



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](mailto: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.

# AGRO MACHINE

Fatin Nor Najwa Binti Che Razak<sup>1</sup>, Grace Merat Sia<sup>2</sup>, Muhammad Syazdie Bin Mohd Bakri<sup>3</sup>, Siti Nurfatihah Binti Zaidi<sup>4</sup>, Wan Ain Najma Binti Meor Shuhil<sup>5</sup>, Nornajihah Nadia Hasbullah<sup>6</sup>

Universiti Teknologi MARA (UiTM), Cawangan Melaka Kampus Jasir

[gracemeratsia2210@gmail.com](mailto:gracemeratsia2210@gmail.com)

## Abstract

Agriculture is the world's largest industry. It employs more than one billion people and generates over \$1.3 trillion dollars' worth of food annually. When agricultural operations are sustainably managed, they can preserve and restore critical habitats, help protect watersheds, and improve soil health and water quality. But unsustainable practices have serious impacts on people and the environment. The need for sustainable resource management is increasingly urgent. To shed the light on this aforementioned issue, the researchers come out with the idea to create an innovative vending machine to cut the plastic waste. At the same time, this vending machine sell the organic coco peat modified in small size and a few planting sections. This organic fertilizer is truly biodegradable with a life span up to 3-4 years. Approximately, the use of vending machines is one of the innovative elements, high technology and eco green. Notably, this innovation is able to boost up the activities of small urban farming at the city's areas, apply green elements in their indoor or outdoor. Encouraging the culture of urban farming in apartment. In sum, this innovation is truly supporting 17 SDG goals and have a high potential to be commercialize in a global.

Keywords: Sustainable Farming; Vending Machine; Organic Fertiliser; Reduced Plastic Waste; Urban Farming

**Problem :**

- Plastic fertilizer that is used on farms is generally difficult and expensive to recycle because it gets mixed up with soil and fertilizes.
- People in cities are having a hard time getting the fertilizer they need in small amounts.
- the government has recommended the implementation of green elements in the urban

**Targets market :**

- Urban farming
- Small gardener

**Detail:**

- Storage capacity – 60kg
- Payment – cash, cashless & coin
- Temperature - humidity levels low.
- Automatic sensor alarm alert when stock running

Pallet types of fertilizer

Cocopeat Fertilizer

Seed section

LCD screen

1kg 2kg 5kg

Alarm

Coin insert

Cash in

**Location :**

- Urban area (Apartment)
- Near mall

**Why vending Machine ??**

- Eco-friendly options
- Save time
- Low-cost maintenance

Our big idea is to encouraging the application of green elements in urban development and reduce used of plastic packaging.

- To deliver a raw input and organic fertilizer easily.
- The cocopeat full of nutrient and easily to apply.



## **1. INTRODUCTION**

Agriculture is the world's largest industry. It employs more than one billion people and generates over \$1.3 trillion dollars' worth of food annually. When agricultural operations are sustainably managed, they can preserve and restore critical habitats, help protect watersheds, and improve soil health and water quality. But unsustainable practices have serious impacts on people and the environment. The need for sustainable resource management is increasingly urgent. To shed the light on this aforementioned issue, the researchers come out with the idea to create an innovative vending machine to cut the plastic waste.

## **2. OBJECTIVE**

This creation focuses on sustainable farming by promoting methods and practices that are economically viable, environmentally sound and protect public health. With a full support of SDG 17 goals, we innovate a vending machine to cut the plastic waste. At the same time, this vending machine sell the organic coco peat modified in small size and a few planting sections.

## **3. NOVELTY & INVENTIVENESS**

The vending machine industry is vastly growing and expanding to different sectors beyond traditional food and beverages. Now vending machines include gadgets, electronics, and other necessary appliances. The novelty of this innovation is on the part of the product sell by the vending itself. The researchers decided to create an organic cocopeat fertilizer on the form of a capsule and sell it using this vending machine. To date, this innovation is truly supporting urban farming and cut the use of bag plastic.

## **4. PRACTICALITY & USEFULNESS**

With a full support of SDG 17 goals, we try our best to relate our product creation with the needed of the goals. Firstly, People will buy the organic cocopeat and seed from this machine. By so doing, they will approximately practice urban farming on their area, and in return, it will help them to cover their daily life need. Besides, to achieve food security this machine helps people who live in urban areas build their own farms at home. When people plant vegetables at home it improves their nutrition and helps them survive. Same goes for this aspect, other than poverty, they absolutely can avoid hunger.

Moreover, the only product that has been sold using this machine is organic fertilizer which is cocopeat. Up to a point, the use of this product also can educate them to avoid plastic waste and use organic fertilizer despite of chemical fertilizer. The best part is that this machine comes with a guideline and instructions for the beginner gardener or farmer, including the instruction on planting the seed. The consumer also just prepares the container and follows the more accessible instruction. In return, it can help them be economically productive and make it a hobby. Furthermore, the product can be used by all genders, where everyone can use the machine to get their seed and fertilizer. It means that all people can make their garden or farm, including children, can try, there is no harm.

Therefore, by using organic coco peat fertilizer is no waste of water; it helps maintain sustainable water because of its high absorbent and retaining water. When the water absorption rate is high, and there is no wastage of water, users only need to monitor the



humidity when they need to flush. These innovative vending machines are affordable and clean energy. The customers could get this organic cocopeat fertilizer at a cheap and affordable price because of the small quantity, save energy. At the same time, the vending machine does not require much manpower to supply the fertilizer in the machine.

The use of vending machines is one of the innovative elements, high technology and eco-green. When the government has recommended the implementation of green elements in the urban areas, people will find fertilizer supply, so it is easier for them to get it. Nowadays, vending machines are quite famous because of the self-service and more save time. For our additional innovation, we replace it with organic fertilizer which is coco peat modified in small size and planting section. In return, this innovation can boost the green element in infrastructure.

It also follows SDG 10 to reduce inequalities, where whoever can buy the product from the machine as well. There is no bias. On the part of sustainable cities, this innovation boosted the activities of small urban farming in the city's areas. At the same time, apply green elements in their indoor or outdoor. It can encourage the culture of urban farming in an apartment with efficient green practices. The statement is supported with the proof that this cocopeat is biodegradable with a life span of up to 3-4 years.

The buyers or farmers who buy this cocopeat from the machine can purchase it by cash or cashless, of course they are responsible for consuming this product. They will use it to produce plants. The machine Agro very function to protect the ecosystem by supplying the use of cocopeat fertilizer. It mixes with organic fertilizer and cocopeat, which is safe for the environment. This vending machine sells a biodegradable product without harm to the environment.

Lastly, according to SDG 17, to create partnership goals. This vending machine will provide many partners to work on it because it is affordable and profitable. They can put it everywhere they want; it makes it easier for the farmers as well. On the same momentum, a partnership like a cocopeat company can be a supplier and make it easier for them to promote their product with a few workers. Approximately, it gives full support to this agricultural product and is able to promote this product to the global.

## **5. CONCLUSION**

In sum, this organic fertilizer mart machine is supporting most of the SDG goals and sustainable farming. As a good citizen, this is our responsibility to preserve the earth's natural resources, and sustainable agriculture benefits the environment through helping maintain soil quality, reducing erosion, and preserving water. Beyond the sustainability, the company, and government can also generate a profit and increase a standard of living with the implementation of organic fertilizer mart machines.

## **REFERENCES**

*Sustainable Development Goals* | Economic Planning Unit, Prime Minister's Department. (2021, February 24). Epu.gov.my. <https://www.epu.gov.my/en/sustainable-development-goals>