

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

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

MiiEX'2024

MELAKA INTERNATIONAL INTELLECTUAL EXPOSITION 2024

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

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PUBLISHED BY:

UiTM Cawangan Melaka

KM26 Jalan Lendu,

78000 Alor Gajah

Melaka Bandaraya Bersejarah

Tel: +606-5582094 / 2190 / 2113

eISBN: 978-967-2846-81-9

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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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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

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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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Sense Spend: AI-Enhanced Financial Apps For Individuals with Visual Impairments

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Abstract

As more financial apps become available, there is a significant lack of accessibility features tailored to individuals with disabilities, especially those with visual impairments. Existing financial apps often overlook the specific needs of these individuals, making it challenging for them to manage their finances independently and efficiently. However, everyone deserves equal access to financial services. Unfortunately, people with disabilities often face exclusion, making it hard for them to access essential services. Therefore, innovation is growing needed to aid individuals with visual impairments in navigating financial apps. To address this need, we have developed a financial app with a user-friendly interface designed explicitly for people with visual impairments. We are upgrading our financial application framework with Artificial Intelligence (AI) to help those with disabilities in their daily life regarding financial transactions. Our innovative features are designed to empower users with visual impairments, giving them greater independence and autonomy in managing their financial affairs. By integrating advanced technologies such as Artificial Intelligence, our solution facilitates secure financial transactions and fosters confidence and efficiency among users with disabilities. Ultimately, our goal is to help people with disabilities access financial services. We aim to enhance accessibility features such as screen readers and virtual assistants, specifically designed to help meet the needs of individuals with visual impairments. As a result, we have decided to innovate a financial app for individuals with disabilities to facilitate financial transactions and enhance their overall user experience.

Keywords: Visual impairments, Financial App, Artificial Intelligence, Accessibility

1. INTRODUCTION

In today's digital age, technological advancements have significantly improved accessibility across many domains, including finance. Despite the proliferation of financial applications that cater to a wide range of user needs, people with visual impairments frequently face barriers that prevent them from managing their finances independently, especially in financial apps. Traditional financial apps often rely heavily on visual interfaces, making it challenging for individuals with visual impairments to navigate and access important information (Korwatanasakul, 2018). However, with the integration of artificial intelligence technologies, there is now a possibility of developing AI-enhanced financial apps specifically designed for individuals with visual impairments (Agarwal, 2019).

It is necessary to develop and evaluate financial applications for people with visual impairments, allowing seamless integration into the digital financial landscape. Examining these applications' features, usability, and effectiveness can provide valuable insights into their impact on financial inclusion and autonomy for people with visual impairments. These AI-enhanced financial apps can leverage technologies such as voice recognition, natural language processing, and computer vision to provide a more inclusive and accessible user experience for individuals with visual impairments. By utilizing voice recognition, these apps can allow users to interact with their financial information and perform tasks such as checking account balances, transferring funds, and paying bills through voice commands (Norkhalid et al., 2020).

2. OBJECTIVE

Our primary goal is to offer financial services that enable people with visual impairments to manage their finances more easily and effectively. We have designed Sense Spend to be user-friendly for those with visual impairments, and if they still face challenges, our app supports screen readers that can read out their savings and expense balances. Additionally, we provide virtual assistance to help them make informed financial decisions. We are committed to ensuring that these essential services are affordable and accessible to all, understanding that most people cannot afford expensive apps that support disabilities.

3. NOVELTY & INVENTIVENESS

Sense Spend is a financial app designed to assist individuals with disabilities in managing their money. Our primary target audience is people with visual impairments, as we discovered that they often struggle to see the information displayed on their smartphone screens. To cater to this need, we have designed Sense Spend with a minimalist interface that enables people with visual disabilities to view their account balance and transaction details easily. The app is user-friendly and has fewer complexities than other financial apps, making it easier for people with disabilities to manage their finances. We have also included a vibration feature in our app, which can be used to navigate through each financial or transaction option. This feature makes the app accessible to those who are completely blind, making it an ideal choice for people with different types of visual impairments. At present, our focus is on people with visual impairments. However, we plan to incorporate more features in the future to make it even more user-friendly and accessible to people with different types of disabilities. With Sense Spend, we aim to make managing finances easier for everyone, regardless of their abilities.

4. PRACTICALITY & USEFULNESS

Sense Spend app is a commendable financial invention, particularly beneficial for individuals with visual impairments. Emphasizing a user-friendly interface and including vibration feedback are innovative features that could enhance the user experience for those with visual impairments. Furthermore, implementing AI in the app can result in enhanced personalized assistance and advanced decision-making support for users. By integrating screen readers and virtual assistants, users may listen to their account balances and expenses and receive guidance on wealth management, promoting freedom and independence. In terms of usefulness, the Sense Spend app appears to address a crucial need in the market by offering a practical solution for financial management designed for individuals with visual impairments. By prioritizing accessibility and affordability, the app can help democratize financial services and engage users with disabilities to require control of their financial well-being. Sense Spend app seems to be a promising step in promoting financial inclusiveness and independence for those with visual impairments.

5. CONCLUSION

Sense Spend represents a significant step forward in helping people with visual impairments manage their finances independently. With its simple design and features like vibration feedback and screen reader integration, it makes financial tasks more accessible. The use of AI adds personalized assistance, enhancing the overall user experience. This app bridges a significant gap by offering an affordable and practical solution for financial management tailored specifically to those with visual impairments. Its focus on accessibility and affordability makes it a promising tool for fostering financial inclusion and independence. Sense Spend can potentially alter the financial technology industry as it develops further significantly. By focusing on accessibility, it demonstrates how technology may empower those with impairments to participate in the digital economy actively.

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