Automated Palm Oil Supply Chain System with Traceability

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Engineering • Technology • Creativity

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PRODUCT BACKGROUND

Palm Oil Harvesting

- Palm oil tree is very suitable to grow in Malaysia since Malaysia's climate is equatorial; hot, humid and also rainy throughout the year.
- Palm oil production is vital for the economy of Malaysia.
- However, Palm Oil Industry in Malaysia is still using the traditional Supply Chain Management.
- This product able to increase the efficiency and reliability of palm oil supply chain system.
- Allow consumer to review the information of palm oil manufacturing process from harvesting to packaging.

APPLICABILITY

USEFULNESS

- To improve the efficiency and reliability of current palm oil supply chain management.
- To help the authorities to monitor the process of palm oil production.
- Provide traceability of the palm oil product processes.
- Provide transparency in supply chain management.
- To ensure the quality control of the palm oil product.
- Enable consumer to trace back the whole manufacturing procedure and details of the product.

NOVELTY

- First automated palm oil supply chain system with traceability in Malaysia

COMMERCIAL POTENTIAL

- Palm Oil Industry in Malaysia
- Global Business Company / Country who leading in Palm Oil supply industry

- Global Palm oil Demand (Malaysia contribute 33 percent of global demand on palm oil.)

Potential Market | Market Size

Social Benefits | Market Survey
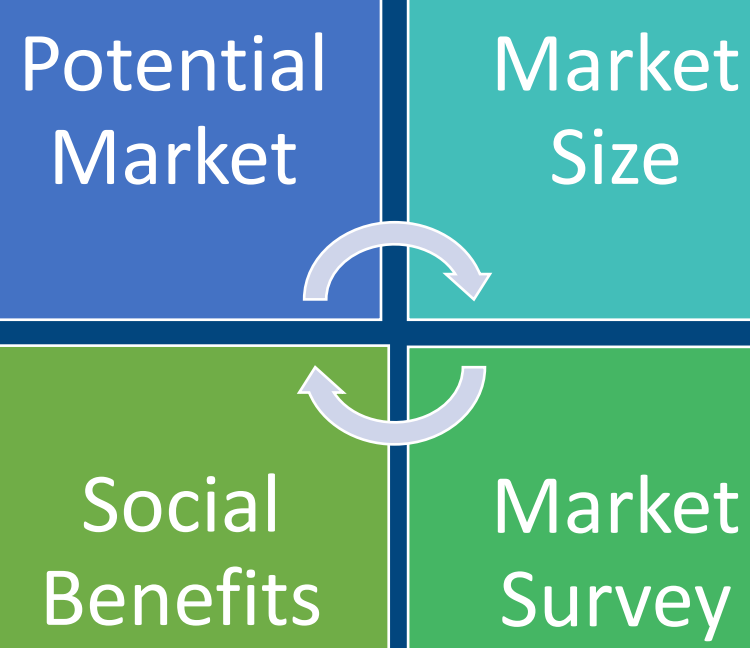
- Increase the faith of customer to the product because they able to trace back the information and the manufacturing procedure which ensure the quality of it.
- Because of the automation of the system, the worker of palm oil industry able to improve productivity.

- Annually, Malaysia earn RM72.30 Billion in this sector in 2020.
- High global demand
- Lack of consumer faith in palm oil market

COLLABORATION

FUSI

IBM CoE

PT Fusi Global Teknologi
(MoA: 10-2-020)

IBM CoE
(Dr Rahman is the Fellow of IBM CoE)

