

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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**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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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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	PN AFZAN NOR BINTI TALIB
	PN NUR HIDAYAH ZAINI
	CIK FARIHA AIZA BINTI RAMLY
	PN NURUL AIN BINTI MUSTAKIM
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	CIK MUNA KAMEELAH BINTI SAUID
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	SITI NURSYAHIRA ZAINUDIN
	BUSHRA ABDUL HALIM
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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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## **Montessori Sensory Softbook: Engaging Education for Children with Autism**

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### **Abstract**

Children with autism spectrum disorder (ASD) have varying abilities, which might influence their behaviours, communication, and social skills. Due to this reason, we developed “Montessori Sensory Softbook” to cater children with ASD, particularly those with Asperger syndrome, by offering a tactile education solution. In response to enhanced interaction, communication, and sensory processing, the Montessori Sensory Softbook uses a cloth book format with Velcro tape on each page, with thematic sections (e.g., such as transportation, food, and buildings), allowing children to match corresponding images with tactile Velcro lining. equipped with rough Velcro backing. Designed for ages 6 and above, the Montessori Sensory Softbook fosters cognitive development, problem-solving skills, and sensory engagement through interactive play. This innovative softbook not only meets the educational needs of autistic children, but it also provides unique opportunities for them to pursue a hobby, creating a sense of engagement and involvement. Unlike traditional educational materials, the Montessori Sensory Softbook stands out for its innovative combination of sensory stimulation and educational content. By integrating tactile elements such as Velcro tape into a cloth book format, it offers a uniquely engaging experience for children with autism spectrum disorder (ASD). The Montessori Sensory Softbook serves as a pioneering solution that bridges the gap between therapy and recreational learning, promoting inclusivity and understanding in society while providing a truly unique and beneficial experience for children with ASD. As we move forward, we aim to expand the accessibility and influence of the Montessori Sensory Softbook by pursuing avenues like forming partnerships with educational institutions and utilizing online distribution channels.

**Keywords: Autism, Asperger syndrome, Tactile, Education, Sensory-friendly**

## **1. INTRODUCTION**

Autism, particularly Asperger syndrome, presents unique challenges in learning and sensory processing. In response to these challenges, we introduce " Montessori Sensory Softbook," an innovative educational tool designed to engage children with autism spectrum disorder (ASD) through sensory-friendly activities. This product combines tactile experiences with educational content, aiming to facilitate learning and skill development while providing a satisfying sensory experience.

## **2. OBJECTIVE**

The primary objective of Montessori Sensory Softbook is to provide a sensory-friendly educational tool tailored specifically for children with autism, particularly those with Asperger syndrome. By integrating tactile elements with educational content, the product aims to enhance learning outcomes while promoting sensory engagement and satisfaction. Additionally, Montessori Sensory Softbook seeks to foster the development of cognitive skills, problem-solving abilities, and sensory processing capabilities in children aged 6 years and above.

## **3. NOVELTY & INVENTIVENESS**

Montessori Sensory Softbook stands out for its innovative combination of sensory stimulation and educational content. Unlike traditional educational materials, Montessori Sensory Softbook utilizes Velcro tape to create interactive learning experiences. The incorporation of tactile elements not only caters to the sensory preferences of children with autism but also adds a novel dimension to the educational process. Moreover, the thematic organization of the content into different categories fosters exploration and categorization skills, promoting cognitive development in an engaging manner.

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

Montessori Sensory Softbook offers practical benefits for both educators and children with autism. Its intuitive design makes it easy to use, allowing educators to facilitate learning activities effectively. The sensory-friendly nature of the product promotes engagement and reduces sensory sensitivity, creating a conducive learning environment for children with ASD. Furthermore, the versatility of Montessori Sensory Softbook enables customization and adaptation to individual learning needs, making it a valuable resource for diverse educational settings.

#### **5. CONCLUSION**

In conclusion, Montessori Sensory Softbook represents a promising innovation in the field of autism education. By combining sensory-friendly design with educational content, it addresses the unique needs of children with autism, particularly those with Asperger syndrome. Through interactive learning activities, Montessori Sensory Softbook not only promotes cognitive development but also provides a satisfying tactile experience. Moving forward, further research and development can enhance the effectiveness and accessibility of Montessori Sensory Softbook, contributing to the holistic development of children with autism.

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