving without making drastic changes to generally accepted standards.</p> | | |

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| UA-10 | NAME(S) | Shevchuk Myroslav Oleksiyovych |
| ORGANIZATION | "Junior Academy of Sciences of Ukraine" under the auspices of UNESCO | |
| TITLE OF ENTRY | Artificial road roughness based on non-Newtonian fluid | |
| <p>Finding the optimal proportions of components for the preparation of non-Newtonian liquid. Comparison of the load on car suspension when moving through a lying cop of two types.</p> | | |

UNITED KINGDOM

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| UK-01 | NAME(S) | Leeroy Brown |
| ORGANIZATION | Eddy Jack | |
| TITLE OF ENTRY | Car Airjacking System | |
| <p>The Airjack 2000 replaces the conventional manual carjacking system. It is user friendly and can be used on cars or caravans for all groups in society as opposed to the expected norm of men uses. Women and disabled drivers are more encouraged to change the wheel of cars or inflate care tires. The system is used via a 12v cable to lift the car of the ground to change a tire, the system can be placed anywhere along the shil of the car.</p> | | |

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| UK-02 | NAME(S) | Naila Rabbani / Paul J Thornalley |
| ORGANIZATION | Qatar University / Hamad Bin Khalifa University | |
| TITLE OF ENTRY | Methods for Diagnosing an Autistic Spectrum Disorder | |
| <p>Autism is a developmental disorder of children of relatively high and increasing prevalence. Delays in diagnosis is the major problem. Current diagnosis is based on interviews and observations by an expert and takes 18-48 months. Swift diagnosis and intervention could produce remission. To address this unmet need we have developed a blood test for autism to screen/diagnose autism within 2-7 days with high accuracy. This will aid clinicians in decision-making. Our blood test involves measurement of damaged proteins and related damaged amino acids in blood and use of artificial intelligence (AI) to produce a proprietary algorithm for clinical diagnostic applications.</p> | | |

UNITED STATES OF AMERICA

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| US-01 | NAME(S) | Young Suk Woo / Chang Deuk Woo |
| ORGANIZATION | N/A | |
| TITLE OF ENTRY | SELF-GENERATING DEVICE AND MECHANICAL SYSTEM USING THE SAME | |
| <p>A self-generating device equipped in mechanical system including power generating part, operating part, and main shaft. Main shaft rotating according to rotational force powered by power generating part and transferring rotational force to the operating part, wherein operating part performs mechanical motion using transferred rotational force; rotor assembly combined with main shaft and rotating along with main shaft according to rotational force, and stator assembly surrounding rotor assembly and staying stationary relative to rotation of rotor assembly, wherein magnetic field around rotor assembly and stator assembly changes according to rotation of main shaft, and self-generating device generates induced electricity.</p> | | |

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| US-02 | NAME(S) | Seyed Parsa Alavi / Mohammad Javad Papi Zadeh |
| ORGANIZATION | University of Arizona | |
| TITLE OF ENTRY | Smart Health Toilet | |
| <p>Smart Health Toilet is an invention installed and replaced with traditional toilets and can conduct medical analysis using urine and stool samples. Using this product, people are regularly tested within the comfort of their home and thus this invention keeps them informed about their general health. Test results are released digitally. People usually get laboratory tests when illness has progressed and signs have come up, but smart health toilet is a prevention health device. This will have a significant impact to avoid disease progression as people will instantaneously visit doctor before the disease dominates them.</p> | | |

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| US-03 | NAME(S) | Suthaharan Sivanujan |
| ORGANIZATION | University of Jaffna, Sri Lanka / Illinois Institute of Technology, Chicago | |
| TITLE OF ENTRY | Design of reusable, biodegradable, hydrophobic and transparent material from natural plant cellulose fibers | |
| <p>In this work, a reusable, biodegradable, hydrophobic and transparent material model was designed using natural plant cellulose fibers. Natural wax-based coating and herbal extract-based composition contribute to hydrophobicity and anti-microbial characteristic respectively. This material is of particular interest in the use of packing industry and surface-covering in anti-bedsore healthcare products.</p> | | |