PUBLICATIONS

"Hybrid Communication Network Architecture for Palm Oil Supply Chain Traceability (POSCT) System", Sindh Univ. Res. Jour. (Sci. Ser.) Vol. 50 (3D) 227- 232(2018), Malaysia. (ESCI - Web of Science)
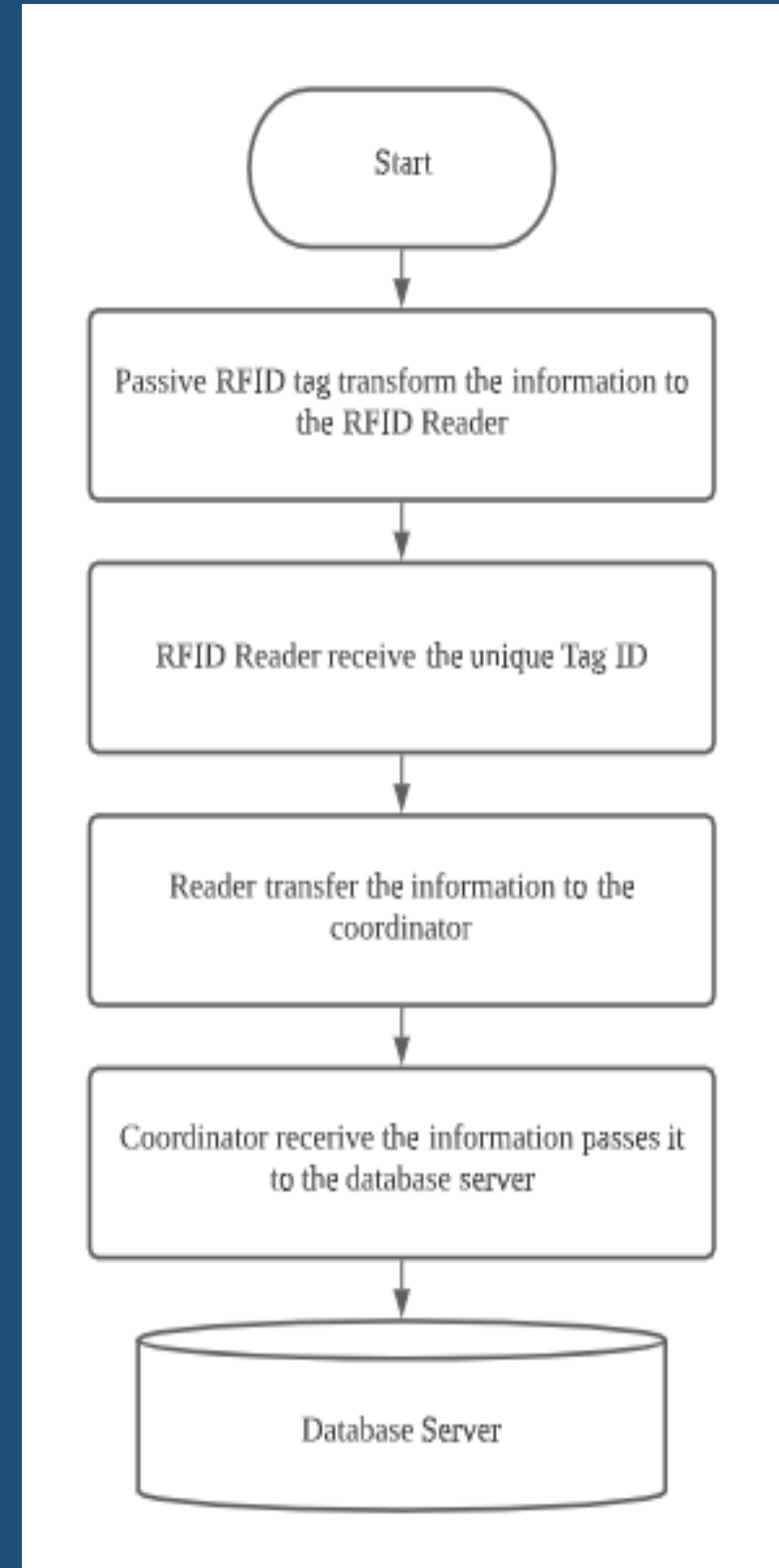
DEVELOPED PRODUCT ARCHITECHTURE
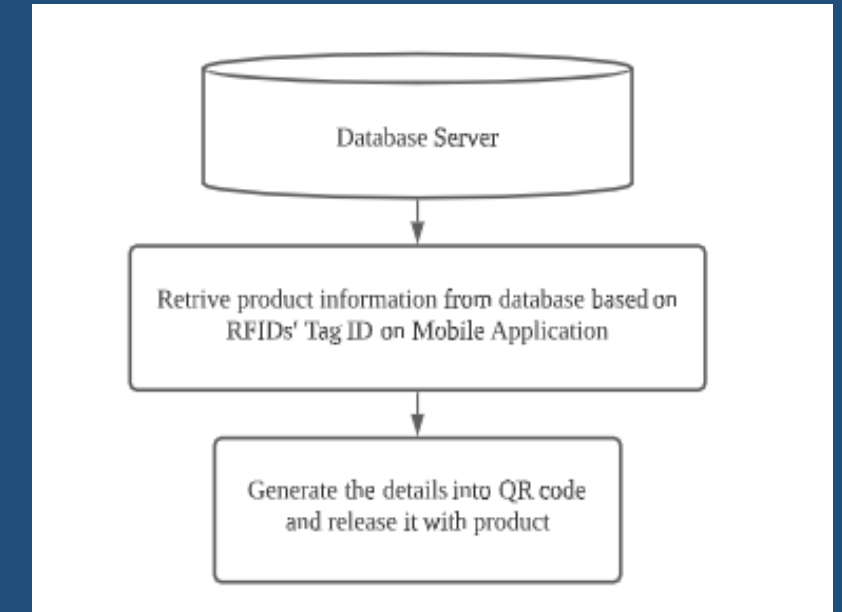

