

MELAKA  
INTERNATIONAL  
INTELLECTUAL EXPOSITION

# MIIEX'24

12 JUNE '24

Dewan Taming Sari,  
Universiti Teknologi MARA Caw. Melaka,  
Kampus Alor Gajah, Melaka

*"Empowerment of Special  
Needs through Invention  
& Innovation"*

**EXTENDED  
ABSTRACT**

# MiiEX'2024

**MELAKA INTERNATIONAL INTELLECTUAL EXPOSITION 2024**

**“EMPOWERMENT OF SPECIAL NEEDS THROUGH INVENTION AND  
INNOVATION”**

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UiTM Cawangan Melaka

KM26 Jalan Lendu,

78000 Alor Gajah

Melaka Bandaraya Bersejarah

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# MiiEX'2024

MELAKA INTERNATIONAL INTELLECTUAL EXPOSITION 2024

“EMPOWERMENT OF SPECIAL NEEDS THROUGH INVENTION AND  
INNOVATION”

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## **FOREWORD BY THE RECTOR OF UiTM CAWANGAN MELAKA**



**Professor Ts. Dr. Mohd Rasdi bin Zaidi**

**Rector, Universiti Teknologi MARA (UiTM)**

**Cawangan Melaka**

Welcome to the Melaka International Intellectual Exposition 2024 (MIIEX '24). It is an honour for me, on behalf of UiTM Cawangan Melaka, to thank all of you for joining MIIEX '24. We are proud to inform you that this is the 13th consecutive year that UiTM Cawangan Melaka is organizing this exposition. Since 2009, UiTM Cawangan Melaka has successfully hosted this innovation exposition. Not only have we succeeded in organizing the exposition, but we have also successfully embarked on commercialized products.

2024 is a special year where MIIEX 2024 emphasizes the development of special needs. As we know, special needs indicate a limitation in a person's ability to engage in and benefit from various aspects, such as daily activities and education. Hence, with the theme "Empowering Special Needs Through Invention and Innovation," it is a platform for industries, professionals, academicians, students, and communities to share their innovative ideas and products to increase accessibility for those with special needs.

The successful implementation of MIIEX '24 is our joint success. This event was supported by the Melaka state government through YB Datuk Fairul Nizam bin Roslan, the EXCO of Science, Technology, Innovation, and Digital Communication. I also want to express my

gratitude to Universitas Negeri Padang, Indonesia, Universitas Muhammadiyah, Makassar, Indonesia, the International Association of Economic and Businesses (IAEB), Universiti Sains Islam Malaysia, Ibnu Umami Maktum Research Center (UMMI), USIM, and The Southeast Asia Minister of Education Organization Regional Centre for Special Educational Needs (SEAMEO SEN) as our co-collaborators for MIIEX 2024.

The collaboration from various parties in MIIEX '24 is a platform that will improve cooperation and interweaving among industries, professionals, academicians, students, and communities in shaping their potential in developing innovation products. This exposition also serves as a platform to cultivate and uphold the nation's innovation culture by presenting new ideas and research by young people, especially from academia and universities. Indirectly, MIIEX '24 will encourage all inventors towards empowering Science, Technology, Engineering, and Mathematics (STEM), especially in primary and secondary schools.

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 "Research and Innovation," we aim to foster more innovative products that benefit scholars, industries, and communities, addressing issues to improve our present and future life.

This exposition would never happen without dedication, teamwork, and commitment. A round of applause should be given to the committee teams, who are 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.

## **FOREWORD BY THE DEPUTY RECTOR (RESEARCH & INDUSTRIAL LINKAGES)**



**Associate Professor. Dr. Nur Hayati binti Abd Rahman**

**Deputy Rector (Research & Industrial Linkages), Universiti Teknologi MARA (UiTM) Cawangan Melaka**

With much passion and privilege, let me warmly welcome all of you to the Melaka International Innovation Exhibition (MIIEEX), UiTM Cawangan Melaka's flagship event. I firmly believe that events such as these demonstrate the gradual evolution of this platform in terms of its significance and its governing principles within the sphere of learning and the broader scholarly society.

The theme for this year, "Empowering Special Needs Through Invention and Innovation," strongly connects to our mission of using research and technology to make a positive impact on the world we live in. Besides enforcing the message of diversity, this theme also reaffirms our focus on creating products to improve the lives of people with disabilities (PWDs). Such innovations are vital as only through focused constructive changes can society become more sensitive to the needs of all members.

MIIEEX allows researchers, students, and industry professionals to come together, share their innovative research, and develop viable research partnerships. It has been great to see the enthusiasm of the participants and the efforts they put into their projects, which can offer various social and economic benefits. This is why one can state that MIIEEX is a great

opportunity for creating connections between the academic environment and industry, facilitating the implementation of innovative and promising projects.

