DESIGNING A TEMPERATURE AND HUMIDITY CONTROL SYSTEM WITH AUTOMATIC FEEDING IN A CHICKEN COOP BASED ON ARDUINO

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ABSTRACT

This final project report presents the design and development of a smart poultry coop system based on the Internet of Things (IoT) for automation purposes. The Arduino-based temperature and humidity control system is developed to enhance the efficiency of poultry farming by automating environmental management and feed distribution. The system utilizes temperature and humidity sensors (such as DHT11 or DHT22) to continuously monitor the coop's conditions. Sensor data is processed by an Arduino microcontroller, which activates actuators such as fans, heaters, or humidifiers to maintain ideal conditions for the chickens. Additionally, the system includes an automated feeding module connected to the Arduino that controls the timing and quantity of feed dispensed based on configurable parameters, such as the age of the poultry or a predefined schedule. This automation reduces manual intervention, minimizes human error, and boosts productivity. The system incorporates a PIR motion sensor to detect movement and a servo motor to control the feeding mechanism, with an Arduino UNO as the control center. Real-time data is displayed on an LCD screen. This report covers the hardware and software design (including Arduino code), system testing, and result analysis. Test results indicate 100% success across various scenarios, confirming that the system functions reliably and meets its design specifications. It enables automated environmental control and feeding, improves energy efficiency, and enhances animal welfare.

Keywords: IoT, DHT11