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| US-04 | NAME(S) | Mahe Abdelsamie |
| ORGANIZATION | YMEGY Research and Development LLC, New Jersey, United States | |
| TITLE OF ENTRY | A system for tackling environmental problems, including climate change | |
| <p>The blockchain- backed Environmental Credit Scoring System (ECSS) is a tool for uniting global efforts towards tackling climate change. The ECSS is an eco-friendly blockchain platform for connecting online and offline products and service providers, individuals, Life cycle assessment experts, EPD program operators, non-profits, governmental bodies, advertisers, and other entities. Through the use of blockchain, all transactions will be recorded on a massively scalable distributed ledger.</p> | | |

UZBEKISTAN

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| UZ-01 | NAME(S) | Beknazarova Saida Safibullayevna |
| ORGANIZATION | Tashkent University of Information Technologies named after Muhammad Al-Khwarizmi | |
| TITLE OF ENTRY | Mobile application: "Modern technologies for the production of 2d and 3d cartoons" | |
| <p>The program is designed to provide a complete shell that includes information about modern technologies to produce 2D and 3D cartoons. The basic concepts are given. The creative idea of the character, the theoretical foundations of animation production, artistic exercises to "revive" the created character are presented. The interaction of the character and his actions are shown. Aspects in the modern animation industry are given. The experience of large cartoon production companies and new ideas are considered. They get acquainted with 2D, 3D animation software for creating cartoons. The issues of sound compatibility in the process of creating an animated work are considered; lip synchronization with tone during conversation; drawing animation processes of varying complexity using modern technologies. The main factors of visualization are given. The issues of modeling objects of various complexities (using the Autodesk Maya program); working with light (using the Autodesk Maya program); the importance of computer technologies in the development of the animation industry are considered.</p> | | |

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| UZ-02 | NAME(S) | Beknazarova Saida Safibullayevna |
| ORGANIZATION | Tashkent University of Information Technologies named after Muhammad Al-Khwarizmi | |
| TITLE OF ENTRY | Multimedia program "3D Kidney" | |
| <p>The program is designed to provide medical specialists, teachers, students working at medical universities and medical research institutes, etc. This program provides for the formation of knowledge and understanding of specialists working at medical universities and medical research institutes. The multimedia program is designed to demonstrate in the medical field the state of the kidney, which is considered an internal organ of a person, and changes in it, in a visualized state and provide information about it. The multimedia application consists of 4 sections, which include pages such as general information, cases of kidney damage, normal cases of kidney age and additional literature.</p> | | |

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| UZ-03 | NAME(S) | Matyakubova Parahat Mailieвна |
| ORGANIZATION | Tashkent State Technical University | |
| TITLE OF ENTRY | Algorithm for determining the laws of the dynamics of activity to update the reference base in technological innovation | |
| <p>This software is designed to process data using the algorithm for determining the laws of activity dynamics to update the reference base in technological innovations. The number of state primary standards introduced in the first phase of the implementation of the algorithm was calculated during the emergence, predominance and termination of the third, fourth, fifth and sixth technological regimes. The results of the calculations are given in the table. As can be seen from the table, the primary standards of the first state were introduced at the dominant stage of the third technological order.</p> | | |

VIETNAM ★

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| VN-01 | NAME(S) | Doan Duc Minh / Nguyen Viet Phuong / Tran Dinh Gia Truong / Nguyen Hai / Nguyen Anh Tuan |
| ORGANIZATION | HUS High School for Gifted Students, Hanoi Amsterdam High School for the Gifted | |
| TITLE OF ENTRY | DESIGNING AND BUILDING AN ARTIFICIAL INTELLIGENCE (AI) MODEL FOR EARLY DETECTION OF FETAL ANEUPLOIDIES | |
| <p>Aneuploidies can be defined as a condition in which cells have an abnormal number of chromosomes. Trisomy, occurring in at least 4% of pregnancies, is the most common chromosome abnormality in humans. It was demonstrated to be the major cause of spontaneous abortions and stillbirth. For live births, Trisomy 21, Trisomy 18, Trisomy 13, and sex chromosome disorders are the most common chromosome abnormalities, leading to multiple organ defects like heart defects, mental retardation, ... The most important tool for preventing Aneuploidies is prenatal screening for all pregnancies and prenatal diagnosis for high-risk pregnancies.</p> | | |

