

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

Website: <https://vmiex.uitm.edu.my/>

MiiEX'2024

MELAKA INTERNATIONAL INTELLECTUAL EXPOSITION 2024

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

EDITORS AND COMPILERS:

Dr Maimunah Johari

Puan Norlinda Tendot Abu Bakar

Puan Maymunah Ismail

Puan Nor Halawah Ahmad

Cik Afzan Shahilla Amir Hamzah

Puan Azira Rahim

COVER DESIGN:

Rashidy Samsudin

Wan Nur Khalisah Shamsudin

Ridzuan Adli bin Azidin

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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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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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	TUAN MUHAMMAD IDRIS IRFAN BIN TUAN MOHD AZAHAR
	RASEEDA BINTI HAMZAH
	TS. DR. NOR AFIRDAUS BINTI ZAINAL ABIDIN
DESIGN & MULTIMEDIA	EN RASHIDY SAMSUDIN
	RIDZUAN ADLI BIN AZIDIN
	WAN NUR KHALISAH SHAMSUDIN
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	CIK SITI NURUL IZZA HASHIM
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	BUSHRA ABDUL HALIM
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	FAIQAH HAFIDZAH BINTI HALIM
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	PN MAYMUNAH ISMAIL
	PN NOR HALAWAH AHMAD
	PN AZIRA RAHIM
	NORLINDA TENDOT ABU BAKAR
	AFZAN SHAHILLA AMIR HAMZAH
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	MOHD SUFIAN AB KADIR
	SITI MARIAM ALI
	ERRATUL SHELA ESHAK
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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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OpticFin: Banking Software for Visually Impaired People

Puteri Anis Sofea binti Ahmad Taufik¹, A'ain Eliza Nazurah binti Aedil Juffrie²,
Maizatulmardiah binti Zaini³, Putri Nurfarah Nabila binti Che Rusdan⁴,
Norazamimah binti Bogal⁵

1, 2, 3, 4, 5 UiTM Melaka Kampus Bandaraya Melaka (KBM), Melaka, Malaysia.

2024963663@student.uitm.edu.my

Abstract

The advancement of technology has led to the creation of numerous applications and websites that are easily accessible, making everything just a click away. However, not all of these technological applications meet the needs of users, especially those who are visually impaired and unable to carry out banking activities. For instance, they may face difficulties logging into their account because the form fields are not editable and the login button is not labeled. Additionally, screen reader readouts like "unlabeled button", "image1.jpg" or "unknown" are some of the common things they frequently hear, which might deter their system interaction and eventually prevent them from completing online transactions. Therefore, we propose a software called OpticFin and Ringgit, an autointelligence voice-generated helper. The primary objective of producing this software is to enhance online banking applications and make banking activities easier for them. OpticFin, which acts as the eyes for visually impaired individuals, allows online banking applications to include features that can assist blind individuals in conducting banking transactions. The software includes an artificial intelligence voice-generated assistant namely Ringgit that can guide users through banking transactions, providing them with a customer service-like experience. To ensure visually impaired individuals have a more inclusive and independent online banking experience, this software is designed to provide accessibility and non-discrimination. As accessible banking means independence. Currently, most of the online banking platforms in Malaysia are not fully accessible to visually impaired individuals. Therefore, we can collaborate with the banking industry to develop software that has the potential to provide accessibility support and enhance the existing website or banking app. This software can also be marketed in other countries with underserved markets for people with physical disabilities.

Keywords: OpticFin, Ringgit, Artificial Intelligence, Visually impaired, Banking

1. INTRODUCTION

The proliferation of technology has produced an abundance of readily available applications and websites, wherein all information can be accessed with a single mouse click. Nevertheless, certain technological applications fail to fulfil the requirements of users, particularly those with visual impairments that prevent them from performing banking tasks. As an illustration, they might encounter challenges accessing their account due to the absence of labelling on the login button and the immobility of the form fields. Furthermore, screen reader outputs such as "unlabeled button," "image1.jpg," and "unknown" are frequently encountered and have the potential to impede users' engagement with the system and ultimately impede their ability to complete online transactions.

2. OBJECTIVE

Therefore, we propose the software OpticFin, incorporates Ringgit, a voice-activated assistant with artificial intelligence. The principal aim of developing this software is to optimise online banking applications and streamline the process of conducting banking activities.

3. NOVELTY & INVENTIVENESS

OpticFin, an interface that provides visual assistance to the blind, enables the incorporation of functionalities into online banking applications that facilitate banking transactions. The unique feature of this product is the introduction of Ringgit, a voice-activated artificial intelligence assistant designed to assist users with banking transactions in a manner resembling that of customer service.

This feature provides users with guidance to navigate online banking, indicating the current page and enabling them to select the desired access by speaking the corresponding number. This technology enables users to request transactions verbally, typically in conjunction with a digital assistant-enabled device such as a smart speaker. Voice Recognition refers to the computer or machine's ability to understand voice requests. The new multi-finger gestures are integrated into a new context menu and can be used for activities such as reading, voice commands, and support for Bahasa Melayu and English in the Braille keyboard.

For instance, users can say "number 1" to check their account balance, "number 2" to review past transactions, "number 3" to make transactions, and "number 4" to access savings account details. This feature aims to simulate the experience of having a banker assist users within the app.

4. PRACTICALITY & USEFULNESS

This product is highly practical and features an artificial intelligence voice generated helper to assist users in navigating the application and understanding what they're interacting with. This is especially helpful for blind people who can now easily make transactions and stay up-to-date with social media developments. Additionally, this application software can be seamlessly integrated into daily life, making it easier for blind individuals to manage tasks without having to physically go to the bank or other places.

5. CONCLUSION

At present, the accessibility of the majority of online banking platforms in Malaysia is inadequate for individuals with visual impairments. Consequently, through collaboration with the banking sector, software can be developed that potentially enhances the current website or banking application while also providing accessibility support. Additionally, this software has the potential to be distributed in nations that lack adequate services for individuals with physical disabilities. OpticFin, banking software that making banking websites and apps accessible, ensures that everyone has the same level of independence, experience, and service.

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