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**V-MIEX**

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VIRTUAL-MELAKA INTERNATIONAL INTELLECTUAL EXPOSITION

ROAD TO COMMERCIALISATION

**V-MIEX BOOK**



# V - MIIEX BOOK

## 'ROAD TO COMMERCIALISATION'

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# FOREWORD

ASSOC. PROF TS. DR MOHD RASDI ZAINI  
Rector  
Universiti Teknologi MARA (UiTM) Cawangan Melaka



Welcome to Virtual-Melaka International Intellectual Exposition 2022 (V-MIIEEX 2022). It is an honour for me on behalf of UiTM Melaka Branch to thank all of you for joining the programme and we are proud to inform you that this is the 12th year consecutively, UiTM Melaka Branch is organizing this exposition.

V-MIIEEX 2022 is a platform to improve the commercialization collaboration among industries and communities and at the same time, we also give the opportunity to academicians and students to share ideas and increase their potential innovation products with the industries and communities through their projects. This exposition also serves as a platform to cultivate and upload the nation's innovation culture by presenting new ideas and research by young people, especially from academia, universities, college, high schools, and primary school students.

The economy and development of the country faced a challenging phase in 2021 due to the Covid-19 pandemic. We faced changes in business, education, society, and lifestyle. However, the pandemic proved to be a blessing in disguise as it somehow gave people ideas which would be beneficial to improve their lifestyle and solve problems that might occur in the future. Besides, the new digital landscape also inspires more innovation and new ideas that contribute to various activities such as business and industries. As a university that encourages the "Research, Innovation and Commercialization", this exhibition is organized to encourage more commercialization of products that are beneficial to scholars, industries, and communities to tackle such issues to improve our present and future life.

Since 2009, UiTM Melaka Branch has successfully become the organizer for this innovation exposition. We are not only successful in organizing the exposition, but I would proudly say that we have also successfully embarked on commercialized products. With the number of participants for this year's exhibition, we believe that more commercialized products will be produced in line with the theme for this year, "Road to Commercialisation".

This exposition would never happen without dedication, teamwork, and commitment. A round of applause should be given to the committee teams as the backbone of this exposition. Their hard work, effort, and time made this exposition possible.

Finally, I would like to conclude this brief remark by thanking all the participants and stakeholders for joining the exposition, we hope that this collaboration never ends here.

Thank you.



**DR. NUR HAYATI BINTI ABD RAHMAN**  
Deputy Rector Research & Industrial Linkages  
Universiti Teknologi MARA (UiTM) Cawangan Melaka

It is a great pleasure to welcome all the participants and presenters to the Virtual Melaka International Intellectual Exposition (VMIIEX 22). I am delighted that through this periodic event, we managed to bring together scholars and professionals from various fields to engage through this virtual platform where ideas and breakthrough are discovered and leveraged for commercialization potential.

Since 2009 UiTM Cawangan Melaka has held twelve Invention and Innovation Design competitions and this year we are very honoured to have the second year of VMIIEX organized in digital platform. This has proven that despite the global challenges due to the recent pandemic, it is never an issue for UiTM Melaka to continuously organize this yearly prestigious event and to support the ministry's aspiration in leveraging creativity and innovation in the new norm.

VMIIEX 22 is organized with no sole objectives of accomplishing the University's KPI but instead we are determined to make this programme as the place to help heighten commercialization collaboration in research and innovation with the industry and community through joint exhibitions from various external organizations.

Our aspiration is to also provide exposure and opportunities to academic staff as well as students from public and private universities to engage in direct excellent scholarly activities with the industry and community through activities that can be measured and assessed. As for the Research and Industrial Linkages Office of UiTM Melaka, this exhibition is seen as the platform that can encourage active collaboration and knowledge transfer with industries; objectively to support various activities that will benefit all stakeholders from the various government agencies, local and international universities, industries and communities.

Through the theme of "Road to Commercialization" this year, V-MIIEX 22 is committed to have this event as a boulevard to inspire and cultivate creativity and innovation to the numerous levels of inventors through exposure on latest technologies, astonishing ideas and creative designs with great potential to be commercialized. For this year, we proudly introduce a special category which is the "Endemic Challenge" as the provision to the government of Malaysia's goal of moving towards the endemic.