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| VN-02 | NAME(S) | Vo Hong Phu / Phan Van Binh / Pham Thi Nguyen Hanh / Nguyen Duy Anh / Le Minh Hieu |
| ORGANIZATION | High School for Gifted Students, Hanoi National University of Education | |
| TITLE OF ENTRY | BUILDING A MACHINE LEARNING MODEL SUPPORTING THE PREDICTION OF THE RISK OF MISCARRIAGE CAUSED BY THROMBOPHILIA | |
| <p>Thrombophilia has been proved to be associated with adverse pregnancy outcomes including miscarriage. To reduce the incidence of Thrombophilia in pregnancy, individual risk stratification based on risk factors and testing results is essential. Thus, we aim to construct a machine learning model supporting the risk prediction of miscarriage from a dataset of 12 polymorphisms in 11 thrombophilic genes associated with miscarriage (PAI-1, ITGA2, ITGB3, FGB, F13A1, F7, F5, F2, MTHFR, MTR, MTRR).</p> | | |

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| VN-03 | NAME(S) | Dang Tran Nhat Minh / Le Ngan Ha / Nguyen Hung / Dao Minh Anh / Nguyen Ngoc Bao Cha |
| ORGANIZATION | High School of Education Sciences | |
| TITLE OF ENTRY | IDENTIFICATION OF POINT MUTATION IN DYSTROPHIN GENE IN VIET NAM DUCHENNE MUSCULAR DYSTROPHY PATIENTS: INTRODUCING NOVEL MUTATIONS | |
| <p>Duchenne and Becker types of muscular dystrophy are 2 related conditions that primarily affect skeletal and cardiac muscles. They have similar signs and symptoms and are caused by different mutations in the same gene. Until now, there is no effective curative treatment, prevention mostly depends on genetic counseling and prenatal diagnosis. Mutation analysis has been challenging due to large gene size. About two-thirds of the patients have large deletions or duplications in the dystrophin gene and the rest carry point mutations. We found ten novel mutations including one nonsense, seven frameshift and one splice site mutations.</p> | | |

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| VN-04 | NAME(S) | Doan Thai Dung / Do Tran Thanh Ngoc / Ho Tri Khiem / Vu Nghiem Minh Trung / Pham Nguyen Minh Hieu |
| ORGANIZATION | Thang Long High School / Giang Vo High School / Ta Quang Buu High School / Tran Phu High School | |
| TITLE OF ENTRY | OIL SPILL CLEAN UP BY NATURAL SORBENTS FROM CORNCOB | |
| <p>The remediation and treatment of water contaminated with oil has always been difficult and expensive. In this study, corncobs, which are an abundant, biodegradable agricultural waste, low-cost material, were treated with hydrochloric acid to improve their sorption effectiveness in oil-contaminated wastewater treatment. In addition, modified corncobs become more porous, while displaying hydrophilic and hydrophobic properties so that the oil is recovered easily. Results show that the oil separation capacity increases with the treatment time, the oil content in the starting solution decreases markedly with high treatment efficiency, reaching over 70%.</p> | | |

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| VN-05 | NAME(S) | Ho Gia Vy / Le Hoang Ha Anh / Tran Ha Ngan / Doan Ngoc Phuong Linh / Nguyen Le Minh Triet |
| ORGANIZATION | Tran Phu High School for the Gifted | |
| TITLE OF ENTRY | ENHANCE IMMUNE PROMOTIVE EFFECT OF β-1,3-GLUCAN BY HYDROLYTIC ENZYME FROM SHIITAKE LENTINUS EDODES | |
| <p>β-1,3-glucan in shiitake (Lentinus Edodes) has great ability to treat cancer and enhance immune system; however, its huge molecular weight (1-4x10⁶ Da) makes difficult for human body to tolerate. The liquid culture of shiitake contains β-1,3-glucanase, a hydrolytic enzyme which can be used to efficiently cut β-1,3-glucan into short polymers or oligomers but still ensuring the bioactivity. Thus, our study investigates the time and environment of liquid mushroom culture to obtain the highest active β-1,3-glucanase, purifying and testing the activity of enzyme in different pH and temperature conditions and its hydrolysis ability.</p> | | |

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| VN-06 | NAME(S) | Le Minh Hien / Pham Minh Anh / Do Tran Thanh Ngoc / Vo Thuy Trang / Pham Quynh Huong |
| ORGANIZATION | Hanoi Chu Van An High School | |
| TITLE OF ENTRY | SYNTHESIZING DERIVATIVES OF MURRAYAFOLINE A AND EVALUATE CYTOTOXICITY TO APPLY IN PHARMACEUTICAL PRODUCTS | |
| <p>Murrayafoline A (Mo), abundantly found in Glycosmis Stenocarpa (Drake) Guillaume, is known to have anticancer activities. However, this compound has not been applied in commercial due to being insoluble. Thus, we focused on its derivatives and their antitumor activities. We successfully synthesized an active compound MEISO, a hydrophilic derivative of Mo, with great cytotoxicity similar to that of Mo. The in vitro results indicated that MEISO can decrease the density of and size of the tumor. Therefore, it can replace Mo as an anticancer substance in commercial use because it is easily converted to soluble chloride by reacting with HCl in organic solvent.</p> | | |

