Development of A Control System For Measuring The Water Content of Raw Materials for animal Feed Bases On Raspberry Pi Web Server

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ABSTRACT

This study aims to develop a moisture content measurement control system for animal feed raw materials based on a Raspberry Pi web server capable of performing integrated multi-point measurements. The system was developed using Raspberry Pi as the web server-based control center and Arduino Mega2560 as the actuator controller and sensor data reader. The motion mechanism in the system was used to automatically regulate the movement of measurement positions, while moisture measurement was carried out using a resistive soil moisture sensor. The web server interface was designed to support real-time monitoring and control through a local network, including measurement position selection, camera display, connection indicators, G-code indicators, and real-time moisture content results. The research method used was a quantitative experimental approach consisting of system design, implementation, and testing stages. The results showed that the system was successfully implemented and capable of performing serial communication between Raspberry Pi and Arduino, controlling movement toward selected measurement points, and displaying moisture content results directly through the web server. In addition, the system demonstrated good responsiveness under various testing conditions, making the developed system capable of supporting a more effective, structured, and integrated moisture measurement process for animal feed raw materials.

Keyword: *Raspberry Pi, Web Server, Moisture Content, Arduino ATMega2560, Automatic Motion System, Soil Moisture Sensor.*