ABSTRACT

The increasing demand for poultry products has driven the need for automation in egg collection to improve efficiency and reduce human labor. Manual egg collection is time-consuming and prone to errors, leading to inefficiencies in large-scale poultry farms. Automation in the egg collection process, particularly in type Battery sistem*s, can enhance productivity by reducing handling time and minimizing damage to eggs. This study aims to develop a model for egg collection and classification based on weight using the Arduino Mega2560 for an H-Tier type Battery* sistem. *The* sistem *is desained to improve egg collection efficiency by automating the processes of collection, weighing, and classification based on egg weight. It consists of several main components, including conveyors, a lifter, a weighing scale based on the Loadcell HX711 sensor, and the IR FC-51 sensor for detecting and counting eggs. The Arduino Mega2560 microcontroller serves as the main processor that manages data from sensors and controls actuators, while the collected data is visualized through an I2C LCD and a web-based Dashboard for easier monitoring. Testing results show that the* sistem *can classify eggs with an accuracy of 99.8% with error average 0,2% dan deviation 0,1%, while the IR FC-51 sensor achieves an 80% detection success rate. With this* sistem*, the egg collection and classification process become faster, more efficient, and reduces direct human involvement. Additionally, IoT integration enables real-time monitoring of egg weight and count data through the Dashboard. This research contributes to the development of automation technology in poultry farming, particularly in enhancing efficiency and accuracy in managing egg production.*

Keywords*: Arduino Mega2560, Loadcell HX711, IR FC-51 sensor, egg classification, poultry automation.*