

## ABSTRAK

### PERANCANGAN DAN IMPLEMENTASI SISTEM INFORMASI PENCATATAN DISTRIBUSI DAN PENJUALAN *SPARE PART* MENGUNAKAN METODE *PROTOTYPING* PADA PT. LAUTAN TEDUH INTERNIAGA

Oleh

**ROBBY HIDAYAT**

PT. Lautan Teduh Interniaga membutuhkan sistem informasi mandiri untuk mengelola inisiatif "Stok Pengadaan Internal" dari berbagai penyedia (multi-supplier), karena sistem prinsipal saat ini tidak mampu mengakomodasi mekanisme *Quality Control* (QC) dan pelacakan persediaan secara spesifik. Penelitian ini bertujuan membangun Sistem Informasi Pencatatan Distribusi dan Penjualan Spare Part berbasis web untuk mengatasi kendala operasional tersebut. Pengembangan sistem perangkat lunak ini menggunakan metode *Prototyping* yang dilaksanakan dalam tiga siklus iterasi. Sistem dibangun dengan *framework* Laravel, mengimplementasikan algoritma antrean persediaan *First In First Out* (FIFO) berbasis *Batch Tracking* untuk menjamin ketertelusuran stok, serta pengamanan transaksi melalui *Role-Based Access Control* (RBAC) dinamis dan *pessimistic locking* pada basis data. Pengujian fungsionalitas menggunakan *Black Box Testing* menunjukkan tingkat keberhasilan 100% pada 24 skenario uji yang mencakup 12 kebutuhan fungsional. Selanjutnya, evaluasi kelayakan operasional melalui *User Acceptance Testing* (UAT) dengan pendekatan *Role-Based Scoping* kepada sembilan responden menghasilkan skor 91% atau berada pada kategori Sangat Baik. Disimpulkan bahwa sistem ini sangat layak diimplementasikan karena terbukti efektif memfasilitasi alur verifikasi kualitas, menjamin ketertelusuran persediaan, dan meminimalisasi risiko kesalahan pencatatan logistik.

Kata Kunci: Sistem Informasi, Distribusi, Prototyping, Algoritma FIFO, *Role-Based Access Control*, *User Acceptance Testing*.

## **ABSTRACT**

### **PERANCANGAN DAN IMPLEMENTASI SISTEM INFORMASI PENCATATAN DISTRIBUSI DAN PENJUALAN *SPARE PART* MENGUNAKAN METODE *PROTOTYPING* PADA PT. LAUTAN TEDUH INTERNIAGA**

**Oleh**

**ROBBY HIDAYAT**

PT. Lautan Teduh Interniaga requires an independent information system to manage the "Internal Procurement Stock" initiative from various providers (multi-suppliers), as the current principal system is unable to accommodate Quality Control (QC) mechanisms and specific inventory tracking. This research aims to develop a web-based Spare Part Distribution and Sales Recording Information System to overcome these operational constraints. The software system development utilizes the Prototyping method, which was implemented in three iteration cycles. The system was built using the Laravel framework, implementing a First In First Out (FIFO) inventory queuing algorithm based on Batch Tracking to ensure stock traceability, along with transaction security through dynamic Role-Based Access Control (RBAC) and pessimistic locking in the database. Functionality testing using Black Box Testing showed a 100% success rate across 24 test scenarios covering 12 functional requirements. Furthermore, the operational feasibility evaluation through User Acceptance Testing (UAT) using a Role-Based Scoping approach on nine respondents yielded a score of 91%, falling into the Very Good category. It is concluded that this system is highly feasible to implement as it has proven effective in facilitating the quality verification workflow, ensuring inventory traceability, and minimizing the risk of logistical recording errors.

Keywords: Information System, Distribution, Prototyping, FIFO Algorithm, Role-Based Access Control, User Acceptance Testing.