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| VN-07 | NAME(S) | HOANG ĐỨC THAO |
| ORGANIZATION | VIETNAM SCIENCE AND TECHNOLOGY JOINT STOCK COMPANY (BUSADCO) | |
| TITLE OF ENTRY | Civil and industrial construction technology – BUSADCO Super light assembled non-metallic reinforced concrete house | |
| <p>Super-light assembled non-metallic reinforced concrete house is a product assembled of components: column foundations, wall foundations, columns, hollowed concrete wall panels, beams, rafter, trusses. The components are precast by non-metallic reinforced concrete to ensure a safe and sustainable structure, rainproof, waterproof, soundproof, insulation, moisture-proof, anti-corrosion, anti-noise and anti-vibration. These precasted components are diverse in terms of functions, shapes, layouts, designs, colors, and lines.</p> | | |

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| VN-08 | NAME(S) | HOANG ĐỨC THAO |
| ORGANIZATION | VIETNAM SCIENCE AND TECHNOLOGY JOINT STOCK COMPANY (BUSADCO) | |
| TITLE OF ENTRY | New system for rainwater collection and odor control in Vietnamese urban areas and integrated odor prevention manhole | |
| <p>New system for rainwater collection and odor control in Vietnamese urban areas and Integrated odor prevention manhole is a technological combination of researching, manufacturing and applying the precast thin-walled concrete products in synchronous construction of drainage technical infrastructure in Vietnamese urban areas, with outstanding features such as: preventing odors in sewers from coming into environment, protecting the health of the population community.</p> | | |

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| VN-09 | NAME(S) | HOANG ĐỨC THAO |
| ORGANIZATION | VIETNAM SCIENCE AND TECHNOLOGY JOINT STOCK COMPANY (BUSADCO) | |
| TITLE OF ENTRY | Technology of environmental protection–Sewer Cleaning winch machine | |
| <p>Invention of "Sewer cleaning winch machine" is a combination of research, manufacturing and automation technology in dredging of sewer systems in Viet Nam urban areas, with outstanding features such as: replacing manual methods, workers do not need to come inside the sewers to dredge, increasing labor productivity, protecting workers' health, proactively controlling urban flooding.</p> | | |

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| VN-10 | NAME(S) | HOANG ĐỨC THAO |
| ORGANIZATION | VIETNAM SCIENCE AND TECHNOLOGY JOINT STOCK COMPANY (BUSADCO) | |
| TITLE OF ENTRY | The Works for natural disaster prevention and response to climate change - Embankment for protection of riverbank and coast of Ray estuary in Phuoc Thuan commune, Xuyen Moc district, Ba Ria - Vung Tau province | |
| <p>The Works of precast fiber reinforced concrete embankment for protection of riverbank and coast of Ray estuary helps to prevent riverbank and coast landslide in Loc An estuary area. This Works contributes to urban embellishment, environmental protection, ensuring sustainable development for projects in the area. It also helps to protect the land fund, forms a harmonious development on both sides of the river in accordance with the socio-economic development orientation of Ba Ria - Vung Tau province.</p> | | |

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| VN-11 | NAME(S) | HOANG ĐỨC THAO |
| ORGANIZATION | VIETNAM SCIENCE AND TECHNOLOGY JOINT STOCK COMPANY (BUSADCO) | |
| TITLE OF ENTRY | The technology for construction of new rural area – BUSADCO Precast steel reinforced concrete/fiber reinforced concrete canals and ditches with thin walls | |
| <p>Precast steel reinforced concrete/fiber reinforced concrete canals and ditches with thin walls are applied in the construction of drainage and irrigation systems. The product ensures the ability to conduct water flow, drain water. The product with compact and stable structure with high bearing capacity, is convenient for production, installation, maintenance, and repair. It enhances irrigation capacity and saves arable land, being suitable for irrigation Works that serve agricultural and forestry production.</p> | | |