Finally, I would like to express my sincere appreciation to all the members and supporters of the organizing committee, all the participants, sponsors, and everyone involved in preparing this event. I want to express my gratitude for your commitment and involvement, as the success of MIIEX and the development of an active culture of innovation in our university and beyond is partly owed to your support.

Thank you



## **FOREWORD BY THE PROJECT DIRECTOR**



**Dr Zulkefli bin Muhamad Hanapiyah**

**Senior Lecturer**

Assalamualaikum and Warmest Greetings,

It gives me a great pleasure, on behalf of the organizing committee, to welcome all participants and speakers to the Melaka International Intellectual Exposition 2024 (MIIEX '24) with the theme "Empowering Special Needs Through Invention and Innovation." We are honoured and pleased to welcome all participants to this biennial event.

MIIEX '24 is a platform that gathers experts from local and international industries, academia, scientists, researchers, and the community to contribute to the advancement of scientific and technological knowledge. This knowledge helps develop disruptive innovation products that improve daily activities for businesses and the community, especially those with special needs.

MIIEX '24 provides an atmosphere for inventors of all levels to gain new exposure and collaborate. Indirectly, this promotes a collaborative and innovative culture that focuses on cutting-edge technologies and new standards in technology and creativity.

MIIEX '24 is anticipated to serve as an arena for participants to acquire and disseminate revolutionary information on ideas and innovation. It is intended that the competition will expose the contestants' minds to the latest technologies and designs, aligning with the government's goal of encouraging innovation in Malaysia.

Finally, I want to compliment my fellow committee members on their amazing efforts, which were vital to the event's success. In addition, I want to thank our co-organizers, event sponsors, and participants. Optimistically, we hope that all new knowledge discovered, invented, or innovated will lead us toward future sustainability.

Thank you.

**FOREWORD BY MELAKA STATE EXCO OF SCIENCE, TECHNOLOGY,  
INNOVATION AND DIGITAL COMMUNICATIONS**



**YB Datuk Fairul Nizam bin Roslan**

**Melaka State Exco of Science, Technology, Innovation and Digital Communications**

Welcome to the Melaka International Intellectual Exposition 2024 (MIIEX '24). It is an honor for me, on behalf of UiTM Cawangan Melaka, to thank all of you for joining MIIEX '24. We are proud to inform you that this is the 13th consecutive year that UiTM Cawangan Melaka is organizing this exposition. Since 2009, UiTM Cawangan Melaka has successfully hosted this innovation exposition. Not only have we succeeded in organizing the exposition, but we have also successfully embarked on commercialized products.

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This exposition would never happen without dedication, teamwork, and commitment. A round of applause should be given to the committee teams, who are 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.

## MIIEX'24 ORGANISING COMMITTEE

COMMITTEE	NAME
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	RIDZUAN ADLI BIN AZIDIN
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JURY SELECTION AND MANAGEMENT	EN NORAZLAN ANUAL
	PN AFZAN NOR BINTI TALIB
	PN NUR HIDAYAH ZAINI
	CIK FARIHA AIZA BINTI RAMLY
	PN NURUL AIN BINTI MUSTAKIM
	PN NOORZALYLA MOKHTAR
	PN ZATUL HIMMAH BINTI ABDUL KARIM
	CIK MUNA KAMEELAH BINTI SAUID
	PN NOR MASLIA RASLI SAMUDIN
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	SITI RAMIZAH JAMA
	SITI NURSYAHIRA ZAINUDIN
	BUSHRA ABDUL HALIM
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	MUHAMMAD FURQAN BIN AZHAR
	KHAIRUL AZHAR BIN LOCHMAN



## **ABOUT MIIEX'24**

MIIEX'24 is an innovation competition annually organised by UiTM Melaka with the intention to bring together ideas and inspiration that could fit in for commercialization needs.

This event creates a platform for researchers to establish networking, partnership and opportunities to collaborate with industries.

## **OBJECTIVES**

1. Encourage and instil 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 skilful 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.

