

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

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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 (MIIEX), 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.

MIIEX 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 MIIEX 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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Thank you.

MIIEX'24 ORGANISING COMMITTEE

COMMITTEE	NAME
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	DR NORASHIKIN ADAM
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	AFZAN SAHILLA BINTI MOHD AMIR HAMZAH
	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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BrailleFresh: A Bathing Innovation Accessible to All

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Abstract

Blind individuals encounter significant obstacles regarding product safety due to their inability to visually recognize potential dangers or navigate safely in their surroundings. This lack of visual input heightens the risk of accidents, injuries, or other safety concerns, particularly when dealing with unfamiliar or poorly designed products. In response to these challenges, our team has developed BrailleFresh, a line of braille- labelled containers for toiletries, that addresses the needs of visually impaired individuals. BrailleFresh aims to enhance accessibility and autonomy in daily activities, such as bathroom routines, by providing a tactile interface for identifying and selecting various toiletry items. Employing a user-centred design approach, the containers feature raised braille labels on their surfaces, enabling users to easily distinguish between different products. Furthermore, this initiative delves into material selection, design methodologies, ergonomic considerations, and manufacturing techniques to optimize the functionality and durability of containers tailored for visually impaired individuals. The introduction of braille-labelled toiletry containers signifies a step towards inclusive design practices, promoting equal participation and empowerment in the grooming routine experience for visually impaired individuals. This innovation aligns with SDG 3 (Good Health and Well-being), as ergonomic products designed for special needs individuals can enhance their overall health and well-being. In conclusion, the potential commercialization of BrailleFresh offers a revolutionary solution for visually impaired individuals, fostering independence and empowerment in their daily lives.

Keywords: BrailleFresh, braille, toiletries, visually

INTRODUCTION

As we see nowadays, many facilities that have been designed and provided by the government are especially used for every class of society. Not only that, but the government also provides a number of disabled-friendly facilities. For example, parking lots, toilets, footpaths and more. This shows how concerned they are trying to provide comfort and ease our daily affairs. It is evident that the facilities offered are still standard for those with disabilities. We therefore design goods especially for people who struggle with vision issues and have trouble differentiating or identifying objects. BrailleFresh: A Bathing Innovation Accessible to All, a brand-new toiletry container with a Braille print designed to assist the blind, is now available. Although this product is helpful to everyone, we consider OKUs who are blind to be our expertise.

OBJECTIVE

This BrailleFresh's main objective is to make toiletries easier for blind people to access and use. They can distinguish between the toiletries by the Braille label on each bottle. It can also enable blind people to take care of themselves. They don't have to depend on others to recognize the necessary toiletries. Furthermore, the goal is to enhance safety and reduce the risk of errors in product usage. With clear and simple to comprehend Braille labels, usage errors such as using shampoo as a face wash can be avoided. The last objective is to raise awareness of the needs of blind persons and to promote community involvement in projects promoting equality. Society may gain a greater understanding of the difficulties faced by blind people by seeing items customized to their requirements.

NOVELTY & INVENTIVENESS

BrailleFresh is a unique toiletry container designed to meet the needs of blind people by using Braille labels. The goal of BrailleFresh is to develop an effective solution to include Braille labels on toiletries containers, ensuring accessibility and inclusion for visually impaired individuals. Toiletries containers face issues with legibility, durability, and cost-effectiveness of Braille labels, which must be legible, durable, and cost-effective for large-scale use without significantly increasing production costs.

.Therefore, BrailleFresh is used to meet packaging design, Braille typography, materials science and user experience design. Solutions should prioritize simplicity, effectiveness and the ability to improve accessibility for visually impaired individuals in their daily lives.

PRACTICALITY & USEFULNESS

- **STORYLINE AND THEMES**

BrailleFresh are designed for individuals with vision impairments, featuring raised dots that spell out product names and ingredients. They encourage self-reliance and control, empowering consumers to manage their personal care regimen confidently. BrailleFresh challenges the "one-size-fits-all" approach to personal care, offering more than just product identification. They promote knowledge-based decision-making, engaging routine work, and inspiring messages. BrailleFresh serves as emblems of self-determination, inclusivity, and dialogue, highlighting the impact of seemingly insignificant aspects on everyday life.