

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

KM26 Jalan Lendu,

78000 Alor Gajah

Melaka Bandaraya Bersejarah

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# MiiEX'2024

MELAKA INTERNATIONAL INTELLECTUAL EXPOSITION 2024

“EMPOWEREMENT 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 (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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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

COMMITTEE	NAME
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	RIDZUAN ADLI BIN AZIDIN
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JURY SELECTION AND MANAGEMENT	EN NORAZLAN ANUAL
	PN AFZAN NOR BINTI TALIB
	PN NUR HIDAYAH ZAINI
	CIK FARIHA AIZA BINTI RAMLY
	PN NURUL AIN BINTI MUSTAKIM
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	PN ZATUL HIMMAH BINTI ABDUL KARIM
	CIK MUNA KAMEELAH BINTI SAUID
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	SITI RAMIZAH JAMA
	SITI NURSYAHIRA ZAINUDIN
	BUSHRA ABDUL HALIM
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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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<b>SALACHOLESTA (OBAT HERBAL KOLESTROL DARI KULIT SALAK) SEBAGAI UPAYA MENINGKATKAN KESEHATAN DAN PEREKONOMIAN DI KOTA PADANGSIDIMPUAN</b>	<b>1429</b>

## **PawTrack Health-Guard**

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### **Abstract**

Pet owners commonly face various challenges in tracking and monitoring the well-being and safety of their companions. The existing devices are devoid of complete functionality, do not work well with the daily routines of pet owners, are sold by unknown sellers on e-commerce websites, and are costly. Hence, the innovation known as PawTrack Health-Guard is designed to tackle these issues. The product is designed with the aim of developing a tracking and health monitoring device and a mobile application for pet owners that is more user-friendly. PawTrack Health-Guard is integrated with two functionalities for tracking and health monitoring, which represent the novelty of this product. The novelty could also lie in its compact and wearable design. The integration provides pet owners with comprehensive insights into their pet's well-being on a single device. It could also be in the user interface of the device and provide real-time health data, such as the heartbeat and temperature of pets, enabling pet owners to identify any irregularities or potential health issues in their pets. Pet owners can proactively manage their furry companions' well-being without the need for multiple fragmented tools or expensive purchases. The PawTrack Health-Guard can be commercialised among pet lovers, veterinary clinics, and pet research and care centres, where they can experience the function, tracking, and health monitoring of a single device. Hence, the issue of pet loss can be reduced, and the problem related to pet health can be minimised if the symptom can be detected and prevented earlier.

**Keywords: Mobile application, Pet Health Monitoring, Pet Tracking, Technology**

## **1. INTRODUCTION**

Most of the missing pets are never found unless they return home (Aini and Elfarizanis, 2023). Pet owners also sometimes lose their pets due to sickness or diseases that could not be detected or prevented at an earlier stage. Therefore, the use of pet tracking and health monitoring systems has been widely used among pet lovers to overcome such issues (Sivaraman et al., 2021). Nevertheless, an existing system is expensive, lacks some capability, does not integrate well with pet owners' everyday routines, and is marketed by unknown sellers on e-commerce websites (Ming, 2022).

PawTrack Health-Guard is aware that your pet is more than simply a family member that they are a valuable component of your life. For this reason, we developed PawTrack Health Guard, the best option available to pet owners who wish to ensure the safety and wellbeing of their animal friends at all times. Imagine having accurate location tracking for your pet, wherever they may go. You may achieve that with PawTrack Health Guard's innovative GPS tracking technology. Our gadget gives you access to real-time location data so you can always keep in touch, whether your pet is going on an outdoor adventure or just exploring the neighborhood (Harshika et al., 2022).

PawTrack Health Guard serves as your pet's personal health partner in addition to being a tracker. It tracks vital indications like heart rate, temperature and activity level using advanced sensors. With our user-friendly app, receive fast notifications if something appears not right. PawTrack Health-Guard is a lightweight, comfortable device that fits in perfectly with your pet's everyday activities. With PawTrack Health-Guard, you can be sure that your fun kitten or active puppy is secure and healthy.

## **2. OBJECTIVE**

The objective of this project is to design tracking and health monitoring devices for pets with a mobile application that is more user-friendly.

### 3. NOVELTY & INVENTIVENESS

The novelty lies in combining two functionalities into one device. While pet tracking devices are common, integrating health monitoring features like tracking the pet's heartbeat adds a new dimension to the product. This integration provides pet owners with comprehensive insights into their pet's well-being and whereabouts on a single device (Tawalbeh et al., 2019). Figure 1 represent the front, back, tracker And health monitor view of PawTrack Health-Guard.