To ensure that the competing products in this exhibition is not exclusively for the purpose of competition, V-MIIEX 22 is dedicated for the commercialization of highly potential innovation products, which is attained through its active collaboration with tailored needs industries. The commercialization effort was not for income generation purpose only but it aimed to spearhead the development of quality products in line with industrial needs and community benefit.

Therefore, it is a great honour for me on behalf of the Research and Industrial Linkages Office as well as the organizing committee to have all participants in this competition and I would like to express my highest gratitude especially to the Rector of UiTM Melaka and all strategic partners and sponsors for supporting the event.

To finish, I sincerely wish VMIIEX 22 a remarkable success. I believe that this will not be the only collaboration between UiTM Melaka and the respective partners and linkages, but a beginning of a long and fruitful cooperation in future.

Thank you very much.

*road to commercialisation...*



**WAN HASMAT WAN HASAN**  
Project Director V-MIIEEX 2022  
Universiti Teknologi MARA (UiTM) Cawangan Melaka



Assalamualaikum and Warmest Greetings.

It gives me an enormous pleasure, on behalf of the organizing committee to welcome all participants and presenters to the Virtual -Melaka International Intellectual Exposition 2022 (VMIIEX '22) with the theme "Road to Commercialisation". We are honoured and glad to welcome all participants to this biennial event.

This is the second time that we have organized this biennial event virtually. V-MIIEEX 22 is an innovation competition, in which, innovation products, ideas and systems related to various science and technological fields are exhibited as a solution for the presented problems.

V-MIIEEX22 expectantly will be a platform that gathers experts from academies, scientists, and researchers, locally and internationally, to contribute towards the growth of scientific and technological knowledge in each participant's specialisation and expertise.

The competition also serves as a platform to give fresh exposure to the various level of inventors, as well as to encourage the culture of innovation design focused on latest technologies and related to new norms technologies and inventions due to COVID-19.

V-MIIEEX 22 is also hoped to be an avenue for gathering and disseminating the latest knowledge on ideas and acquisition of innovation among the participants. It is hoped that the competition will be able to open the mind of the participants towards latest technologies and design. It is also in line with the government's aspiration to encourage innovation activities in Malaysia.

As a final note, I would like to congratulate my fellow committee members for their tremendous effort, which have been critical to the event's success. In addition, I would like to thank our co-organizer, event sponsors and supporters. Optimistically, we wish that all new knowledge that is discovered, invented, or innovated will drive towards our future sustainability.

Thank you.

# ABOUT V-MIIEEX

The world after COVID-19 is unlikely to return to the world that was. Despite the challenging pace during the pandemic, the strong rebound is expecting in this exciting year 2022. Malaysia is welcoming the great prospects ahead with positive impact on the country's economy and development. Hence, the hope for greater opportunities motivates for more creative thinkers to come up with innovative ideas that can be put forward to be harnessed to overcome similar problems in the future. V-MIIEEx 2022 is one of these platforms which contribute relevant ideas that could help communities of all walks of life cope with this pandemic.

UiTM has identified research, innovation, and commercialization to be among the core components and strategic effort towards becoming a well-known and prominent university. Aside from realizing this goal, with these components and efforts, fostering the development of knowledge, generating financial stability of the university, and producing knowledgeable academicians are also potentially achievable.

By having invention and innovation competition yearly, UiTM Cawangan Melaka is confident that it could further enhance creative and innovative abilities among staff and students. In support of the government notion which upholds the importance of innovation, UiTM Cawangan Melaka has taken the initiative of organising the Virtual Melaka International Intellectual Exposition (V-MIIEEx).

In instigating and nurturing the continuous culture of inventing and innovating, this event is an ideal platform for lecturers, administrative staff, students, and the public to showcase and commercialize their products or prototypes as well as novel ideas. The first IID which was held nationally in UiTM Cawangan Melaka in 2009, has successfully gathered and displayed more than 37 inventions and innovations. Accordingly, to continue this strong passion towards inventing and innovating, the IID competition should be continued and celebrated.

