

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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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 (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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Thank you.

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| | 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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Finance Board Game: Critical Thinking for The Blind

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Abstract

Monopoly is a board game where players will be playing their role as realtors. The purpose is to be financially stable by purchasing properties while on the other hand forcing opponents into bankruptcy. This edition is also the same but with additional attributes. It is for people who are blind or visually impaired. We offer them the feeling of enjoyment just like other human beings. Moreover, they can also enhance learning. This version adds technology as the special trait which makes playing convenient for them. For your information, Monopoly: Special Care Edition takes inspiration from the movie Jumanji.

Keywords: Board Games, Monopoly, Finance, Disability.

1. INTRODUCTION

Board game is a game that involves the movement of counters or other objects round a board. We will focus on a board game that is famous and well known for its educational and premium enjoyable gameplay related to finance called Monopoly. Monopoly: Special Care Edition is the innovative product that we are suggesting to help people with disabilities focusing on blind people to use their critical thinking while enjoying the game. There are few types of blindness or also called visual impairment which are congenital blindness and complete blindness. We are hoping that our product innovation will help these targeted customers in enjoying this board game.

2. OBJECTIVE

Monopoly: Special Care edition aims to provide inclusive, accessible fun and social engagement. This game was designed to make it easier for visually impaired persons to play while also

increasing their financial knowledge. It also seeks to improve their quality of life and create a sense of belonging within the gaming community by giving opportunities for play and engagement in times of need.

3. NOVELTY & INVENTIVENESS

The new invention from the famous board games the Monopoly Braille into the new edition *Monopoly: Special Care Edition* with new technology that can be user friendly for the blind people. The box of Monopoly Special Care comes with 1 piece of board game, 4 tokens and 4 pieces of device controller that can only be played for 2 until 4 players only.

1. The board games

- The board games included a button that can be pressed in the middle of the board to know the next move of players.

2.The remote controller

- The remote controller has many buttons that contain the braille on its surface with different functions. Each of the remote controller connects with a token through Bluetooth. It can control the movement of the token according to the player. It also will receive the location from the token and will reply with sound from the speaker.
- The money paper, all of them are digital.

3.The tokens.

- The 4 tokens with the different mini car. It connects with the controller through Bluetooth. When the token stops at its destination. It will send a signal to the controller to mark its location on the board.

4. PRACTICALITY & USEFULNESS

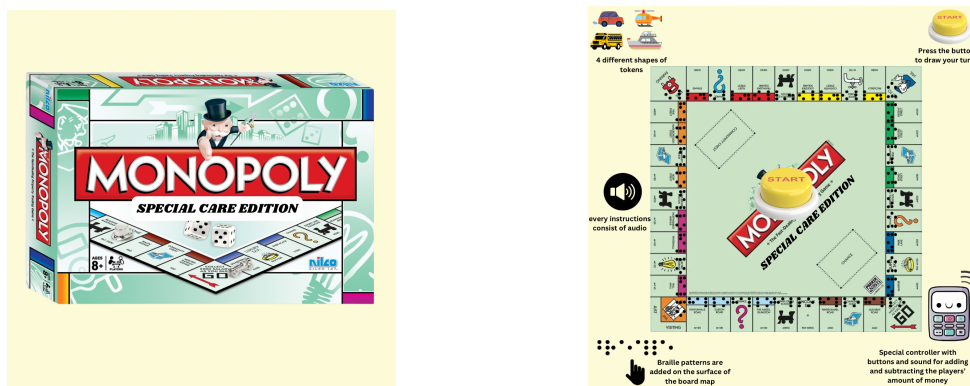


Figure 1: Digital version of Monopoly: Special Care Edition

The instruction to play is each player starts with a set amount of money. To move around the board, they take turns by pushing the stat button. When players land on certain spot, they can buy assets like stocks, houses, or bonds. The board and remote control have tactile parts that help players find and keep track of their possessions. As players move around the board, they come across business chances. They can decide to invest in these chances, and remote controls that they can tell them about the risks and profits. Players may face problems like economic downturns, market crashes, or costs that come up out of the blue. The events are shown on tactile challenge remote controls, and players must plan how to beat them.

The usefulness of this product can be customised. Blind players can change the settings on remote control systems to suit their tastes and needs. This includes changing settings like volume, speech output speed, and the layout of the menu to get the most out of the game. Other than that, with this Special Care Edition, it can have an interaction with other players. Remote control technology can help blind and sighted players connect with and talk to each other in multiplayer games. It can make it easy to combine visual and non-visual features, which can make games more fun for everyone. Last but not least, it has an educational Value. Board games that blind people can play with a remote control can be made to include educational material and learning goals. This can include teaching people how to handle money, solve problems, think strategically, and learn other important life skills in a fun and involved way. The game creates an environment where everyone can participate, regardless of their visual abilities.

5. CONCLUSION

To summarise, our innovation solves the difficulties of the blind to enjoy critical thinking games with their fellow friends whether they are also having eyesight impairment or not. By providing special features like a set of braille calculators that comes with voice features can beneficially help them to engage with other players while enjoying the game thoroughly. Its unique design that is similar to Jumanji Board Game will complete the overall look of a distinctive board game that could move from one checkpoint to another on its own. This innovation encourages people with eyesight impairment to take control of their critical thinking and problem-solving skills while improving their enjoyment of life.

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