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| VN-12 | NAME(S) | HOANG ĐỨC THAO |
| ORGANIZATION | VIETNAM SCIENCE AND TECHNOLOGY JOINT STOCK COMPANY (BUSADCO) | |
| TITLE OF ENTRY | Construction of conservation Works of national heritage and relics - Embankment for protection of Hoan Kiem Lake – Hanoi | |
| <p>The construction of "Embankment for protection of Hoan Kiem Lake" is a combination of manufacturing technology, product design, engineering solutions and construction methods with outstanding creativity. Its a construction of new embankment around Hoan Kiem lake with a length of 1540 meters, the embankment elevation varies from +8.00m to +8.57m, the average lake bottom elevation is +5.6m. The construction period is 65 days and nights from June 2020 to August 2020.</p> | | |

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| VN-13 | NAME(S) | Nguyen Ngoc Huy / Ha Tue Giang / Ha Linh Giang |
| ORGANIZATION | Lao Cai High School for Gifted Students | |
| TITLE OF ENTRY | Applying the diffusion method, using renewable energy to design an aeration system for aquaculture ponds with monitoring and remote control | |
| <p>The invention " Applying the diffusion method, using renewable energy to design an aeration system for aquaculture ponds with monitoring and remote control" to replace the aerators, mitigate the number of aerators per pond area as well as expand the amount of oxygen and increase the number of aerators per machine. Moreover, our research could save energy, protect the environment, lower the costs in aquaculture and the output cost of seafood products. In addition, it may enhance income for individuals and control security; labor costs will also be saved thanks to the remote operation.</p> | | |

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| VN-14 | NAME(S) | Le Khue Tu / Dang Vu Bao Tran / Tong Pham Phuong Thuan / Nguyen Thanh Ha |
| ORGANIZATION | Bui Thi Xuan High school | |
| TITLE OF ENTRY | FABRICATION OF CARBON DOTS (Cdots) FROM COFFEE GROUNDS TO ENHANCE THE ACTIVITY OF MIXED METAL OXIDES (LDOs) CATALYST AND ITS APPLICATION FOR VISIBLE LIGHT DEGRADATION OF 2,4-DICHLOROPHENOXYACETIC ACID | |
| <p>This project highlights the importance of utilizing and converting biomass waste into energy or useful products. Recently, some have utilized biomass waste as raw materials in producing carbon dots. Cdots have attracted attention due to their excellent properties, especially biomass waste and tunable photoluminescence, high quantum yield, low toxicity, small size, and appreciable biocompatibility providing important applications. Next, mixed metal oxides are derived from layer double hydroxides after high-temperature heating. Our object is 2,4-D, which is used during the cultivation process, causing serious impacts. This study demonstrated that 2% Cdots-ZnBi₂O₄ might be a low-cost, green photocatalyst for environmental remediation applications.</p> | | |

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| VN-15 | NAME(S) | Thong Ngoc Lan Anh / Nguyen Long Nguyen / Le Thi Minh Dan |
| ORGANIZATION | Bui Thi Xuan High school | |
| TITLE OF ENTRY | SYNTHESIS OF LAYERED DOUBLE HYDROXIDE MATERIAL AS ANTIBIOTIC, ANTI-INFLAMMATORY DRUG CARRIER: BIOLOGICAL STUDY AND DRUG RELEASE PROPERTIES | |
| <p>This research focus on this advance material is to maintain the concentration of the therapeutic agent in the target tissues at a desired value for as long as possible, controlling the rate and duration of drug release. Ciprofloxacin and Ibuprofen are used in the treatment of wound infections. They were loaded into ZnAl-LDH through a recontruition method. The results indicated that they were successfully intercalated into the interlayer of ZnAl-LDH. In addition, Cip/ZnAl-LDH and Ibu/ZnAl-LDH were examined for controlled release of Cip and Ibu under physiological conditions. The results suggest the potential use of ZnAl-LDH as a drug delivery agent.</p> | | |

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| VN-16 | NAME(S) | My Lan Nguyen / Tra Tran Thi Thu |
| ORGANIZATION | HSGS High School for Gifted Students | |
| TITLE OF ENTRY | Wave-powered pump | |
| <p>This invention introduces a wave-powered pump that uses the permanent and enormous ocean energy. Its main function is to push the seawater up to a high level to create great potential energy, so the water could be pumped into a reservoir for electricity generation or water desalination. This pump has no moving part, except for a ball in the valve, so it can be made of either concrete or composite to adapt to the marine environments. It is expected to be cheap, salt-resistant, and have low maintenance requirements and a long economic lifetime.</p> | | |

