

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 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

COMMITTEE	NAME
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	DR NORASHIKIN ADAM
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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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TALKBACK AND VOICEOVER APP

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Abstract

A phone, especially a smart phone, is the most crucial item in our life in this technological age. Everybody has a smartphone that they use every day. We can do anything with a smartphone, like speak with others across the globe. But in some cases, not everyone is able to use a smartphone since some people have trouble spelling and typing. In addition, because they are unable to see the screen, blind people are the ones who are unable to use smartphones. We developed an app using this cutting-edge technology to assist those who encounter this issue. For those of you who are blind or visually impaired, talkback and voiceover app can be of assistance. An app called Talkback uses screen reading to assist those who are blind or visually challenged in using their phones. In the meanwhile, Voiceover accurately describes—even in braille writing—what is displayed on the phone's screen. Because you can only enter or search using your voice, this software is incredibly helpful to users. With this program, blind persons may make financial statements and calculate their profit using just their voice, allowing them to launch an internet business for their own finances. Additionally, this app can recognize their speech and instantly enter any data and amounts pertaining to a financial statement or personal finances. For example, they tell AI how much they want to record in the sales column when they want to keep track of the company's sales. How would they like to launch an internet company? All they have to do is declare, "I want to make an online business," and this program will take care of the rest. Furthermore, there are features that can instantly link to an AI sign interpreter and scan any content, including messages, financial documents, and more.

Keywords: PWD, Blind, App, Financial.

1. INTRODUCTION

Android devices come with a built-in Google screen reader called Talk Back. Talk Back allows you to use your smartphone without having to glance at the screen by providing verbal feedback. Talk Back allows you to drag your finger across the screen, announcing icons, buttons, and other elements as you go. In addition, it enables linear navigation, which lets you browse your screen item by item by swiping left or right with one finger to navigate through the options sequentially.

With the help of Voice Over, a gesture-based screen reader, you may operate your smartphone without being able to see the screen. To activate Voice Over, simply triple-click the Home button. Get a description of everything that appears on your screen, including the app your finger is on, who is calling, and the battery level. To fit your needs, you can also change the pitch and speaking rate. In addition, Voice Over may read out each character you write on the keyboard and describe visuals for you.

2. OBJECTIVE

The Talkback and Voiceover App aims to assist persons with disabilities (PWD) in recording their personal financial or business transactions in just one application with unique features that are easier to use daily by using their voice. This business transaction consists of sales, expenses, wages and salaries, and others that will be generated and keyed in automatically by this app because their voice is linked to this app system. Also, it consists of personal financial planning, which includes retirement planning, emergency fund management, debt management, and more. Other than that, it helps PWD type and see the phone screen. So, it is easier for them to use the smartphone without any difficulty. Also, this app can help by reading what is on the screen, especially for blind people, and helping them type anything they want to by using their voice.

3. NOVELTY & INVENTIVENESS

1. Personalized voice profile

Talkback and voiceover app enables users to generate personalized voice profiles by combining text-to-speech (TTS) technology and natural language processing (NLP). Users can personalize their voice profile by choosing multiple dialects, tones, and speech patterns that reflect their personality and identity. TTS is a sort of assistive technology that reads digital text aloud. It is also referred to as "read aloud" technology. Talkback uses advanced TTS technology to translate written text into natural-sounding speech. This technology enables users to produce high-quality voice output that closely resembles human speech. NLP is a fascinating subfield of artificial intelligence (AI) that bridges the gap between human language and computer comprehension. NLP entails teaching computers to recognize, comprehend, and generate language. It integrates computational linguistics, statistics, and machine learning models.

2. Community-driven accessibility

Community-driven accessibility is a collaborative effort to improve digital accessibility that includes a wide group of people, professionals, and advocates. Talkback and voiceover apps include a collaborative platform where users can share feedback, offer new features, and help build accessible solutions for everyone. Community-driven accessibility guarantees that talkback and voiceover apps respond to the changing requirements and preferences of their diverse user base. It can handle growing accessibility difficulties and provide solutions that actually meet the needs of users by asking for input and iterating on features on a regular basis.

4. PRACTICALITY & INVENTIVENESS

1. Increase independence.

A person tends to lack confidence if they have a weakness. They will develop an attitude of reliance on others if this keeps up. Their lack of confidence prevents them from using their skills and abilities to run their daily lives while generating their own money. Hence, this app can assist a person as much as possible without requiring assistance from others. Since we cannot always count on someone to be with us around the clock, this app can assist in finding a solution quickly. This can raise and enhance an individual's degree of independence.

2. Financial analysis

Talkback will present a financial analysis and statement of our finances at the end of each month. It will notify users verbally when the analysis is prepared and ready to be shared, and

instead of listening to the data immediately, they can choose to do so at any moment. Users can gain a better understanding of their financial situation and improve their financial planning by altering their spending habits. Due to the fact that the financial statement is crucial to determining the financial health of the business's operations, users who are interested in starting a business, especially those who have visual impairments, will find it easier to create one instantly.

5. CONCLUSION

To sum up, Talkback and Voiceover apps have crucial components in the effort to provide accessibility for people with visual disabilities. By enabling effective interaction, frictionless use of digital interfaces, and unrestricted access to material in digital spaces that have traditionally primarily served sighted users, these applications are essential to users' empowerment. These applications function as potent tools for bridging the accessibility gap that keeps people with visual impairments out of the digital world by offering voice feedback and tactile interfaces. This promotes greater independence and inclusiveness.

Moreover, Voiceover and talkback apps have significance because they represent a strong commitment to equity and inclusivity in the world of technology, even beyond their practical use. These programs enable vision-impaired users to use a wide range of digital platforms, applications, and services freely and effectively by utilizing verbal feedback and tactile interfaces.

In the end, Talkback and Voiceover app development and usage act as catalysts for the shift in society towards increased accessibility and inclusion. By enabling ongoing enhancement and incorporation into various digital settings, these programs assist in removing obstacles and cultivating an environment in which people with various skills can engage fully and succeed.

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