

UNIVERSITI TEKNOLOGI MARA

**MECHANICAL SAMPLES
LABORATORY TESTING
MANAGEMENT SYSTEM FOR
STRIDE USING NIELSEN
HEURISTICS**

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ABSTRACT

This project presents the development of a Mechanical Samples Laboratory Test Management System for STRIDE to eliminate the manual methods used in managing mechanical tests such as Hardness and Material Identification. The existing system was seen as inefficient, prone to human error, and lacking proper centralized access and traceability. The objective of this project was to review the current workflow, design and implement a central web-based system, and evaluate its usability with Nielsen Heuristics. The system was developed using the Adapted Waterfall Model and featured the tools PHP, MySQL, and Laragon. Various roles like lab managers, technicians, directors, and administrators were facilitated by the system. Major features are sample registration, tracking using QR code, allocation of tasks to technicians, submission of test results, and approval of formal reports. Test cases and heuristic principles were employed in testing the system, verifying that the usability factors like consistency, prevention of errors, and control of the user were achieved. Results of expert and user testing verified that the system could streamline workflow efficiency, reduce errors, and enhance task tracking. Although the system can only handle two types of tests and is not entirely mobile responsive, it provides a good base upon which its future development should build. Areas of suggested improvement are adding more test types, enhancing QR code capabilities, and make interface that fully mobile friendly.

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