With that, the Division of Research and Industrial Linkages will be organising its 12th IID competition, the Virtual - Melaka International Intellectual Exposition (V-MIIEEx 2022) with the theme, 'Road To Commercialisation'. V-MIIEEx 2022 hopes to welcome 200 competing products to be showcased and commercialized, at the same time, attract attention of related and matching industry.

## Objectives

1. Encourage and instill passion towards inventing and innovating among UiTM Cawangan Melaka staff, students and academicians of local and international higher education institutions;
2. Highlight distinguished talents of skillful inventors and exhibit intellectual products, inventions and innovations among local and private tertiary institutions, government and private agencies, including international participants;
3. Become an effective Business Matching platform for participating research products, matching industries and partnering government agencies;
4. Recognise, inspire and promote invention and innovation products to be patented and commercialized;
5. Increase passion towards inventing and innovating through research and boost interests of government and non-government agencies to obtain consultancy services from a line up experts of higher education institutions and UiTM Cawangan Melaka.

# **Innovation Teaching Aids: Aid To Effective Teaching and Learning of Reka Bentuk Teknologi Subject**

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## **Abstract**

According to the Minister of Science, Technology & Innovation, Datuk Seri Dr. Adham Baba, The percentage of STEM student must increase to 60% to ensure the country has an adequate supply of talent pool in the country. Citing the Education Ministry's 2020 Annual Report, the Science, Technology and Innovation Minister said the percentage of students in STEM was 47.18%, with 20.51% involving Pure Science, while the remaining 26.67% was for Technical and Vocational Education and Training (TVET). KIDCADTECH is a series of hand's-on teaching and learning kits for stem subjects. The kits are to solve the problem among teachers and students. The negative reactions in High School Stem Subject, Reka Bentuk Teknologi (RBT), are pretty common, particularly for Form 1 and 2. The failing grades among the RBT students yearly is a factual statistic. The teachers and students have stated that they do not have suitable teaching aids for many topics in the RBT subjects. This issue is monumental. If we don't address these complaints, we will see further downgrades of our GDP in the coming years since research has concluded that 70% of GDP has been primarily attributed to the STEM workforce. KIDCADTECH is a STEM (Science, Technology Engineering and Mathematics) based product in education. KIDCADTECH is to assist teachers by making teaching easier in designing technology subjects. Students also can use these teaching aid materials on their own. KIDCADTECH series of products is a kit in a box with a unique self-assembly/construction to aid in teaching specific subjects. Subjects such as robotics, electronic aquaponic, mechanical, and others. KIDCADTECH also uses Augmented Reality to engage and assist with understanding the topics.

Keywords : STEM (Science, Technology Engineering and Mathematics), Learning Kits, Augmented Reality, Reka Bentuk Teknologi, Teaching Aids.

## **1. INTRODUCTION**

Innovation and evolution are essential for an individual, a nation, and humankind to survive and progress. Innovations in education are significant because education plays a crucial

role in creating a sustainable future. "Innovation resembles mutation, the biological process that keeps species evolving so they can better compete for survival" (Hoffman and Holzhter, 2012, p. 3). Innovation, therefore, is to be regarded as an instrument of necessary and positive change. Any human activity (e.g., industrial, business, or educational) needs constant innovation to remain sustainable. The need for educational innovations has become acute. "It is widely believed that countries' social and economic well-being will depend to an ever greater extent on the quality of their citizens' education: the emergence of the so-called 'knowledge society, the transformation of information and the media, and increasing specialization on the part of organizations all call for high skill profiles and levels of knowledge. Today's education systems are required to be both effective and efficient, or in other words, to reach the goals set for them while making the best use of available resources" (Cornali, 2012, p. 255).

## **2. OBJECTIVE**

The learning kit is intended to facilitate students' learning and understanding of the topic. The learning kit is used as a learning strategy to help improve student performance that teachers can implement. The students' achievement through learning kits will be more effective, and students can understand and master a concept and improve the test results in the classroom. The invention of a KidCadTech Stem Module Solution begins with using a fluted box for a printed product that can be used as an educational tool. This Stem Module Solution innovation can be viewed as a structured material set for the time being. A Stem Module Box for Education may support a course purpose, a course target, a subject, a principle, or a theme. Instructors can set a structured path through the content objects using a storyboard or a collection of dependencies. It contains hands-on instructional kits when it comes to innovation and technology. An education module box with almost all the kits used to learn about technology and robotics was born in this respect. Pleasure is also required in the best way and method when finding information. This product makes it essential for teachers and students to build and use this box for this education module.

