



UNIVERSITI
TEKNOLOGI
MARA

Universiti Melaka

V-MIEX

28 JUNE
06 JULY
2022

VIRTUAL-MELAKA INTERNATIONAL INTELLECTUAL EXPOSITION

ROAD TO COMMERCIALISATION

V-MIEX BOOK



V - MIIEX BOOK

'ROAD TO COMMERCIALISATION'

EDITORS AND COMPILERS:

Dr. Nur Hayati Abd Rahman
Dr Syukri Abdullah
Wan Hasmat Wan Hasan
Aini Qamariah Mohd Yusof
Norazlan Anual
Dr. Khairunnisa Abd Samad
Nordianah Jusoh @ Hussain
Rozana Othman
Norlela Abas
Azira Rahim

COVER DESIGN:

Adi Hakim Talib

PUBLISHED BY:

Division of Research and Industrial Linkages
UiTM Cawangan Melaka
KM26 Jalan Lendu,
78000 Alor Gajah, Melaka
Tel: +606-5582094 / +0606-5582190 / +606-5582113
Email: miixuitm@gmail.com
Website: <https://www.miiex.my/>
ISBN: 978-967-2846-04-8

All right reserved. No parts of this publication may be produces, stored in retrieval system or transmitted in any form by any means, electronic, mechanical, photocopying, recording, or otherwise without permission of the copyright holder.

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.

Smart Tech Trolley

Nur Aisyah¹, Izzah Maisarah¹, Muhammad Imran¹, Nor Azmawati Husain² & Khalilah Ibrahim²

¹Faculty of Computer and Mathematical Sciences (FSKM), Universiti Teknologi MARA (UiTM) Melaka, Jasin Campus, 77300 Merlimau, Melaka, Malaysia

²Faculty of Business Management (FBM), Universiti Teknologi MARA (UiTM) Melaka, Jasin Campus, 77300 Merlimau, Melaka, Malaysia

aisyahrazak1106@gmail.com

Abstract

Shopping mall is a place where most people in great hurry to get their daily necessities. Customers need to have comfortable feeling during shopping, however in a certain situation, such as during the peak hours, with a little help from technology it can ease the shopping process. For example, when in hurry consumers need to recheck whether everything on the list is already in the trolley or not. Even in situation where there a lot of things to buy, they can hardly see what they bought and put inside the trolley. Hence to improve the visibility of what items already in the trolley, a Smart Tech Trolley with barcode has being designed as effort to replace the existing classic conventional trolley. This new evolve trolley equipped with barcode scanner with an LCD display to show items will automatically added to the shopping cart. No more queuing at the counter and unloading the items bought on the conveyor for the cashier to manually scan. It is simple for customers to scan their things and see the entire amount of their purchases, easing the process of groceries shopping for customers and improve shopping experience to be more hassle free.

Keywords: Smart Tech trolley, Barcode, Shopping, LCD display.

1. INTRODUCTION

Technology has dramatically altered our civilizations' way of life over the last several decades. The present generation is more reliant on modern technology. Technology has had a wide- ranging impact on society and its surroundings. Technology has aided in the development of increasingly modern amenities utilised in daily living in many countries. It also enables more tasks to be accomplished in less time, increases efficiency and opens up totally new avenues for earning a living. As a result, many aspects of life can be enhanced. A shopping mall is a place where most people rush to purchase their daily requirements such as food, clothing, toiletries, gardening equipment, electrical gadgets and so on. When shopping, customers frequently encounter inconveniences and annoyance. They desire a speedy pay out and a sufficient budget. They are concerned that the money they purchased would not be sufficient to cover the cost of the products they purchased. Customers might become tired of waiting and spending time at the counter. They also have insufficient knowledge on the products they wish to buy, such as the price of each item. The Smart Tech Trolley has been designed to provide customers more joy and comfort when shopping. By employing this trolley, buyers can quickly know the price of the things and at the same time, the overall price of the items, allowing the shoppers to estimate their spending.

2. OBJECTIVE

The main objective of this smart tech trolley is to ease shopper who frequently shop many groceries. It is a multifunction trolley that not only to hold shopper items but also can scan items barcode to check the price or to put the item in the bill. Shopper also can checkout scanned items at usual cashier counter or at self-checkout counter. This will save shopper time when they do shopping. They do not have to wait in a long queue for cashier to checkout their item.

3. NOVELTY & INVENTIVENESS

The Smart Tech Trolley is developed to help shoppers shop their items at ease and save more time. This product potentially use widely especially in supermarket and mall for shopper comfort. Shopper would enjoy shopping without being bothered to exceed their budget since the special feature of the trolley would display the total ringgit of the items scanned.

4. PRACTICALITY & USEFULLNESS

Smart Tech Trolley uses battery for the barcode scanner and rechargeable battery for the tablet screen. It takes up to 2 hours to completely charged and can be used for about 8 to 10 hours. To secure a trolley for shopping, scan the QR code with your own smartphone. Then, users are set to start their shopping. User can scan the item's barcode using the barcode scanner before being placed in trolley for updating. During shopping, users could update the items in the trolley, such as item that they did not want to buy or quantity of items to buy. At the end of their shopping time, the item in the trolley will be summed up automatically in a single bill for check out when a button is pressed in the tablet screen. The users have option to check out at a special self-checkout counter without the need of store staff or checkout at the cashier counter.

5. CONCLUSION

Smart Tech Trolley helps make it easier for users to know prices of certain ítems that did not have price tag. This trolley is also designed to calculate total price of ítems in the trolley automatically to save users time so that they did not have to queue at the cashier counter and scan ítems one at a time. This will benefit both the user and the store. The users do not need to queue for a long time and the store will have more customers. The Smart Tech Trolley are changes that will be essential in the future. "Combine two old become new for a better future".