

ABSTRAK

IMPLEMENTASI SISTEM MONITORING BERAT HASIL GILINGAN PADA ALAT PENGGIILING GABAH BERBASIS *INTERNET OF THINGS* (2026 : xv + 60 Halaman + 26 Gambar +12 Tabel + 4 Lampiran)

AURELIA MEYLIKA

062330330733

JURUSAN TEKNIK ELEKTRO

PROGRAM STUDI DIII TEKNIK TELEKOMUNIKASI

POLITEKNIK NEGERI SRIWIJAYA

Perkembangan teknologi Internet of Things (IoT) telah mendorong penerapan sistem monitoring yang mampu bekerja secara real-time dan dapat diakses dari jarak jauh melalui jaringan internet. Penelitian ini bertujuan untuk mengimplementasikan sistem monitoring berat hasil gilingan pada alat penggiling gabah berbasis Internet of Things dengan memanfaatkan sensor load cell, modul HX711, mikrokontroler ESP32, dan aplikasi Blynk sebagai media monitoring. Sistem ini dirancang untuk mempermudah proses pemantauan berat hasil gilingan secara otomatis tanpa harus melakukan pengukuran dan pencatatan secara manual.

Pada penelitian ini, sensor load cell digunakan untuk mengukur berat hasil gilingan yang kemudian diolah oleh mikrokontroler ESP32. Data hasil pengukuran selanjutnya dikirim melalui jaringan internet dan ditampilkan pada aplikasi Blynk secara real-time sehingga dapat dipantau menggunakan smartphone. Selain itu, dilakukan pengujian perbandingan antara hasil pengukuran sensor load cell dengan timbangan manual untuk mengetahui tingkat akurasi sistem yang dirancang.

Hasil penelitian menunjukkan bahwa sistem monitoring yang dibuat mampu membaca, mengolah, dan mengirimkan data berat hasil gilingan ke aplikasi Blynk secara real-time dengan baik. Berdasarkan hasil pengujian, rata-rata persentase selisih antara hasil pengukuran load cell dan timbangan manual sebesar 1,20%, sehingga diperoleh tingkat akurasi sistem sebesar 98,80%. Dengan demikian, sistem yang dirancang dinilai layak digunakan sebagai alat monitoring berat hasil gilingan gabah berbasis Internet of Things.

Kata Kunci : *Internet of Things (IoT), Load Cell, ESP32, Blynk, Monitoring Berat, Gabah.*

ABSTRACT

IMPLEMENTATION OF A WEIGHT MONITORING SYSTEM FOR MILLED RICE ON A RICE MILLING MACHINE BASED ON THE INTERNET OF THINGS

(2026 : xv + 60 Pages + 26 Pictures + 12 Tables + 4 Attachments)

AURELIA MEYLIKA

062330330733

ELECTRO ENGINEERING

STUDY PROGRAM TELECOMMUNICATION ENGINEERING

SRIWIJAYA STATE POLYTECHNIC

The development of Internet of Things (IoT) technology has encouraged the implementation of monitoring systems that can operate in real-time and be accessed remotely through the internet. This study aims to implement a weight monitoring system for rice milling output using Internet of Things technology by utilizing a load cell sensor, HX711 module, ESP32 microcontroller, and the Blynk application as a monitoring platform. The system is designed to simplify the monitoring process by automatically measuring and displaying the weight of rice milling output without requiring manual observation and recording.

In this study, the load cell sensor is used to measure the weight of the rice milling output, and the obtained data are processed by the ESP32 microcontroller. The measurement results are then transmitted via the internet and displayed on the Blynk application in real-time, allowing users to monitor the data through a smartphone. Furthermore, a comparison test between the load cell measurements and a conventional manual scale was conducted to determine the accuracy of the developed system.

The results show that the proposed monitoring system is capable of measuring, processing, and transmitting weight data to the Blynk application in real-time. Based on the testing results, the average percentage error between the load cell measurements and the manual scale measurements was 1.20%, resulting in a system accuracy of 98.80%. Therefore, the developed system is considered feasible and reliable for monitoring the weight of rice milling output using Internet of Things technology.

Keywords: *Internet of Things (IoT), Load Cell, ESP32, Blynk, Weight Monitoring, Rice Milling Output.*