SMART POULTRY FARMING USING RASPBERRY PI WITH VENTILATION, MULTIPLE SENSORS, A THERMOSTAT, NOTIFICATIONS, A DISPLAY, AND A CAMERA

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ABSTRACT

Poultry farming is an important source of food production, but maintaining suitable environmental conditions for chicks remains challenging. Despite existing solutions, farmers may still encounter temperature instability, poor air quality, and labor-intensive manual monitoring. This study assessed an Internet of Things (IoT)-based smart brooder using a Raspberry Pi, ventilation, multiple sensors, a thermostat, notifications, a display, and a camera. The system was designed to automate environmental monitoring and control, unlike traditional brooders that require frequent manual adjustment and supervision. The study used an experimental prototyping methodology involving the design and construction of a functional prototype to test and validate system performance. The system integrated automated temperature regulation, air-quality monitoring, ventilation control, data logging, and cloud storage. A survey of selected respondents was conducted to assess the prototype's functionality and reliability. The prototype received a general weighted mean of 3.70 for functionality and 3.65 for reliability, both interpreted as "Strongly Agree." These ratings indicated favorable respondent assessments of the system's intended functions and consistency. The findings suggest that the smart poultry brooder can automate temperature control, air-quality monitoring, and ventilation and may reduce the need for manual supervision. The favorable functionality and reliability ratings indicate that evaluators perceived the prototype as meeting its operational requirements. Further objective performance testing is needed to determine whether the system consistently maintains optimal brooding conditions and improves poultry-management outcomes.

RECOMMENDED CITATION

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