DESIGN OF AN AUTOMATED FEEDING AND TEMPERATURE CONTROL SYSTEM FOR LAYER CHICKEN COOPS

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ABSTRACT

Layer poultry farming holds strong economic potential due to high public demand for eggs. Effective management of layer chickens requires close attention to coop temperature and consistent feeding schedules. The integration of automation technology into feeding and temperature regulation systems offers a promising solution to enhance efficiency, maintain consistent production quality, and improve animal welfare. This study aims to design and develop an automated feeding and temperature control system for layer chicken coops, thereby increasing operational efficiency, reducing manual labor, and ensuring stable production. The prototype system consists of two coop miniatures utilizing the ESP32 microcontroller, DHT11 temperature and humidity sensors, servos, lamps, and fans for each unit. The system is also equipped with a feed-level detection feature. The first coop is designated for the growth phase, while the second serves as the production coop. Sensor accuracy testing showed a temperature measurement accuracy of 94.6% for the growth coop and 94.4% for the production coop. Furthermore, the automated actuator control system achieved a 100% success rate in operation, and the feeding system reliably dispensed feed at scheduled intervals: 06:00, 12:00, and 18:00 Western Indonesian Time.

Keywords: Coop Temperature Control, Automated Feeding, Layer Chickens