ITEX'23
Revolutionize Fire Safety: A Mobile App for Fire Extinguisher Management
Product Background
Novelty/Originality/Inventiveness
State of the Art/Methods
Benefits/Usefulness/Applicability
Product Image and Product Characteristics
Award
Gold Citrex 2023
Marketability & Commercialisation
Collaboration Partner
AITO
Mahiran Digital
Status of Innovation
Publication
IOT: Mobile Application for Managing Fire Extinguisher
Status: Under Review
Cost Analysis
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Certificate of Award
FEMS Will Connect You With More Than 500 Fire Companies

ITEX'23
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FIRE EXTINGUISHER

Research

Ts. Dr. Wan Isni Sofiah develops mobile application to streamline fire extinguisher maintenance

27 December 2023

PEKAN, 11 December 2023 – While fire extinguishers are well-maintained, the absence of digitized records poses challenges for fire safety contractors in efficiently storing and accessing records. This challenge inspired Ts. Dr. Wan Isni Sofiah Wan Din, a researcher and lecturer at the Faculty of Computing (FK), Universiti Malaysia Pahang Al-Sultan Abdullah (UMPSA), to create a Fire Extinguisher Management System (FEMS) mobile application.

AITO Firework Holding Sdn. Bhd., a leader in the fire safety industry in Malaysia, collaborated on this research initiative. The application's development received assistance from Mohd Mohsin Ismail, a Bachelor of Computer Software Engineering student from FK.

Ts. Dr. Wan Isni Sofiah explained that traditional manual maintenance, relying on paper notes, posed risks of loss or damage, and the potential loss of records when personnel changed.

"Each fire extinguisher cylinder has a lifespan of ten years and requires annual maintenance. Neglecting maintenance could result in faulty extinguishers, posing risks to users. Previously, contractors had to bring forms to the site for maintenance or replacement," she said.

With the introduction of technology, the FEMS mobile application enables contractors and customers to scan fire extinguishers with their smartphones, providing real-time status updates based on fire department specifications.

"The research, initiated in 2019 with website development, continued until 2021. After assessing the stability and customer usage of the FEMS website (fems.my), we introduced the mobile application (mobile apps) FEMS in 2021, available on Google Store and App Store platforms. Continuous improvements have been made to meet customer needs," she added.

The idea originated when the Managing Director of AITO Firework Holding Sdn. Bhd. shared challenges faced by administrative staff waiting for technical employees to return from maintenance sites to hand over fire extinguisher records. The FEMS mobile application simplified data recording, enabling technical workers to record data directly and administrative staff to apply for efies sticker labels promptly.

The FEMS mobile application, utilizing Near Field Communication (NFC), Optical Character Recognition (OCR) scanners, Quick Response (QR) codes, and Radio Frequency Identification (RFID) technology, offers a comprehensive solution for fire extinguisher equipment management.

NFC facilitates communication between the mobile application and the NFC chip inside the fire extinguisher, providing accurate tracking of each extinguisher's location, status, and maintenance history. OCR scanner technology reads Malaysian Fire Department efies sticker labels, simplifying data entry and reducing errors.

QR codes provide quick access to fire extinguisher information, including type, location, and maintenance history. RFID tags track extinguisher movement within facilities, offering real-time information for efficient retrieval during emergencies.

AITO Fireworks Holding Sdn. Bhd. fully funded the development of the FEMS website and mobile application. UMPSA Research Grant (UIC220837 and RDU220204) funded participation in competitions and exhibitions.

Ts. Dr. Wan Isni Sofiah aims to digitize the Malaysian Fire Safety industry, with over two million fire extinguishers nationwide requiring maintenance and recording. The FEMS mobile application aims to simplify contractors' tasks and keep customers informed about the condition of their extinguishers.

The application is currently available for free on Google Store and App Store platforms. Training fees for contractors to use the application are RM500/person.

Ts. Dr. Wan Isni Sofiah plans to promote the application further and provide training to increase awareness among fire safety contractors in Malaysia. The team hopes the FEMS mobile application will become a catalyst in speeding up the maintenance process and recording of fire extinguishers.

He mentioned plans to penetrate the Indonesian market, with a need for further study to align the application with market requirements.

The FEMS mobile application earned recognition, winning a silver medal at the Creation, Innovation, Technology, and Research Exposition (CITREX) 2022 Competition and a gold medal at CITREX 2023. Additionally, it received a gold medal at the International Invention, Innovation, and Technology Exhibition (ITEX) 2023 held at the Kuala Lumpur Convention Center on 11th to 12th May 2023.

By: Nur Hartini Mohd Hatta, Centre for Corporate Communications

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TAGS / KEYWORDS

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