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| VN-17 | NAME(S) | Khoa Phuc Thien Nguyen / Ngoc Phuong Hong Tao |
| ORGANIZATION | Tran Dai Nghia High School for the Gifted (Vietnam) / Liberty High School (USA) | |
| TITLE OF ENTRY | From combating white pollution to benefiting the farming industry: A degradation-to-production chain of plastic and utilization of <i>Galleria mellonella</i> in fertilizer and animal feed | |
| <p>White pollution is threatening the environment, as a more detrimental present and devastating future in the well-being of many organisms on Earth is observed and predicted. It is therefore important to emphasize sustainable strategies that mitigate the negative impacts of non-biodegradable, deleterious pollutants. Our project discussed 5 hypotheses regarding the metabolism of waxworms to offer a solution for white pollution. Specifically, a degradation-to-production chain of plastic was established, and we suggested further application as fertilizer and animal feed in farming. This project can build a premise for developing more future research to address white pollution and benefit agriculture simultaneously.</p> | | |

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| VN-18 | NAME(S) | VU ANH TAI / MAC VU MINH / BUI LAM THACH / DO HOANG MINH / BUI DUC ANH |
| ORGANIZATION | HON GAI HIGH SCHOOL | |
| TITLE OF ENTRY | SMART ELECTRIC MEDICAL STETHOSCOPE | |
| <p>The medical stethoscope is already familiar to doctor, medical staff, and people. However, when used for a long time, it will be painful to the ears, cannot be used in noisy environment. Our smart medical stethoscope can filter frequencies and noises and can display heart rate indicators. Especially can be used for a long time without ear pain, can be suitable for high end headphones. Current technology is using sound transmission in the air, cannot be used in environments with loud noise, especially cause ear pain due to being damped in the ear. Our device brings comfort and convenience to doctors and medical staff. It help them diagnose quickly and use it for a long time, improving the quality of medical examination.</p> | | |

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| YEMEN  | | |
| YE-01 | NAME(S) | MOHAMMED AMEEN AHMED AL-SABRI |
| ORGANIZATION | The Union of Arab Academics – TUOAA | |
| TITLE OF ENTRY | AL-SABRI ROBOTIC MICROSCOPIC TEC - (S.R.M.TEC) | |
| <p>The device can be a home use for personal and family examination and for everyone, for the public to samples of body fluids and its output from urine, stool and sperm samples for ease and pleasure of using the simple device, avoiding contact with patients in hospitals, laboratories and medical centers and avoiding the occurrence or transmission of any pathological infection. Therefore, it enhances the principle of safety and security, and with this device and this technology it is possible to contribute effectively to the aspect of study and education about After in medical specialties, especially laboratory and directly online</p> | | |

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| YE-02 | NAME(S) | Attas Abdulqader Attas Alkaf |
| ORGANIZATION | W.I.S.E | |
| TITLE OF ENTRY | Electo veno | |
| <p>It is a device based on generating electromagnetic waves to treat the venous ulcer to the leg throughout a sensor connected with a special bandage to the affected leg. Indeed, the late to examine and treat the Varicose Veins May cause to serious complications, including leg varicose ulcer, which may occur to lower leg or ankle and be painful and likely to fluid and ulceration, in general this case diagnostics by a surgeon before conducting the treatment process by this device and determine the period does the patient need and the specific treatment mechanism for that.</p> | | |

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|--|------------------------------|--------------------------|
| ZAMBIA  | | |
| ZM-01 | NAME(S) | Reu Ngonga Ndumba |
| ORGANIZATION | N/A | |
| TITLE OF ENTRY | Road Accident Reducer | |
| <p>My driving safety system is used to help in driving and travelling, particularly when the accident is about to occur. My invention fits any vehicle, easy to install and greatly reduces the amount of road accidents. It is made of infrared remote control and a receiver. No prior art advice provides the novel features and results listed above. Head on collision will be reduced because it will create a limited space from 2m-100m. The averter will be connected to another averter installed near the road pothole. We will install portable potholes infrared remote control to be connecting to remote receiver on vehicle.</p> | | |





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a parachute:
it only works
if it opens***

Albert Einstein



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Holly Beverly, Vice President Marketing

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Nancy Ridge, Vice President

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