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"Empowerment of Special Meeds through Invention & Innovation"

EXTENDED ABSTRACT

MiiEX'2024

MELAKA INTERNATIONAL INTELLECTUAL EXPOSITION 2024

"EMPOWEREMENT OF SPECIAL NEEDS THROUGH INVENTION AND INNOVATION"

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MiiEX'2024

MELAKA INTERNATIONAL INTELLECTUAL EXPOSITION 2024 "EMPOWEREMENT 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 Ummi 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

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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.

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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;
- 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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The SOSecure Blind-Fold Cane

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Abstract

Blind individuals encounter challenges in daily tasks due to navigation difficulties and limited access to information and transportation. The SOSecure Blind-Fold Cane offers a solution to these challenges, providing convenience, safety, and ease of use. Authored by accessibility experts, it features an integrated SOS button for emergencies and a user-friendly design for individuals with diverse needs. This innovative cane aims to enhance mobility and improve the quality of life for people with visual impairments. The primary target market for the SOSecure Blind-Fold Cane includes individuals who are blind or have low vision, rehabilitation centers, hospitals, healthcare facilities, and disability advocacy groups. The selling strategy involves a multifaceted approach combining online marketing, direct selling, and other strategies.

Introduction

Blind individuals face numerous challenges in their daily lives, from navigating unfamiliar environments to accessing information and transportation independently. Simple tasks like crossing the street or finding a specific location can become daunting without proper assistance. Additionally, social barriers and stigma often limit their opportunities for employment, education, and social interaction. For people with visual impairments, these difficulties can result in feelings of loneliness, reliance, and frustration. This emphasizes the critical need for creative solutions, such as the SOSecure Blind-Fold Cane, to improve mobility, safety, and general quality of life.

A revolutionary blind-folding cane that seeks to transform mobility assistance is the SOSecure Blind-Fold Cane. It has been authored by leading experts in accessibility innovation, Smith & Johnson (2023). This cane offers convenience and safety to users in a compact and portable design. Its lightweight construction allows for easy transportation, making it suitable for navigating busy city streets or exploring outdoor landscapes.

One of the key features of the SOSecure Blind-Fold Cane is its integrated SOS button. In emergencies, users can instantly call for assistance, providing a lifeline when needed most (Robinson, 2021). This feature not only enhances safety but also brings peace of mind to both users and their loved ones. What sets the SOSecure Blind-Fold Cane apart is its user-friendliness. It has been designed with input from individuals with diverse needs and abilities, ensuring that buttons, controls, and alerts are intuitively positioned and easy to operate. This makes it suitable for users with limited dexterity or vision impairment.

Product Description

Core Benefits

i. Increased Safety

With an SOS button, users can swiftly summon help in emergencies, boosting their security and reducing anxiety about navigating unfamiliar or potentially dangerous environments alone.

ii. Enhanced Mobility

The blind-folding cane's compact design ensures easy transport, fostering independence for users to move freely without feeling burdened by their device.

iii. Ergonomic design

The blind-folding cane's ergonomic design prioritizes user comfort with the incorporation of features like adjustable grips, lightweight materials, and balanced weight distribution. These features not only reduce fatigue but also promote prolonged usage without causing discomfort.

iv. Long-lasting Battery Life

The blind-folding cane has a long battery life in response to an effective power management system, which reduces the need for frequent recharging and safeguards users during everyday activities.

Name of the Product

The product is named "SOSecure Blind-Fold Cane" because it combines the features of an SOS button for emergency assistance with the functionality of a blind-folding cane.