## **THEME**

**'EMPOWERMENT OF SPECIAL NEEDS THROUGH INVENTION AND INNOVATION'**

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## **Braille Tablet**

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### **Abstract**

Malaysia is a country that recognizes education for all groups including the disabled in accordance with the Disability Act 2008 which states that these groups will not be excluded from the education system for their inadequacies. In spite of the fact that students with disabilities are a minority group in institutions of higher learning, this does not mean that their needs have to be ignored. A conducive and accessible learning environment is the most important need for the students with disabilities. The failure of the Institutes of Higher Education to provide the facilities and infrastructure in creating a conducive and friendly learning environment for the students with disabilities is a form of discrimination that should not occur to this group. The main objective of this Braille Tablet is to facilitate the best accessibility educational solutions for the blind or visually impaired individuals through the organizations. The higher resolution displays, faster refresh rates and users can feel the shape of any objects through this tablet. Brailliant is very easy and practical for the blind to use because this tablet has the same features for the disabled including voice commands, dictation, reading with a braille display system which will form a tactile graphic. Therefore, we believe that Brailliant was conducted to provide students with disabilities a chance to live in a comfortable condition and enjoy all the facilities provided throughout their studies on campus like normal students.

**Keywords: Braille Tablet, Disability, Visually Impaired, Malaysia.**

## **1. INTRODUCTION**

According to the 2008 Disabled Persons Act, which was approved, Malaysia acknowledges and prioritizes the right to education for all groups, including the disabled (OKU). As a result, these individuals will not be denied access to the educational system because they are unable to receive

a perfect education, unlike those whose creation is normal (Hasnah Toran, Tajul Arifin Muhamad, Mohd Hanafi Mohd Yasin, Mohd Mokhtar Tahar, & Nurhazwani Hamzah, 2010).

Manisah and Zaleha (2010) report that there is a perceived rise in the number of disabled students attending public universities. Enrollment of students with impairments has increased annually, which is evidence of this. Higher education institutions are starting to enroll more students with impairments as a result of the growing number of disabled persons in this nation. The Department of Social Welfare has issued figures that are genuine and reliable, indicating that as of June 30, 2019, there were 549,554 registered disabled individuals in Malaysia, as opposed to just 431,047 in 2017.

Our product is a device designed for blind or visually impaired individuals to access digital content using braille instead of traditional visual display. In addition, there are some special features that make our products different from existing ones abroad because we have added some special new components to further facilitate the use or dealings of disabled people such as refreshable braille displays , tactile graphics , compact durable and lightweight , longer battery life , advanced software features and touch screen display.

## **2. OBJECTIVE**

Brailliant aims to facilitate the best accessibility educational solutions for the blind or visually impaired individuals through the organizations registered under Jabatan Pendaftaran Pertubuhan Malaysia (JPPM) as they serve as hubs of support and resources for them. By partnering with these organizations, we can leverage their expertise and network to tailor our products to meet the specific needs and preferences of the visually impaired population. We want to provide the effective personal competing experience at an affordable price where convenience and functionality converge to enhance the lives of the community to access any information that they need and communicate with the rest of the world.

## **3. NOVELTY & INVENTIVENESS**

Conventional Braille devices, such as embossers or refreshable Braille displays, tend to be bulky, hindering users' ability to carry them conveniently (Chen et al., 2024). Hence, the key novelty of our product lies in its foldable form factor with refreshable braille displays and tactile graphics, which offers unparalleled portability and versatility. Unlike traditional Braille devices, the foldable tablet can be compactly folded, making it easily transportable.

The two (2) advancements of the technology in our product include higher resolution displays, faster refresh rates and users can feel the shape of any objects (Sarkar & Das, 2012). This portability empowers users to access Braille content on-the-go, whether they're commuting to work, traveling, or simply moving around their homes.

#### **4. PRACTICALITY & USEFULNESS**

Brailliant is very easy and practical for the blind to use. This tablet comes with a braille display and touch screen display. Brailliant has the same features for the disabled in our mobile phone including voice commands, dictation, reading (built-in screen reader) and many more but our tablet comes with a braille display system which will form a tactile graphic. Just like reading a book with braille, tactile graphics made it easy for the blinds to read the displays. As we all knew, braille books are quite bulky because they are written on heavy paper to prevent the raised dots on each page from vanishing (Future Reflections Winter 1998, Vol. 15 No 1). Good news to the Brailliant user, our braille tablet is designed to be compact, durable and lightweight. Different from the other product, our braille tablet comes in a foldable design. It is very convenient for users to keep their tablet in good condition. A foldable design can also save a lot of space. Our tablet also has a longer battery life. It can last until two days after it is fully charged. Moreover, a 3 years warranty will be given to our beloved customer to assure that our product can be used for a long time period.

#### **5. CONCLUSION**

Brailliant uses technology to give the visual disability community newfound independence and accessibility, making it a shining example of inclusivity and innovation. Brailliant breaks through barriers with its user-friendly design and top-notch application of braille technology, providing access to social interaction, work, and education like never before. Brailliant transforms the lives of the blind with every touch, every interaction, and every moment of ability by making them more tangible and more inclusive and improving people's lives regardless of ability.

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