

IMPLEMENTASI SISTEM KONTROL KANOPI OTOMATIS BERBASIS IOT

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ABSTRAK

Perkembangan teknologi Internet of Things (IoT) telah mendorong pemanfaatan sistem otomatis pada berbagai bidang, termasuk sistem kanopi. Penelitian ini bertujuan untuk merancang dan mengimplementasikan sistem kontrol kanopi otomatis berbasis IoT menggunakan PCB Controller PY600 AC yang terintegrasi dengan Aplikasi Tuya Smart, modul Wi-Fi Tuya, motor sliding AC, dan limit switch magnet.

Metode penelitian meliputi studi literatur, perancangan sistem, perakitan perangkat keras, pengujian, dan analisis kinerja motor sliding. Pengujian dilakukan terhadap waktu koneksi Wi-Fi, waktu buka dan tutup kanopi, serta pengukuran arus dan daya motor saat beroperasi. Hasil pengujian menunjukkan bahwa rata-rata waktu koneksi Wi-Fi adalah 10 detik, waktu membuka kanopi 10 detik, dan waktu menutup 8 detik. Penggunaan limit switch magnet mampu menghentikan motor secara otomatis ketika kanopi mencapai posisi terbuka maupun tertutup penuh, sehingga meningkatkan keamanan dan keandalan sistem. Berdasarkan hasil penelitian, sistem yang dirancang mampu bekerja dengan baik sesuai fungsi yang diharapkan serta memberikan kemudahan dalam pengoperasian kanopi secara otomatis berbasis IoT.

Kata Kunci: *Internet of Things (IoT), Kanopi Otomatis, PCB Controller PY600 AC, Tuya Smart, Motor Sliding, Limit Switch Magnet.*

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ABSTRAC

The development of Internet of Things (IoT) technology has encouraged the implementation of automated systems in various fields, including canopy systems. This study aims to design and implement an IoT-based automatic canopy control system using the PY600 AC PCB Controller, integrated with the Tuya Smart application, Tuya Wi-Fi module, AC sliding motor, and magnetic limit switches.

The research method consisted of a literature review, system design, hardware assembly, testing, and sliding motor performance analysis. The tests included measuring the Wi-Fi connection time, canopy opening and closing times, as well as the motor's current and power consumption during operation. The test results showed that the average Wi-Fi connection time was 10 seconds, the average canopy opening time was 10 seconds, and the average closing time was 8 seconds. The magnetic limit switches successfully stopped the motor automatically when the canopy reached the fully open or fully closed position, thereby improving the safety and reliability of the system. Based on the research results, the proposed system performed well according to its intended functions and provided a practical solution for automatic IoT-based canopy operation.

Keywords: Internet of Things (IoT), Automatic Canopy, PY600 AC PCB Controller, Tuya Smart, Sliding Motor, Magnetic Limit Switch.