

ABSTRAK

Pencatatan konsumsi Bahan Bakar Minyak (BBM) kendaraan dinas di PT PLN Nusantara Power Unit Pembangkitan (UP) Bukit Asam sebelumnya masih dilakukan secara manual menggunakan buku besar, sehingga menimbulkan risiko kesalahan pencatatan, duplikasi data, serta potensi manipulasi data (*fraud*) akibat tidak adanya dokumentasi bukti fisik yang terstruktur. Penelitian ini bertujuan untuk merancang dan membangun SIDRIVE (Sistem Informasi *Driver*), sebuah aplikasi berbasis *Mobile Android* yang mendigitalisasi proses pendataan dan monitoring operasional armada kendaraan dinas. Pengembangan sistem ini menerapkan metode *Waterfall*, yang mencakup tahap analisis kebutuhan, perancangan diagram UML dan ERD, implementasi pengkodean menggunakan *Framework Flutter* dan *backend Supabase (Database PostgreSQL)*, hingga tahap pengujian. Aplikasi SIDRIVE mengintegrasikan fitur hak akses pengguna melalui sistem *Enroll/Role Management* yang terbagi menjadi tiga peran utama. *Role Admin* berfungsi mengelola data master armada dan mengekspor rekapitulasi laporan ke Format *Excel*. *Role Pemohon* memfasilitasi karyawan dalam mengajukan izin kendaraan luar kota dan mencetak dokumen SPPD secara mandiri. *Role Driver* mewajibkan pengemudi melakukan validasi administratif digital yang ketat melalui fitur unggah tiga bukti foto fisik sekaligus (struk pembelian SPBU, odometer *dashboard*, dan angka liter mesin pengisian) sebelum data transaksi BBM tersimpan. Pengujian fungsionalitas aplikasi menggunakan metode *Black Box Testing* menunjukkan bahwa seluruh fitur utama termasuk transisi dasbor, pelacakan koordinat GPS, unggah bukti visual, dan sinkronisasi data *real-time* berjalan sukses tanpa adanya galat (*Passed*). Dengan demikian, aplikasi SIDRIVE dinyatakan sangat layak diimplementasikan guna meningkatkan transparansi, akurasi, dan efisiensi manajemen Logistik transportasi dinas di perusahaan.

Kata kunci: *Monitoring BBM, Flutter, Supabase.*

ABSTRACT

Recording the fuel consumption of official vehicles at PT PLN Nusantara Power Unit Pembangkitan (UP) Bukit Asam was previously conducted manually using *Logbooks*, which posed risks of recording errors, data duplication, and potential data manipulation (fraud) due to the absence of structured physical evidence. This research aims to *Design* and develop SIDRIVE (Driver InFormation System), an *Android*-based *Mobile* application to digitalize the data collection and monitoring process of official vehicle fleet operations. The *system* development applies the Waterfall method, which encompasses requirements analysis, UML and ERD diagram *Design*, *Implementation/Coding* using the *Flutter Framework* and Supabase *backend* (*PostgreSQL Database*), and the testing phase. The SIDRIVE application integrates *User* access privileges through an *Enroll/Role Management system* divided into three main roles. The Admin Role manages fleet master data and exports report summaries into *Excel* Format. The Applicant Role facilitates employees in applying for out-of-town vehicle permits and independently printing SPPD documents. The Driver Role mandates drivers to conduct strict digital administrative validation via a feature that requires uploading three physical photo proofs simultaneously (gas station receipt, dashboard odometer, and fuel dispenser screen display) before fuel transaction data is saved. Functional testing of the application using the Black Box Testing method indicates that all main features including dashboard transitions, GPS coordinate tracking, visual proof uploads, and real-time data synchronization operated successfully without any errors (*Passed*). Consequently, the SIDRIVE application is highly viable for *Implementation* to enhance transparency, accuracy, and efficiency in the company's official transportation *Logistics Management*.

Keywords : Fuel Monitoring, Flutter, Supabase.