## **3. NOVELTY & INVENTIVENESS**

When education becomes part of human life, education is the primary goal of progress—talking about the development and creation of something modern that is more sophisticated and seeks to promote human work. These changes and innovations are necessary because they must keep pace with the rapidly changing modernization trends. Building and developing a package to satisfy the ever-changing demand is also essential, depending on the situation and needs. The reforms centered on collecting and bundling all the kits required for education in a box used for education. Besides that, it also has its Augmented Reality (AR), which enables digital information to be superimposed and integrated into our physical environment. AR is a tool that can help us transform our immediate surroundings into learning, work, and entertainment spaces as its novelty. Next, this Stem module box also has used the benefit of social media, a filter used in taking photos or selfies that users can use for education purposes. This box contains QR Code so that the student can download our own Instagram filter to attract others to promote technology used in education.

## **4. PRACTICALITY & USEFULNESS**

The invention of a KidCadTech Stem Module Solution begins with using a fluted box for a printed product that can be used as an educational tool. This Stem Module Solution innovation can be viewed as a structured material set for the time being. A Stem Module Box for Education may support a course purpose, a course target, a subject, a principle, or a theme. Instructors can set a structured path through the content objects using a storyboard or a



collection of dependencies. Information is often divided into hundreds or even thousands of elements, and technology and robotics are some of their sciences. It contains hands-on instructional kits when it comes to innovation and technology. An education module box with almost all the kits used to learn about technology and robotics was born in this respect. Pleasure is also required in the best way and method when finding information. This product makes it essential for teachers and students to build and use this box for this education module.

## 5. CONCLUSION

A quality educational kit starts with attractive packaging and has its distinctive appeal. This research has clearly shown a good impact on consumers, especially its use in education. Printing quality and design are the most critical aspects of producing a quality printing box. It is a sector that has no limits when it comes to education, but the aspect of delivery in education is the most emphasized. We need to take various suggestions and views as a starting point to something greater and quality. Building a brand in education should also emphasize the quality aspect for use by students. We must take the initiative in always trying to convey something useful. The effectiveness of this Stem Module Box surely can be a recommendation for future research depending on how it will impact learning in the classroom.

## REFERENCE

- Hoffman, A. and Holzhter, J. (2012), "The evolution of higher education: innovation as natural selection", in Hoffman, A. and Spangehl, S. (Eds), *Innovation in Higher Education: Igniting the Spark for Success*, American Council on Education, Rowman & Littlefield Publishers Inc., Lanham, MD, pp. 3-15.
- Cornali, F. (2012), "Effectiveness and efficiency of educational measures", *EvaluationPractices, Indicators and Rhetoric*, Vol. 2 No. 3, pp. 255-260, available at: [www.SciRP.org/journal/sm](http://www.SciRP.org/journal/sm)
- Jasmi, K.A, Ilias,M.F,Tamuri,A.H. & Mohd Hamzah,M.I. (2011). *Amalan Penggunaan Bahan Bantu Mengajar Dalam Kalangan Guru Cemerlang Pendidikan Islam Sekolah Menengah Di Malaysia*. Journal Of Islamic and Arabic Education.
- Mohsin,M.S.F.A & Hassan,R. (2011). *Pengajaran dan Pembelajaran Berasaskan,, Streaming Video" Bagi Meningkatkan Tahap Kefahaman Pelajar Abad Ke21*. Universiti tun Hussein Oon.
- Nurhanim Saadah Abdullah, R. Z. A. & S. M. (2013). *Kesan penggunaan kit pengajaranbersepadu magnetik-PLC (Programmable Logic Controller ) terhadap kefahaman konsep asa kawalan magnet dan PLC*. *Journal of Chemical Information and Modeling*, 53(9), 1689– 1699.Ahmad Zanzali, N.A & Daud, N.D .(2010).