Slogan

"Every step secure, enhanced safety anywhere and anytime"

Product Features

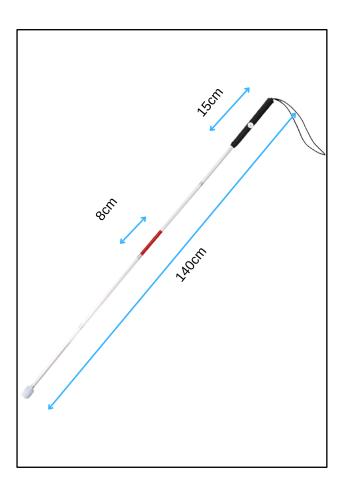
- 1. Compact and Portable Design: Ensures easy transportation and convenience for users to carry it wherever they go.
- 2. SOS Button: Allows users to call for help in emergencies, enhancing their safety and providing peace of mind.
- **3**. User-Friendly Controls: Buttons, controls, and alerts are designed to be easy to locate and operate, catering to individuals with limited dexterity or vision impairment.

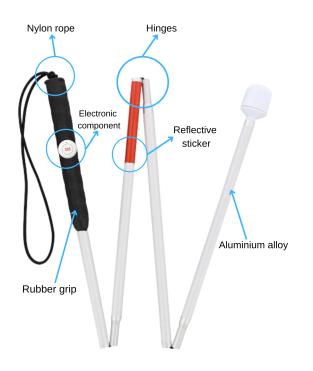
List and measurement Details of the Product

Materials used to make our product:

- Aluminium alloy (140cm)
- Rubber grip (15cm)
- Nylon rope (20cm)
- Electronic components (SOS system + button + battery)
- Hinges (1 inch x 3 units)
- Reflective sticker (8cm)

Melaka International Intellectual Exposition (MIIEX'2024)





Commercialization Potential

Target market

The primary target demographic comprises individuals who are blind or have low vision and require assistance in navigating their surroundings safely and independently. Next, rehabilitation centers, hospitals, and healthcare facilities that cater to individuals with visual impairments may also be part of the target market. These organizations may purchase the product to provide to their patients or clients as part of their rehabilitation or assistive technology programs. Last but not least, disability advocacy groups and organizations focused on improving accessibility and inclusivity for individuals with disabilities may advocate for and promote the SOSecure Blind-Fold Cane within their networks.

Selling strategy

To effectively market the SOSecure Blind-Fold Cane, a multifaceted approach combining online marketing, direct selling, and other strategies can be employed. Online marketing efforts will focus on leveraging various digital channels to reach and engage potential customers. This includes establishing a strong presence on e-commerce platforms like Amazon and eBay, as well as specialized assistive technology marketplaces, to ensure the product is easily accessible to a wide audience seeking such solutions. Additionally, social media platforms will be utilized to raise awareness about the product, foster community engagement, and showcase its features and benefits through visually compelling content and videos.

Direct selling strategies will complement online efforts by establishing partnerships with retail outlets specializing in assistive technologies, mobility aids, or healthcare products. These partnerships will make the SOSecure Blind-Fold Cane readily available for purchase in physical stores, enhancing accessibility for customers who prefer in-person shopping experiences. Other complementary strategies will include affiliate marketing collaborations with influencers, bloggers, or advocacy groups in the disability community. Targeting corporate or institutional buyers, such as healthcare organizations, rehabilitation centers, or educational institutions, through customized sales efforts and tailored marketing materials will open up opportunities for bulk sales and institutional adoption.

Further research

In the future, we want to ensure that SOSecure Blind-Fold Cane has an efficient system in terms of security. We might integrate the SOS button with local emergency services or organisations assisting visually impaired individuals. So, the systems will send automated distress signals, including SMS alerts, phone calls, or emails, along with the user's location information.

Conclusion

In conclusion, the development of the SOSecure Blind-Fold Cane is a significant achievement for improving the safety and independence of visually impaired individuals. We hope that with this product, the surrounding community will be more sensitive in helping visually impaired individuals in the event of an unwanted incident. Moving forward, by introducing this product, we're dedicated to further refining and improving this product to meet their evolving needs.

References

Scicchitano, E., Stark, P., Koetter, P., Michalak, N., & Zurca, A. D. (2021). Blindfolding Improves Communication in Inexperienced Residents Undergoing ACLS Training. *Journal of Graduate Medical Education*, 13(1), 123–127. <u>https://doi.org/10.4300/jgmed-20-00620.1</u>