

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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Spices Rack with Braille

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Abstract

The visually impaired community faces significant challenges in the kitchen, where the lack of accessible tools and equipment hinders their ability to cook safely and independently. This extended abstract presents a business proposal for the Spice Rack Braille, a unique solution designed to address the accessibility needs of the visually impaired in the kitchen. The kitchen environment poses numerous obstacles for the visually impaired, particularly in identifying spices and ingredients due to inadequate labeling systems. This leads to difficulties in meal preparation, potential safety hazards, and a lack of independence in cooking activities. To identify the specific challenges faced by the visually impaired in the kitchen environment, the Spice Rack Braille introduces a novel approach to addressing the accessibility needs of the visually impaired in the kitchen. By incorporating Braille labeling on spice bottles, this solution offers a tactile and user-friendly method for spice identification, setting it apart from existing products in the market. By giving visually impaired people the confidence and independence to cook, the Spice Rack Braille has the potential to make a big difference in their lives. This product makes the kitchen more accessible, which increases efficiency and safety while also giving users a feeling of empowerment and inclusion. With a niche market and increasing demand for inclusive and accessible products, the Spice Rack Braille offers a promising commercialization opportunity. The product presents a feasible business opportunity because it has the potential to appeal to both individual consumers and institutional buyers, such as assisted living facilities and organizations that support the visually impaired.

Keywords: Spice Rack, Braille, OKU Product, Kitchen Utensil

1. INTRODUCTION

Product innovation has become a significant force in improving the lives of people with disabilities, allowing them to overcome obstacles and live more freely. This extended abstract digs into the panorama of entrepreneurial enterprises aimed at developing products that cater to the different needs of people with disabilities. By investigating the objectives, novelty and inventiveness as well as practicality of these initiatives, we obtain vital insights into how innovation may increase social inclusion and improve the quality of life for persons with disabilities.

2. OBJECTIVE

Touch&Toss aims to identify the specific challenges faced by the visually impaired in the kitchen environment. Our company also aims to design and develop a prototype of the Spice Rack Braille to provide tactile and accessible labeling for spices.

3. NOVELTY & INVENTIVENESS

A spices rack with braille labels is a product that combines accessibility and convenience in a unique way. These are some aspects of its novelty and inventiveness:

1. Accessibility for Visually Impaired Users: The primary novelty of this product lies in its accessibility features. By incorporating braille labels, it ensures that visually impaired users can easily identify and select spices without needing assistance from someone who can see. This makes cooking and preparing meals more independent and accessible for individuals with visual impairments.

2. Innovative Use of Technology: The use of braille technology in a spices rack is innovative. It's a practical application of assistive technology that can significantly enhance the daily lives of visually impaired individuals. This product bridges the gap between technology and everyday household items, making it easier for people with visual impairments to navigate their surroundings.

3. Customization and Personalization: The product's design allows for customization. Users can choose which spices to include on their rack, tailoring it to their cooking needs and preferences. This personalization aspect adds a layer of novelty, as it caters to individual tastes and dietary requirements.

4. Educational Value: For those who are not visually impaired but are interested in accessibility, this product serves as an educational tool. It demonstrates how technology can be integrated into everyday objects to improve accessibility and inclusivity. This educational value extends to schools, workplaces, and communities, promoting awareness and understanding of assistive technologies.

5. Practicality and Convenience: Beyond accessibility, the spices rack with braille labels offers practical benefits. It organizes spices in a way that's easy to find and use, making cooking more efficient. The braille labels ensure that users can quickly identify spices without needing to rely on others to read labels for them.

6. Sustainability and Reusability: The product's design is likely to be sustainable and reusable. By using braille labels, it reduces the need for disposable labels that are often used in other products. This aspect of the product's design is both environmentally friendly and cost-effective in the long run.

7. Cross-Cultural Appeal: The product's universal appeal is another aspect of its novelty. Braille is a widely recognized system of tactile writing, making this spices rack accessible to people from various cultures and backgrounds. This cross-cultural appeal broadens the product's market and potential user base.

In summary, the spices rack with braille labels is a novel and inventive product that combines accessibility, technology, customization, educational value, practicality, sustainability, and cross-cultural appeal. It represents a significant step forward in making everyday household items more accessible and user-friendly for people with visual impairments.

Example; ALST is developed to facilitate the small business owners registered under '*Persatuan Penjaja dan Peniaga Kecil*', in Jasin district who do not have accounting knowledge in preparing financial reports.

4. PRACTICALITY & USEFULNESS

Spice Rack Braille is made out of glass, silicone, plastic and wood. All the material used in making the container of the spices and rack spices to be stored can vary. Factors that had been taken include safety of the user, easy access of the user and efficiency of users that could be undertaken. We design the spice bottle or container and rack that can be stackable to make the efficiency of the users smooth and they are able to be independent by themselves although they have eye sight problems or are completely blind. One of the details that we can undertake and pay attention to is the texture and different shape of the container that can make the users become more comfortable and having an easy access kitchen that can help them to feel independent as well as being able to do things more efficiently. On the silicone pad that are hugging the spices bottles are provided with braille text that can help them know their ingredients. In terms of the differences shape, it offers them to know their spices better. For example, a container or bottle that is a cylinder can be identified as a powdery spice and for a rectangular shaped bottle or container can be identified as grainy textured spices. This product is easily adjustable in terms of how many spice bottles or containers they want or can be according to their preferences. We hope that this innovation and thoughts can give them a chance to feel accepted in their daily lives.

5. CONCLUSION

Spice Rack Braille helps make the users feel more independent and also makes it easier to do their daily tasks or routine without needing anybody's help. This Spice Rack Braille is also designed to make them feel more accepted rather than just thinking they are just some random trouble to their parents or colleges. Spice Rack Braille is one of the changes that will be essential in their future, practical and user-friendly.

REFERENCES

Jin, X. (2021, December 14). Product design — Design a spice rack for blind - Xuan Jin - medium. Medium. <https://xuan-jin.medium.com/product-design-design-a-spice-rack-for-blind-3e13e45d41bc>

Zainal, M., Ismail, S. M., Ropilah, A. R., Elias, H., Arumugam, G., Alias, D., Fathilah, J., Lim, T. O., Ding, L. M., & Goh, P. P. (2002, September 1). *Prevalence of blindness and low vision in Malaysian population: Results from the National Eye Survey 1996*. British Journal of Ophthalmology. <https://bjo.bmj.com/content/86/9/951>

Lifestyle, R. S. @ F. (2020, June 8). *Blind Malaysian becomes Youtube darling with cooking show*. Free Malaysia Today. <https://www.freemalaysiatoday.com/category/leisure/2020/06/09/blind-malaysian-becomes-youtube-darling-with-cooking-show/>