

ABSTRAK

PT Lestari Budi Sentosa merupakan perusahaan jasa konstruksi di Kota Palembang yang masih menyusun Rencana Anggaran Biaya (RAB) secara konvensional menggunakan Microsoft Excel tanpa sistem terintegrasi. Kondisi ini menimbulkan beberapa masalah, antara lain tidak adanya database harga satuan terpusat, tingginya risiko kesalahan perhitungan biaya, proses pengajuan dan persetujuan RAB yang lambat dan tidak terlacak, serta sulitnya mengakses laporan rekap secara cepat. Penelitian ini bertujuan membangun Aplikasi Pengelolaan dan Penyusunan RAB Proyek Konstruksi Berbasis Website pada PT Lestari Budi Sentosa untuk mengintegrasikan seluruh proses tersebut secara digital. Sistem dikembangkan menggunakan metode Waterfall dengan framework Laravel 10, MySQL, Bootstrap 5, PhpSpreadsheet, DomPDF, dan Chart.js, serta menerapkan Role-Based Access Control (RBAC) untuk tiga peran pengguna yaitu Administrator, Estimator, dan Pimpinan. Fitur utama meliputi kalkulasi harga satuan otomatis berdasarkan SK BPKAD Tahun 2025, alur persetujuan RAB digital dengan status Draft → Diajukan → Disetujui/Ditolak disertai notifikasi real-time, ekspor dokumen ke format Excel dan PDF, serta dashboard analitik. Pengujian menggunakan metode Black-box Testing menunjukkan seluruh fitur berjalan sesuai spesifikasi. Hasil penelitian membuktikan aplikasi ini berhasil mengatasi permasalahan pengelolaan RAB, meningkatkan akurasi perhitungan biaya, mempercepat proses persetujuan, serta menghadirkan dokumentasi yang terstruktur dan transparan.

Kata Kunci: Rencana Anggaran Biaya, Proyek Konstruksi, Laravel, Role-Based Access Control, Waterfall, Black-box Testing

ABSTRACT

PT Lestari Budi Sentosa is a construction services company in Palembang City that still prepares its Bill of Quantities (RAB) conventionally using Microsoft Excel without an integrated system. This causes several problems, including the absence of a centralized unit price database, a high risk of cost calculation errors, a slow and untracked RAB submission and approval process, and difficulty accessing recap reports quickly. This study aims to develop a Web-Based Construction Project RAB Management and Preparation Application for PT Lestari Budi Sentosa to digitally integrate these processes. The system was developed using the Waterfall method with the Laravel 10 framework, MySQL, Bootstrap 5, PhpSpreadsheet, DomPDF, and Chart.js, and applies Role-Based Access Control (RBAC) for three user roles: Administrator, Estimator, and Leader. Main features include automatic unit price calculation based on SK BPKAD Year 2025, a digital RAB approval workflow with status tracking from Draft → Submitted → Approved/Rejected accompanied by real-time notifications, document export to Excel and PDF formats, and an analytical dashboard. Testing using the Black-box Testing method showed that all features ran according to specifications. The results show that the application successfully resolved RAB management problems, improved cost calculation accuracy, accelerated the approval process, and proved structured, transparent documentation.

Keywords: Bill of Quantities, Construction Project, Laravel, Role-Based Access Control, Waterfall, Black-box Testing