ABSTRACT

Thesis Title	**: Design and Development of Iot-Based Automatic Sewing Machine Using Wi-Fi Network**
Student Name	**: Wilyam Sepriani**
Student Number	**: 22101152620037**
Degree Granted	**: Computer Systems**
Advisor	**: 1. Dr. Retno Devita, S. Kom., M. Kom**
	2. Elmi Rahmawati, S.Kom., M.Kom

The development of automation technology has driven innovation across various sectors, including the garment and sewing industry. Sewing processes that are still performed manually often present challenges such as inconsistent results, limited time efficiency, and dependence on the operator's skill level. This study aims to design and implement an Internet of Things (IoT)-based automatic sewing machine system capable of improving work effectiveness and facilitating remote control of the device. The system was developed using a microcontroller as the main control unit, a network communication module to enable IoT connectivity, and a stepper motor with a driver as the mechanical actuator. Testing was conducted to ensure that each component of the system functioned according to the design and was capable of executing automated commands reliably. The results indicate that the designed automatic sewing machine system operates properly, responds to commands in real time, and performs sewing processes according to programmed instructions. The implementation of this system demonstrates that integrating IoT technology into sewing machines can enhance efficiency, ease of operation, and the potential for further feature development.

Keywords: *Automatic sewing machine, Internet of Things, microcontroller, automation, control system.*

ABSTRAK

Judul Skripsi	**: Rancang Bangun Dan Pengembangan Mesin Jahit Otomatis Berbasis Iot Menggunakan Jaringan Wi-Fi**
Nama	**: Wilyam Sepriani**
No. Bp	**: 22101152620037**
Jurusan	**: Sistem Komputer**
Jenjang Pendidikan	**: Strata 1 (S1)**
Pembimbing	**: 1. Dr. Retno Devita, S. Kom., M. Kom**
	2. Elmi Rahmawati, S.Kom., M.Kom

Perkembangan teknologi otomasi mendorong inovasi pada berbagai bidang, termasuk industri konveksi dan menjahit. Proses menjahit yang masih dilakukan secara manual sering menimbulkan kendala berupa ketidak konsistenan hasil, keterbatasan efisiensi waktu, serta ketergantungan pada keterampilan operator. Penelitian ini bertujuan merancang dan mengimplementasikan sistem mesin jahit otomatis berbasis *Internet of Things* (IoT) yang mampu meningkatkan efektivitas kerja serta mempermudah proses pengendalian alat secara jarak jauh. Sistem dikembangkan menggunakan mikrokontroler sebagai pusat kendali, modul komunikasi jaringan untuk konektivitas IoT, serta motor stepper dan driver sebagai penggerak mekanik. Pengujian dilakukan untuk memastikan setiap bagian sistem berfungsi sesuai rancangan dan mampu menjalankan perintah otomatis dengan stabil. Hasil penelitian menunjukkan bahwa sistem mesin jahit otomatis yang dirancang mampu beroperasi dengan baik, merespons perintah secara real-time, serta menjalankan proses jahit sesuai instruksi program. Implementasi sistem ini membuktikan bahwa integrasi teknologi IoT pada mesin jahit dapat meningkatkan efisiensi, kemudahan pengoperasian, dan potensi pengembangan fitur lanjutan.

Kata kunci : mesin jahit otomatis, *Internet of Things*, mikrokontroler, otomasi, sistem kendali.