

ABSTRAK

PT Persada Sawit Makmur (PSMI) Kebun Kayu Agung Selatan merupakan perusahaan perkebunan kelapa sawit yang dalam kegiatan operasionalnya sangat bergantung pada alat berat seperti eskavator, bulldozer, dan dump truk. Pengelolaan jadwal perawatan dan laporan downtime alat berat yang masih dilakukan secara manual menggunakan Microsoft Excel serta pelaporan kerusakan melalui WhatsApp menyebabkan berbagai permasalahan, di antaranya kerusakan alat secara mendadak, sulitnya pemantauan status alat secara real-time, dan rentan terjadinya kesalahan pencatatan data. Penelitian ini bertujuan merancang dan membangun Aplikasi Penjadwalan Perawatan dan Laporan Downtime Alat Berat berbasis web, yang diberi nama SIMBAT-PSMI. Sistem dikembangkan menggunakan metode Waterfall dengan bahasa pemrograman PHP, basis data MySQL, serta framework Bootstrap. Sistem ini mengakomodasi lima peran pengguna, yaitu Admin, Operator, Kepala Mekanik, Mekanik, dan Supervisor. Hasil implementasi menunjukkan bahwa sistem berhasil mengotomatisasi penjadwalan servis berkala berdasarkan akumulasi jam kerja nyata harian (hour meter), menyediakan notifikasi peringatan dini kepada operator saat alat mendekati batas waktu servis, serta memfasilitasi pelaporan dan penanganan downtime secara real-time. Pengujian menggunakan metode black-box testing terhadap seluruh fitur sistem menghasilkan status berhasil pada semua skenario uji. Dengan diterapkannya sistem ini, diharapkan efisiensi operasional dan transparansi pengelolaan alat berat di PT PSMI Kebun Kayu Agung Selatan dapat meningkat secara signifikan.

Kata Kunci: Alat Berat, Downtime, Penjadwalan Perawatan, Preventive Maintenance.

ABSTRACT

PT Persada Sawit Makmur (PSMI) Kebun Kayu Agung Selatan is a palm oil plantation company whose daily operations rely heavily on heavy equipment such as excavators, bulldozers, and dump trucks. The management of maintenance schedules and downtime reports, which was still carried out manually using Microsoft Excel and damage reporting through WhatsApp, caused various problems, including sudden equipment breakdowns, difficulty in monitoring equipment status in real-time, and a high risk of data entry errors. This study aims to design and develop a web-based Heavy Equipment Maintenance Scheduling and Downtime Reporting Application, named SIMBAT-PSMI. The system was developed using the Waterfall method with PHP as the programming language, MySQL as the database, and the Bootstrap framework. The system accommodates five user roles: Admin, Operator, Head Mechanic, Mechanic, and Supervisor. The implementation results show that the system successfully automates periodic service scheduling based on the accumulation of actual daily working hours (hour meter), provides early warning notifications to operators when equipment approaches its service deadline, and facilitates real-time downtime reporting and handling. Black-box testing conducted on all system features yielded a successful status across all test scenarios. With the implementation of this system, it is expected that operational efficiency and transparency in heavy equipment management at PT PSMI Kebun Kayu Agung Selatan will improve significantly.

Keywords: Heavy Equipment, Downtime, Maintenance Scheduling, Preventive Maintenance,