

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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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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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.

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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Auto-update Container Lids Scanner with Expiration Date Display

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Abstract

This paper introduces a ground-breaking solution aimed at addressing the pressing issue of food safety: The Auto-Update Container Lids Scanner with Expiration Date Display. In response to the inadequacies of current methods for monitoring food freshness. By offering users a simple and intuitive means of tracking the freshness of their stored provisions, this product allows for the setting of personalized expiration dates and provides a dynamic real-time countdown feature. As the expiration date approaches, the lid undergoes a visible colour shift, effectively signalling the progression toward expiration. Through this innovative technology, significant reductions in the risks associated with foodborne illness and waste are anticipated, thereby fostering improved food safety practices. Available in three sizes (small, medium, and large), the Auto-Update Container Lids Scanner cater to a wide range of food storage needs, accommodating items such as packaged food, and canned goods. Targeting busy parents, working adults, and upper-class status, this innovation seeks to streamline the process of food storage and consumption. This product incorporates scanner and barcode scanning capabilities, enabling automatic updates of expiration dates on both mobile devices and containers. This functionality not only enhances user convenience but also ensures precise monitoring of food freshness levels. For commercialization strategy, forging strategic partnerships with established food storage container manufacturers is recommended. Additionally, marketing campaigns focused on waste reduction and enhanced food safety could further bolster market penetration. The Auto-Update Container Lids Scanner have the potential to revolutionize how we store food, making them essential for modern consumers who prioritize food safety and freshness.

Keywords: Food Safety; Food Waste; Container Lids Scanner; Monitoring System; Expiration Date Tracking

1.0 INTRODUCTION

Malaysians declared that the reasons for food waste are exceeding the expiry date (32.15%), followed by food spoils (30.32%) and food not being fresh (16.93%). Not all of them though, 0.25 percent admitted to completely losing track of the meal (Phooi, Azman, Ismail, Arif Shah, & Koay, 2022). Malaysia was reported producing food waste that can fill seven Olympic-sized swimming pools every day (Meikeng, 2022). During the holy month of Ramadan, the daily number of food waste among Malaysians exceeds 19,228 tonnes, up from 16,720 tonnes outside of it. The Malay Mail Online cited deputy minister Akmal Nasrullah Mohd Nasir as saying: "The amount of solid waste during Ramadan is increasing every year" on April 10, 2023, which is halfway through the fasting month this year (Hasan, 2023).

This loss not only impacts the household budget but also reduces the worth of groceries purchased. The government spends approximately RM210 per month, or RM2,600 per year, to dispose of food waste generated by each Malaysian household (Merican, 2022). Recently, there have been a lot more cases of food poisoning in Malaysia. Malaysia has more than 13.5 million cases of acute diarrhea every year, which is a big public health problem. A very worrying fact is that about 5 percent of all cases involve kids younger than 5 years old. Beyond the immediate health problems, this could have long-term effects on the physical and mental growth of these kids (Cheesman, Shivashekaregowda, & Cock, 2023). Neglect may include inadequate health care, education, supervision, protection from hazards in the environment, and unmet basic needs such as clothing and food. Neglect is the most common form of child abuse (Dulce Gonzalez, Mirabal, & McCall, 2023). Every busy parent has presumably neglected the physical, mental, or medical well-being of their children. A total of 1,530 cases of child neglect have been reported to the Welfare Department (Harun, 2023). It may be difficult to determine whether or not food has expired in a household where both the father and mother are employed. It shows here why our product is targeted to people especially parents who are too busy to keep track of food expiration dates in a world where time is valuable and duties are plentiful.

2.0 OBJECTIVES

Three objectives have been identified to help households manage expired food more effectively. The first objective is to notify consumers who often forget or overlook the expiration date of their stored items, thus preventing the use of expired food. The second objective is to significantly reduce waste disposal and minimize the risk of foodborne illness by enabling accurate food freshness monitoring and promoting better food safety practices. The final objective is to raise awareness by educating households about the importance of monitoring food expiration dates and the potential risks associated with consuming expired products.

3.0 NOVELTY & INVENTIVENESS

The container lid with a digital expiration date countdown is a breakthrough in food storage. Unlike ordinary lids, it comes in three sizes to fit different households, giving people more options. Plus, it has colourful lights around the display to show how fresh the food is, making it easy to see at a glance. It works with all kinds of food, like canned goods and cereals, so it's versatile for any storage needs. With the scanner, it updates expiration dates automatically, enabling accurate tracking of food freshness and minimizing the risk of consuming expired products.

4.0 PRACTICALITY & USEFULNESS

This product innovation is expected to be an initiative for individuals who prioritize food waste reduction in a household. The Auto-Update Container Lids Scanner with Expiration Date Display provides a feature that can accurately update the expiration date and facilitate household members to alert the expiration of the product. Furthermore, the Auto-Update Container Lids Scanner with Expiration Date Display can enhance the safety and quality of foods. It practically helps users avoid consuming spoiled foods as they might become hazardous and harmful to consume.

5.0 CONCLUSION

In conclusion, Auto Update Container Lids Scanner with Expiry Date Display revolutionize food safety by offering a simple way to check food freshness, reducing the risk of food poisoning and waste. Its barcode scanning feature automatically updates the expiry date, increasing convenience and accuracy. Available in three sizes for home use, strategic marketing and partnerships can drive widespread use. These containers address the modern consumer's emphasis on food safety and have the potential to transform food storage practices, supporting sustainability goals by encouraging timely consumption.

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