AUTOMATED CHICKEN FEEDING AND DRINKING SYSTEM WITH TEMPERATURE AND HUMIDITY CONTROL IN AN IOT-BASED CHICKEN COOP POWERED BY SOLAR ENERGY

Andi Umar Syam
Electrical Engineering Study Program, Faculty of Science and Technology
University of Technology Yogyakarta
Jl. Ringroad Utara Jombor Sleman Yogyakarta
E-mail: andisyam295@gmail.com

ABSTRACT

Poultry farming in Indonesia is still predominantly managed through conventional practices, leading to inefficiencies and heightened vulnerability to environmental fluctuations and disease outbreaks. To address these challenges, an Internet of Things (IoT)-based automated system has been designed to control feeding, drinking, temperature, and humidity in chicken coops, utilizing solar energy as a sustainable power source. The system is engineered to enhance operational efficiency and minimize financial losses in traditional poultry farms. At its core, the ESP32 microcontroller serves as the central control unit, orchestrating key functionalities including scheduled feed dispensing, automated water refilling triggered by ultrasonic sensors, and environmental monitoring using the DHT22 sensor, which activates a cooling fan based on real-time temperature and humidity readings. Additionally, a Light Dependent Resistor (LDR) sensor is integrated to automatically switch on the coop lighting at night. All device statuses and operational data are accessible and controllable remotely in real time via the IoT MQTT Panel application on a smartphone. Experimental results demonstrate that the system operates with a 100% success rate following its design specifications.

Keywords: Automated System, Chicken Coop, Internet of Things (IoT), ESP32, Solar Energy, Monitoring, MQTT