UNIVERSITI TEKNOLOGI MARA

PALM OIL PRODUCTION MONITORING SYSTEM FOR KILANG SAWIT PANJI ALAM USING USABILITY HEURISTICS

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JULY 2026

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ACKNOWLEDGEMENT

A Praise begins with Allah S.W.T., the Most Merciful, the Most Compassionate, for being my guiding light during this effort, providing me with the fortitude, tenacity, and mental clarity required to conquer every challenge and reach this milestone.
Next, I am sincerely wanting to give a special thank you to my supervisor, Fazlin Marini Hussain because of her continuous support and insightful feedback changed how I approach every part of research.
I wish to acknowledge my family, which has never failed to support me and love me no matter when I needed the support the least. When times were hard, they believed in me and set me together under silent pressure giving me a push.
Your presence over the years to my friends is something that cannot be put into words. Thanks to your kindness, patience, and silent force which helped to lighten every day. Joy worked in and out unseen, at the opportune times. No one was compelled to be motivated but there was motivation all the time. The thankfulness is here long after all is lost. Every contribution of assistance was profound during my project.
To conclude, I would like to express a colossal thank to the Universiti Teknologi MARA (UiTM) that could offer me necessary tools, place, and conditions to facilitate my work. I also want to thank those who made any large or small contribution to the result.Full of gratitude, I do appreciate you all so much. I can say nothing that is more than what words can say of your support.

ABSTRACT

Palm oil production monitoring requires accurate records of fresh fruit bunch (FFB) deliveries, weighing activities, production output, and reports to support efficient mill operations. At Kilang Sawit Panji Alam, these activities were previously recorded on paper and later transferred into Microsoft Excel, creating delays, repeated data entry, possible data loss, and risks of human error. This project aimed to develop a web-based Palm Oil Production Monitoring System using Usability Heuristics to improve the monitoring and management of production activities. The objectives were to identify the current business process and its problems, design and develop the proposed system, and evaluate its functionality and usability. The project applied the Adapted Waterfall Model through planning, analysis, design, implementation, testing, and documentation phases. The developed system provides role-based access and supports supplier registration, FFB order and delivery scheduling, weighing records, automatic net-weight calculation, CPO and PK production recording, OER and KER calculation, payment advice, invoice submission, reporting, notifications, and audit logs. Nielsen's 10 Usability Heuristics guided the interface design through clear feedback, consistent navigation, error prevention, and help support. Functional testing was conducted using normal, alternative, and exception scenarios. User evaluation involved 30 respondents and achieved a System Usability Scale score of 86.17 out of 100. Expert evaluation by three experts recorded 51 positive functionality responses out of 54 and 16 positive usability responses out of 18. The findings indicate that the system is functional, easy to learn, and suitable for supporting more organised production monitoring. The system offers a centralised platform that can reduce reliance on manual records, improve data accuracy, and support decision-making at the mill. Future enhancement may include password recovery, low-production alerts, stronger production-time validation, mobile access, and integration with an actual payment gateway.