Figure 1: Network Communication Flow
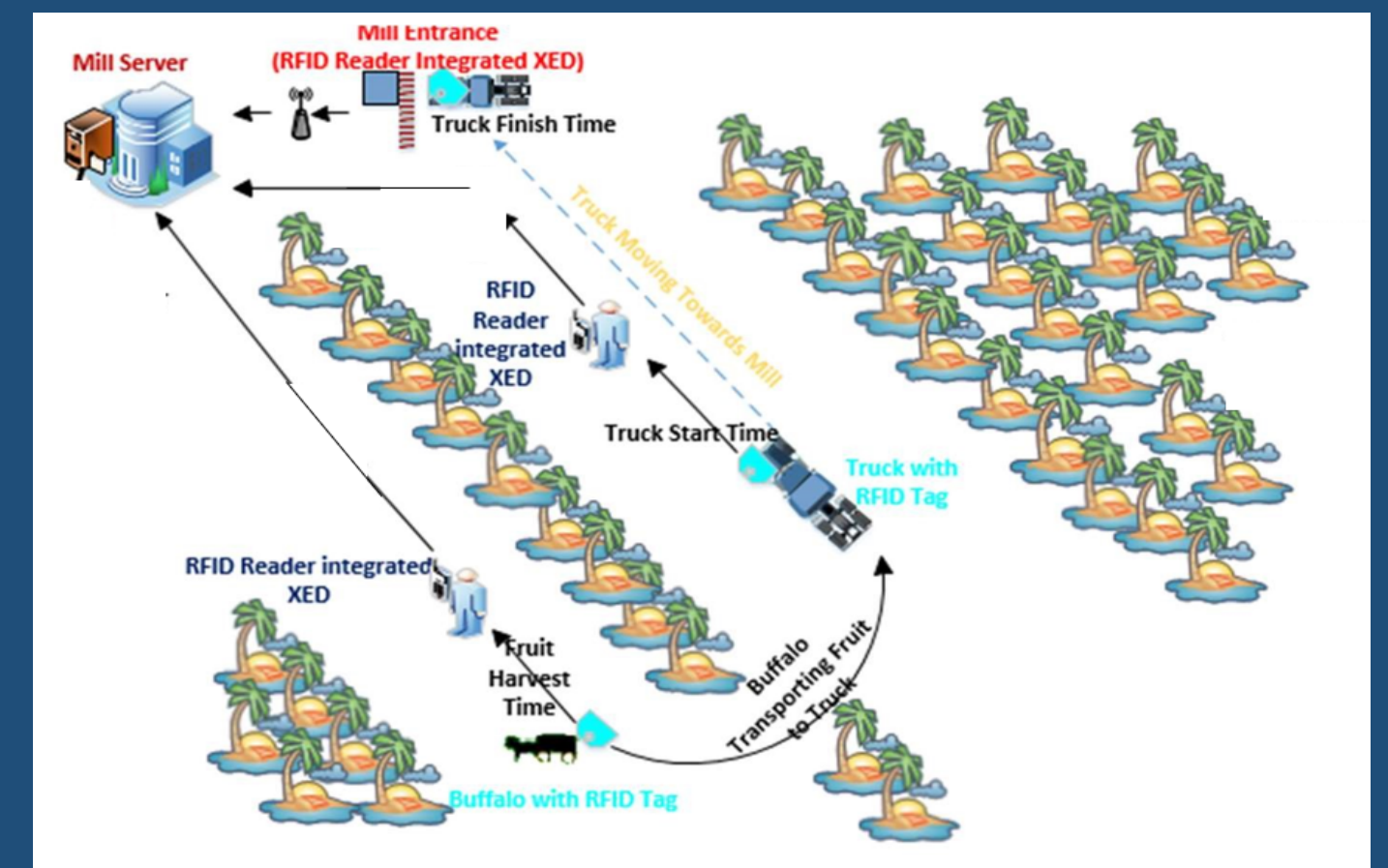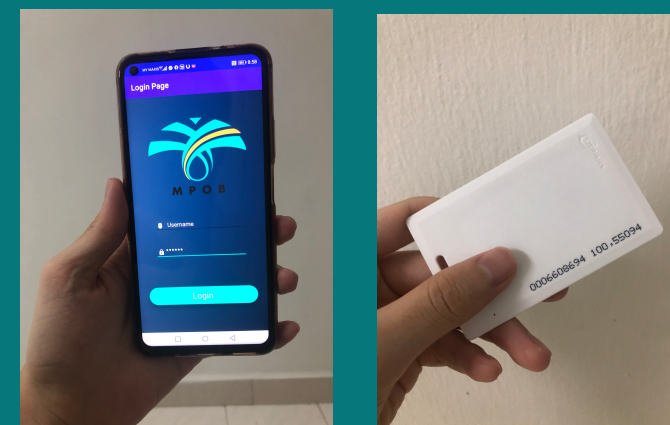

