An IoT Prototype for Automated Chicken Coop Care

Nguyễn Đăng Linh
Thai Nguyen University of Information and Communication Technology
Thai Nguyen University, Thai Nguyen, Vietnam
student522@ictu.edu.vn

***Abstract*—This thesis constructs an IoT model for automated care in a chicken coop. The report describes an embedded controller, a DHT11 temperature and humidity sensor, cloud data exchange through Firebase, and outputs for ventilation, water, curtains, and feeding. Code excerpts show sensor readings, timed actions, and the updating of status values in the online database. The manuscript presents a physical or simulated model and monitoring views for the selected tasks. It does not supply a controlled farm trial, animal-health outcomes, or measured resource savings. Some source text is difficult to extract from the archived PDF, so this summary uses only the clearly readable hardware, code, and interface descriptions. The result is an educational automation prototype requiring field validation before agricultural use.**

***Index Terms*—chicken coop, IoT, DHT11, Firebase, environmental control**

I. Introduction

Chicken coop conditions such as temperature, humidity, ventilation, water, and feed affect daily care. The thesis explores whether connected sensors and actuators can help monitor and control those tasks. It reviews embedded and IoT concepts and proposes a small model rather than a full farm installation. The purpose is to demonstrate how data collection and control commands can be connected through an online service. The report does not investigate animal outcomes in a controlled trial [1]. Earlier ICTU student work on related designs is included here for context [2], [3], [4], [5]. Related published studies provide context for the subject and methods [6], [7], [8], [9], [10]. These contextual works were selected for this English summary; they are not asserted to appear in the original thesis bibliography.

II. Methods

The author describes an embedded control circuit with DHT11 sensing and components for pump, fan, curtain, and feeding actions. The program reads environmental values and sends temperature, humidity, and device states to Firebase. It also receives control values and uses time information for scheduled behavior. The source includes code and component diagrams. The study does not specify calibrated sensors, replicated farm conditions, or a statistical evaluation of the control strategy [1].

Supervisor: Nguyễn Thành Trung, Thai Nguyen University of Information and Communication Technology (nttrungktmt@ictu.edu.vn).

III. Results

The manuscript contains code for reading temperature and humidity and updating corresponding values in Firebase. It also shows control paths for a pump, fan, curtain, and feeding function. These materials support that the author assembled a connected automation model. They do not establish that the system maintained an optimal coop environment, reduced feed or water consumption, or improved flock health during actual farming [1].

IV. Discussion

The prototype brings several routine coop tasks into one control scheme, but reliable agricultural use would require calibration, safe failure states, and testing under changing weather and animal conditions. The source provides design and code evidence rather than a measured field result. Because parts of the archived text extraction are imperfect, claims are limited to plainly visible components and code. A future trial should validate sensor readings and actuator behavior over sustained operation [1].

V. Conclusion

The thesis documents an IoT chicken-coop care model with environmental sensing, Firebase exchange, and controls for ventilation, water, curtains, and feeding. The readable source supports those implementation elements. It does not demonstrate quantified welfare or resource outcomes in a farm. The work is a student engineering prototype that would need long-term testing and safety review before it could automate actual poultry care [1].

References

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