

ABSTRAK

IMPLEMENTASI SISTEM PEMILAHAN PAKET OTOMATIS MENGUNAKAN CONVEYOR DAN PEMINDAI SCANNER BERBASIS *INTERNET OF THINGS*

**(2025: xvi + 91 Halaman + 40 Daftar Pustaka + 69 Daftar Gambar + 8 Daftar
Tabel + Lampiran)**

CHINDI OCTAFIANI

062230330723

JURUSAN TEKNIK ELEKTRO

PROGRAM STUDI DIII TEKNIK TELEKOMUNIKASI

POLITEKNIK NEGERI SRIWIJAYA

Implementasi Sistem Pemilahan Paket Otomatis berbasis *Internet of Things* dirancang untuk meningkatkan efisiensi proses penyortiran paket dalam sistem logistik yang semakin kompleks. Permasalahan seperti keterlambatan pengiriman dan kesalahan sortir sering terjadi akibat sistem manual yang masih digunakan oleh banyak perusahaan ekspedisi. Alat ini memanfaatkan barcode scanner, conveyor otomatis, serta mikrokontroler yang terintegrasi dengan platform IoT untuk mengidentifikasi dan mengarahkan paket secara akurat berdasarkan data barcode. Data hasil pemindaian diproses dan dikirim ke server melalui koneksi internet, lalu ditampilkan melalui aplikasi monitoring berbasis web secara real-time. Sistem ini juga dilengkapi dengan sensor proximity, motor DC, kamera, serta LCD sebagai antarmuka pengguna. Keunggulan sistem terletak pada kemampuan sortir otomatis, pengurangan human error, dan kemudahan pemantauan dari jarak jauh. Hasil pengujian menunjukkan bahwa alat bekerja secara stabil dan mampu memilah paket sesuai tujuan dengan tingkat akurasi yang tinggi. Dengan adanya sistem ini, proses distribusi dapat dilakukan dengan lebih cepat, efisien, dan terintegrasi.

Kata kunci: IoT, pemindai barcode, conveyor, penyortiran paket otomatis, monitoring logistik.

ABSTRACT

IMPLEMENTATION OF AN AUTOMATED PACKAGE SORTING SYSTEM USING CONVEYOR AND BARCODE SCANNER BASED ON INTERNET OF THINGS (IoT)

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CHINDI OCTAFIANI

062230330723

DEPARTMENT OF ELECTRICAL ENGINEERING

**DIPLOMA III TELECOMMUNICATION ENGINEERING STUDY
PROGRAM**

SRIWIJAYA STATE POLYTECHNIC

The implementation of an automated package sorting system based on the Internet of Things (IoT) is designed to improve the efficiency of the package sorting process in increasingly complex logistics systems. Issues such as delivery delays and sorting errors often occur due to the continued reliance on manual systems by many logistics companies. This system utilizes a barcode scanner, automated conveyor, and microcontroller integrated with an IoT platform to accurately identify and direct packages based on barcode data. The scanned data is processed and transmitted to a server via an internet connection, then displayed in real time through a web-based monitoring application. The system is also equipped with a proximity sensor, DC motor, camera, and LCD display as the user interface. The advantages of this system lie in its automatic sorting capability, reduced human error, and the ease of remote monitoring. Test results show that the tool operates stably and is capable of sorting packages to their appropriate destinations with high accuracy. This system contributes to a faster, more efficient, and integrated distribution process.

Keywords: *IoT, barcode scanner, conveyor, automated package sorting, logistics monitoring.*