

INTISARI

Sistem monitoring mesin pengering kulit kayumanis merupakan termasuk dalam salah satu teknologi pertanian. Monitoring mesin pengering merupakan suatu sistem untuk memantau kondisi suhu dan berat selama proses pengeringan berlangsung melalui *smartphone*. Sistem monitoring mesin pengering diaplikasikan menggunakan teknologi *Internet of Things* (IoT).

Pembuatan sistem monitoring mesin pengering kulit kayumanis menggunakan teknologi IoT mencakup perakitan komponen menggunakan topologi jaringan star untuk sambungan kabel. Perakitan Arduino Mega2560 yang difungsikan sebagai mikrokontroler utama, dengan 4 buah Arduino Nano sebagai mikrokontroler tambahan untuk pengaplikasian topologi jaringan star, dan ESP8266. Penggunaan Sensor Loadcell sebagai sensor berat, dan sensor DS18B20 sebagai sensor suhu. Pembuatan program dan GUI aplikasi Blynk sederhana pada *smartphone*. Pengujian dilakukan dengan melihat data yang dikirim Arduino ke *cloud* Blynk untuk di tampilkan pada *smartphone*. Menganalisis mesin pengering dari data yang diterima *smartphone* apakah sesuai data dari Arduino. Pengujian *error* data dan *delay* saat pengiriman dan penerimaan data. Pengujian ketepatan sensor untuk mengukur nilai ketepatan sensor dalam membaca kondisi.

Berdasarkan hasil penelitian disimpulkan bahwa sistem monitoring mesin pengering kayu manis menggunakan teknologi IoT memiliki kinerja dan kemampuan yang cukup baik. *Delay* pengiriman dan penerimaan pada tombol button di Blynk memiliki nilai yang jelek berdasarkan standarisasi TIPHON, rata – rata *delay* sebesar 3,3 detik. *Delay* transmisi data dari serial monitor dan Blynk menghasilkan nilai yang jelek berdasarkan standarisasi TIPHON. Rata – rata *delay* yang dihasilkan sebesar 1,5 detik. Monitoring pada platform Blynk memiliki kinerja yang baik karena dapat menampilkan data secara realtime.

Kata kunci: Topologi Jaringan Star, Arduino Mega2560, Arduino Nano, DS18B20, Loadcell, IoT, Blynk

ABSTRACT

The monitoring system for cinnamon bark drying machines is regarded as one of the agricultural technologies. Drying machine monitoring is a system designed to monitor temperature and weight conditions throughout the drying process via smartphone. The drying machine monitoring system is implemented using Internet of Things (IoT) technology.

The development of the cinnamon bark drying machine monitoring system utilizing IoT technology involves component assembly using a star network topology for cable connections. Assembly includes Arduino Mega2560 utilized as the main microcontroller, with 4 Arduino Nano units serving as additional microcontrollers for the implementation of a star network topology, alongside ESP8266. It incorporates the use of Loadcell sensors for weight measurement and DS18B20 sensors for temperature sensing. Additionally, a simple program and GUI application are developed in Blynk for smartphones. Testing is conducted by observing data transmitted from Arduino to the Blynk cloud for display on smartphones. An analysis of the drying machine is performed based on the data received by the smartphone to ascertain its consistency with the data from Arduino. Data error and *delay* testing during data transmission and reception are carried out. Sensor accuracy testing is conducted to measure the precision of sensors in reading conditions.

Based on the research findings, it is concluded that the monitoring system for cinnamon bark drying machines utilizing IoT technology demonstrates satisfactory performance and capabilities. However, the *delay* in sending and receiving signals on the Blynk button indicates poor values according to TIPHON standards, with an average *delay* of 3.3 seconds. Likewise, data transmission *delay* from the serial monitor and Blynk yields poor values based on TIPHON standards, with an average *delay* of 1.5 seconds. Despite these challenges, monitoring on the Blynk platform exhibits good performance as it enables real-time data display.

Keywords: Star Network Topology, Arduino Mega2560, Arduino Nano, DS18B20, Loadcell, IoT, Blynk