

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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INNOVATION, INVENTION, AND DESIGN

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

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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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Voice B

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Abstract

Over the past ten years, banks have made significant efforts to completely transform the online banking experience for their customers following the rapid improvements in technology. Bank Islam was compared against the performance of conventional banks for five years (2004–2008) and was the pioneer of the Islamic banking system in Malaysia. Yet, one important client segment that these efforts have neglected to address is individuals with disabilities (PWDs). Consequently, we are focusing on offering Bank Islam what we designated as Voice B—features that will be added to Bank Islam mobile apps that are accessible to users with disabilities. People with visual impairments can find it easier to navigate online banking systems with the help of these speech-activated capabilities that make smart voice technology accessible. To enhance the online banking experience for people with disabilities who use Bank Islam online banking apps and make it more inclusive and user-friendly, this study suggests Voice B as a helper for people with disabilities. This is the ideal approach Islamic banks can take to bring in more non-Muslim customers since Bank Islam is accessible to both Muslims and non-Muslims, and it allows people of every race with visual impairments to utilize Bank Islam as their financial institution of choice.

Keywords: Voice B, smart voice technology, Bank Islam, personal financing

1. Introduction

Bank Islam apps, like many other financial institutions, likely offer mobile banking applications to its customers. These apps typically provide various features and functionalities to make online banking more convenient and accessible. Such as, for account management, users can view their account balances, and transaction history, and manage their accounts directly from their mobile devices. This app allows users to transfer funds between their accounts, to other Bank Islam accounts, or to accounts at other banks. The apps also include security features such as biometric authentication (fingerprint or facial recognition), PIN/password protection, and encryption to ensure the security of users' financial information. However, the application lacks features that can guide disabled people who have vision problems. So, our group is innovating a new feature that called "Voice B" that can help people with visual impairments by using voice feedback technology.

2. Problem statement

A mobile banking app offered by Bank Islam to individuals and businesses that is targeted to SME/MSME customers, the app contains View account details for current accounts and savings accounts. View sales transaction history, Generate static and dynamic QR codes, outlet management, and account management. Yet, these features fall short of the intended objectives that make them more usable for people with disabilities. Users of the Go by Bank Islam apps have reported that Bank Islam fails to update the apps' system functionality, which leads to numerous issues for all users. According to the Malaysia Dateline 2023, the user of Go by Bank Islam causes the user to search for the nearest ATM due to the failure of the app because the user cannot use the QR code for purchasing activity. This shows that the apps will be more difficult to use by people with disabilities, especially for people with visual impairments that we are focusing on for them to use the Go by Bank Islam apps. There is also a negative impact associated with the face ID method for app login, which causes a delay in app usage for people with visual impairments. Go by Bank Islam doesn't have features with voice assistants. The apps constantly upgrade their systems for user happiness in contrast to Mae by Maybank. Mae personal savings aid in the user's goal-achieving. This demonstrates the necessity of Voice B in the Bank Islam feature.

3. Description of the innovation

Drawing on Papara's successful Voice Card implementation, the invention of "Voice B" for the Bank Islam app seeks to improve the financial services experience for people with visual impairments. This invention makes financial services safer and more accessible for people who are blind or visually impaired by utilizing cutting-edge assistive technologies.

An assistive program called "Voice B" was created to give Bank Islam's mobile banking platform a voice-guided user interface. It uses voice feedback technology to walk users through a range of banking operations, making sure they can safely and independently do basic financial tasks. Because there are no visual signals to guide them, visually impaired users frequently struggle to navigate digital banking platforms. This approach is very helpful to them.

Additionally, "Voice B" uses encryption technology to guarantee the safety of financial transactions. This implies that all communication is encrypted between the user's smartphone and the banking app, making it more difficult for third parties to decipher or intercept sensitive information about transactions. By guaranteeing that transactions are carried out in secret, this function not only improves the security of the user's financial information but also offers comfort.

This invention represents a substantial advancement in the inclusiveness and accessibility of banking services for those with visual impairments. "Voice B" seeks to enable visually impaired people to handle their finances freely and securely by utilizing voice feedback technology and encryption. This will promote financial inclusion and equality.

4. Objective

The objective of introducing "Voice B" into Bank Islam's mobile banking app is to revolutionize the online banking experience for individuals with visual impairments, thereby enhancing inclusivity and accessibility in the realm of financial services. By leveraging cutting-edge speechactivated technology, Voice B aims to empower visually impaired users with unprecedented independence and ease in navigating digital banking platforms. This initiative aligns with Bank Islam's commitment to cater to all segments of society, including persons with disabilities (PWDs), and positions Bank Islam as a pioneer in Islamic banking that champions inclusivity and user-centric design. Furthermore, Voice B serves as a strategic tool to attract a diverse customer base, encompassing both Muslims and non-Muslims, solidifying

Bank Islam's reputation as an innovative and forward-thinking financial institution poised for sustained growth in the digital era.

5. Novelty and Inventiveness

In response to the changing landscape of digital banking and the pressing need for inclusivity, Bank Islam has launched a pioneering initiative to transform the online banking experience for people with disabilities (PWDs). Recognising this demographic's hidden potential, Voice B will be in Bank Islam app system, a ground-breaking function that will be integrated with its mobile banking apps. Voice B uses cutting-edge speech-activated technology to empower individuals with visual impairments, giving them unprecedented access and ease of movement inside the online banking environment. By focusing on inclusiveness and user-centric design, it will not only fulfil its mission to servicing all parts of society, but will also establish itself as a forerunner in the field of Islamic banking. This innovative approach not only improves the financial accessibility of people with disabilities, but it also serves as a gateway to attracting a wide range of customers, including non-Muslims, reinforcing Bank Islam's reputation as a forward-thinking and inclusive financial institution poised for long-term growth in the digital age.

6. Practicality and usefulness

"Voice B" provides a realistic solution to the long-standing accessibility challenges that visually impaired people encounter when handling their accounts. This feature, which includes a voice-guided user interface, makes it easy to navigate the Bank Islam mobile banking platform. The adoption of cutting-edge assistive technologies allows users to execute essential financial procedures independently, without the need for sighted help. This practical feature of "Voice B" not only increases user liberty but also promotes inclusivity by lowering barriers to financial independence, as it is hard for people with visual impairments to use online banking as their daily go-to.

How does this “Voice B” help people who are visually impaired individuals? The strength of "Voice B" stems from its ability to solve the unique demands and obstacles that visually impaired people have when managing their finances. Voice feedback technology guides consumers step by step through a variety of banking procedures, such as account queries, fund transfers, and bill payments. This intuitive interface improves the user experience by offering clear and simple instructions, removing the irritation that comes with navigating complicated digital interfaces without visual cues. "Voice B"'s practicality and usefulness enable users to access digital banking platforms freely and safely, boosting financial inclusion and equality.

7. Conclusion

Bank Islam has provided online banking apps for its users. However, it may be argued that there is no good banking system for someone with a visual impairment. To a certain degree, people with not just visual impairments but all types of disabilities find it hard to use the GO by Bank Islam app because of the lack of features especially for them. With the existence of Voice B, it represents a significant improvement in the inclusivity and accessibility of financial services for people with visual impairments. Voice B can assist users by monitoring step-by-step how to use the app to make any payments or savings so that there are no delays in handling. Voice B is designed to be one of the features in the Go by Bank Islam to deal with the user that needs to be assisted by voice assistance to guide them. With these features, Voice B is more practical in helping users with personal financial matters, so everyone can use Go by Bank Islam without any issues.