UNIVERSITI TEKNOLOGI MARA

E-MEDICAL WASTE MANAGEMENT SYSTEM FOR ORKYD DENTAL CLINIC USING USABILITY HEURISTIC

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ABSTRACT

Handling hazardous clinical waste is an essential need of healthcare facilities. Previously, at Orkyd Dental Clinic, waste was recorded manually with paper records, which were susceptible to errors, inefficiency and non-compliance risks. In response to these challenges, this project created a secure, centralized web application, which is based on the Usability Heuristics of Jakob Nielsen and Management Information Systems (MIS) theory to ensure both the usability and the effective information handling. The system was designed with the Adapted Waterfall Model to ensure a structured and systematic development process and fully digitalises the waste management process, automating the Department of Environment (DOE) Consignment Notes and allowing for real-time tracking between staff, administration and contractors. The system was assessed both by expert reviews and usability tests, and it received a valid score of 81.0 on the System Usability Scale (SUS). Feedback revealed the platform was found to save administrative time, eliminate data fragmentation, and maintain compliance while not disrupting daily operations. This project has implemented a sustainable digital framework for medical waste management, integrating user-centred design principles, structured development methodology and regulatory requirements. Beyond its role in streamlining the processes of dental clinics, the Orkyd Dental Clinic Management System offers a scalable model that could be adopted by a broader range of healthcare facilities.