Figure 2: Flow on Mobile Application

Figure 3: Network Scenario

Final Product

Firebase Realtime Database

SYSTEM COMPONENTS

- Passive RFID tag
- Mobile device with developed application
- Firebase (Cloud Database)
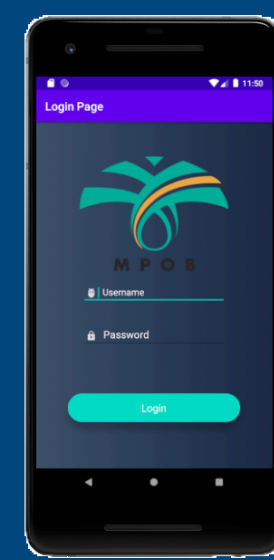
PRODUCT CHARACTERISTICS
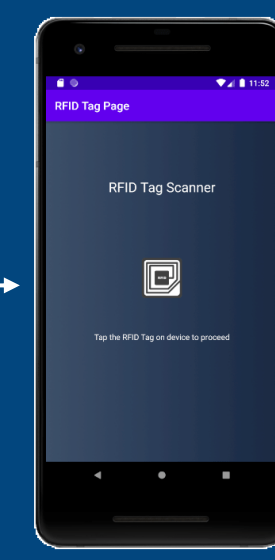

Figure 4: Login Page

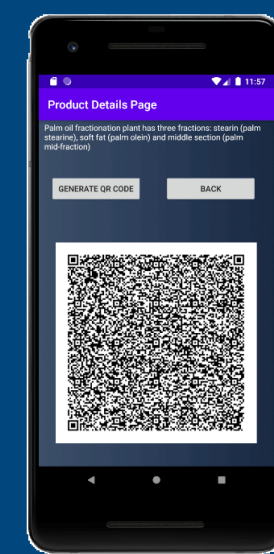Figure 5: Scan RFID Page

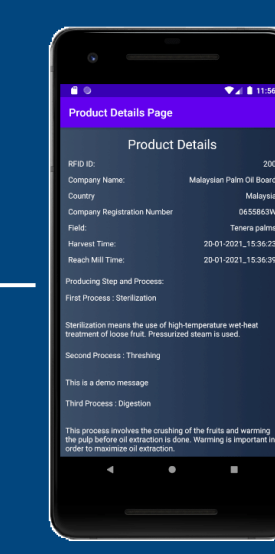Figure 6: RFID tag Status Page

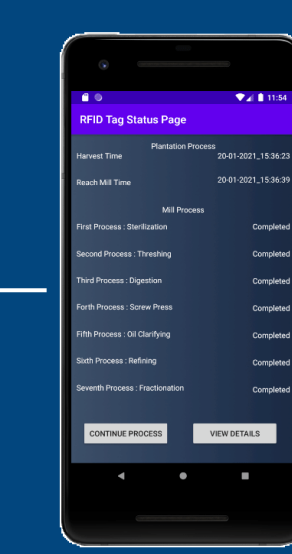Figure 9: QR code Generated

Figure 8: Products' Detail Page

Figure 7: RFID tag Status Page

AWARDS

- **Gold Medal**, FYPro-COM Carnival, 2020/2021

ACKNOWLEDGEMENTS

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