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General

2 UMP Innovation Project named 2021 IIC champions

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PEKAN, 9 June 2022 - Two innovation projects produced by a group of Universiti Malaysia Pahang (UMP) staff, namely Buku Si Comel or Buku Imunisasi Baby Digital (Buku Pink) and the AgroTrack Project took first place and won a gold medal in the International Innovation Competition (IIC) 2022 took place at Temerloh Community College recently.

Led by the Information Technology Manager who is also the Head of Digital Infostructure of the Centre for Information and Communication Technology (PTMK), Ts. Sabri Ahmad Hisham, this project also involved the expertise of two other members, Amir Azhar Baharuddin and Mohd Kamarul Amin Mohd Yusuf, also from PTMK.
They were also named the best presenter of the competition.

The team successfully produced the *End-to-End* (e2e) app for *Buku Si Comel* or *Buku Imunisasi* Baby Digital (Buku Pink) which was developed to achieve the aspiration of digitalisation of immunisation management for the community in this country.

According to Ts. Sabri, the idea to develop this digital app began when he brought his child for periodical immunisation at a nearby health clinic with the need to bring a pink or blue immunisation book at every appointment.

“However, there is a problem if this book is misplaced, forgotten or lost and damaged by natural disasters and so on and it will bring difficulties to parents.

“Furthermore, nowadays, the impact of the COVID-19 outbreak and the need for Year 1 child admission also require immunisation record information.

“This creates difficulties when you want to get the immunisation record book that might have been inaccessible for a long time,” he said.

Hence, they seek to create a mobile app for digital immunisation management.

“This is one of the best steps since telephones are the devices everyone needs nowadays to communicate.

“This complete solution provides two main platforms, namely mobile and web-based apps for administrators (Ministry of Health Malaysia and health clinics) who are granted access.

“This mobile app is downloaded for free from the Play Store and can be used by people,” he said.

In addition, this app will facilitate the arrangements for booking child registration appointments, monitoring child development such as height, weight and other graphs that record the appointment through QR code scanning, automatic reminder notifications, digital generation of immunisation certificates and digital recording of immunisation information.

Manual recording would entail the risk of data loss, no data storage centralisation, difficult access, and planning for analysis could not be done easily.

This complete solution is also ready from the commercialisation point of view by allowing paid subscriptions to private health centres that want to use this service.

The app is recorded on a multi-tenant basis to produce a cloud-based subscription business model with payment gateway integration on a blockchain network.

The app also has the potential for integration with MySejahtera in the future for immunisation management.

The project took a month to complete using blockchain as the main technology that stores data at a high security level.

Meanwhile, data to train the development of machine learning models for prediction and forecasting are from data.gov.my, Kaggle, Google and Facebook.

The analytical visualisation generated from machine learning helps health authorities to monitor, plan, analyse statistically and make decisions.

The mobile app development uses flutter, tools and other assistive software such as Redis (cache management), Potainer (docker management), Cloud AWS Instance, PHP Machine Learning Library (PHPML) and Python.

In the meantime, the AgroTrack project developed under the supervision of Professor Ts. Dr. Makhtar Mokhairi was also awarded the best supervisor.

This product can increase the agricultural product yield using digital blockchain technology, machine learning and the internet of things based on the supply chain ecosystem.

Among the main objectives is to enable the traceability of farm product information from suppliers, farmers, producers or manufacturers, distributors and end users, i.e., customers.

Since records are stored in the ledger blockchain, verifying and tracking information is easy in an environment with a high security level.

Users use the mobile app to scan QR codes for product verifications.

Among other purposes are to control product prices by reducing the involvement of intermediaries (smart contracts), identifying fake or counterfeit products, implementing digital management to take over the manual recording process, generating digital selection certificates (import or export) and improving the management quality.

The product is also integrated with IoT equipment for sensor readings such as temperature, weather, pH, humidity and so on via web services (API web services) from the blockchain platform.

In addition to safe data, it aims to make it easier for farmers to plan and monitor their respective cultivation involving weather factors, droughts, floods and others.

The UMP Vice-Chancellor, Professor Dato’ Ts. Dr. Yuserrie Zainuddin congratulated the UMP team for producing innovations that can be utilised by the community in line with the UMP Strategic Plan 2021-2025 themed ‘Technology for Society’.

He said that the competition is an innovation arena between public and private universities and agencies from the public and private sectors in showcasing the development of new ideas and further

improving the quality of life in the future.

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