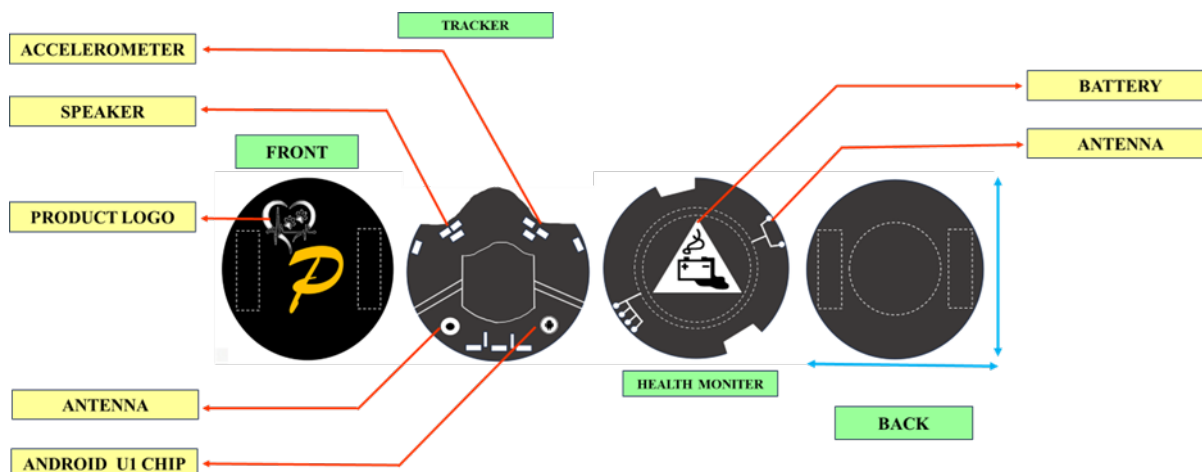


Figure 1: PawTrach Health-Guard Structure

The inventiveness lies in the ability of your device to provide real-time health data. Monitoring a pet's heartbeat in real-time allows pet owners to quickly identify any irregularities or potential health issues, enabling timely intervention and care. Another aspect of inventiveness could be in the user interface of the device. Designing a user-friendly interface that presents both tracking and health data in an easily understandable format enhances the overall user experience and sets your device apart from competitors. If your device is designed to be worn by pets, the novelty could lie in its compact and wearable design. Creating a device that is comfortable for pets to wear while still housing advanced tracking and health monitoring technology requires innovative engineering and design solutions.

#### 4. PRACTICALITY & USEFULNESS

Many pet health tracking apps available today focus primarily on basic features like recording heart rate and body temperature. However, they often lack the depth and customization needed to address the diverse needs of pet owners. Our app aims to bridge this gap by offering a comprehensive platform for tracking all aspects of pet health. With intuitive interfaces and personalized recommendations, our app provides practical assistance to pet owners, ensuring they can proactively manage their furry companions' well-being without the need for multiple fragmented tools or expensive purchases.

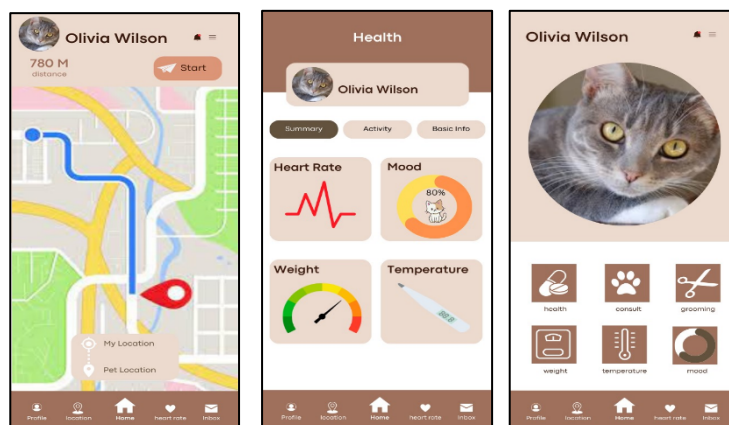


Figure 2: PawTrach Health-Guard Interface

#### 5. CONCLUSION

In conclusion, a pet tracking and health monitoring system has been successfully designed. This integration of this application could promote social awareness. Undoubtedly, the most major issue is that users have fewer options for selecting the most effective and dependable ways. Malaysia currently has the challenge of developing relevant and viable strategies. Additionally, it is a more reliable and efficient system. Integration outcomes have been satisfactorily examined for feasibility, which is necessary for future research.

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