

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 Umri 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

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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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	FAIQAH HAFIDZAH BINTI 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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Signsync

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Abstract

The sign language glove is a revolutionary invention that aims to bridge the communication gap between the mute community and individuals who do not understand sign language. This wireless glove, called SignSync, converts sign language into spoken words, making it easier for people to communicate with each other. The use of a wireless battery in the glove adds convenience and portability, allowing users to wear it comfortably and use it anywhere. The idea of a sign language glove is not entirely new, as inventor Roy Allela created a similar device called Sign-IO Gloves in 2019. However, SignSync aims to improve upon this design by combining all the necessary devices and functions into one, making it simpler and more user-friendly. This innovation eliminates the need for multiple devices and reduces the burden on users. The sign language glove has practicality and usefulness in providing communication access and fostering inclusivity and understanding. Its wireless design allows for easy transportation, and its affordability enhances its market potential. The potential for commercialization is high, given the increasing demand for inclusive technology. Overall, the sign language glove represents a significant step towards creating a more inclusive and communicative society.

Keywords: Sign Language, wireless, Communication, Accessibility, Innovation.

1. INTRODUCTION

Sign language is a vibrant tapestry of culture, history, and identity, not just a means of communication. We create connections that cut across boundaries and resound with the resonance of understanding when we move our hands fluidly. Every movement in this silent symphony bridges the gap between the spoken word and the silent world, telling a story with each expression. Even though it's crucial, not many people in today's world can translate into and comprehend this language. Knowing Sign Language will help us better understand and establish more connections with those who are less fortunate.

2. OBJECTIVE

The objective is to develop a friendly sign language glove that can convert sign language into spoken words. This invention is intended to connect the mute community with individuals who are not familiar with sign language. SignSync will feature a design be wireless for convenience and provide speech languages. SignSync is to encourage inclusivity, accessibility, and efficient communication for everyone.

3. NOVELTY & INVENTIVENESS

The novelty and inventiveness is wireless battery. This novelty really suitable for sign language gloves in order to make it more convenient to use it everywhere. This is because it not only reduce by the size of all the wiring harness, it also save the amount of space and it decrease the possibility of failure on physical connections (Samanta & Williamson, 2021). Besides, the use of the battery will last longer and compact that will allow user to wear it comfortably especially for extended use.

In 2019, Kenyan inventor, Roy Allela created a Sign-IO Gloves². It processed the signed letter and measured the finger bend. Then, these gloves are connected to an app through Bluetooth, so it will voice out the output via a smartphone (Neringa, 2019). There are a lot of devices that have been used together which are smartphones and it will burden the users. Due to it, innovation that will be made to these sign language gloves is combine all the devices and function into one. It will make it simpler and produce a user-friendly product. In fact, it will be more efficient when we invest in buying one multilingual device than wasting our money on buying a lot of expensive devices.

4. PRACTICALITY & USEFULNESS

The practicality and usefulness are expected to provide communication access between the mute community and individuals who do not understand sign language, fostering inclusivity and understanding. Moreover, it is convenient to use since its wireless design allows users to carry it with them wherever they go.

5. CONCLUSION

Therefore, SignSync is a ground-breaking invention that facilitates communication between the deaf population and individuals who are not versed in sign language and serves as a bridge, thereby promoting greater inclusivity and understanding. Its wireless design and the integration of a wireless battery make it highly practical and user-friendly, allowing for comfortable and extended use without the encumbrance of wires or the need for multiple devices. By converting sign language into spoken words seamlessly, SignSync eliminates the barrier of communication making it a cost effective and efficient solution for fostering connections across linguistic divides. Communication between normal and dumb/deaf people is thereby improved in both directions. It's a social cause effort in which deaf and dumb people can easily communicate. Consequently, we developed a prototype to overcome the communication gap between those with disabilities and those without (Baba, S. M., & Bala, I.2022). This invention represents a significant step forward in creating a more inclusive society where everyone can communicate freely and effectively.

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