

ABSTRACT

The process of sorting eggs based on quality carried out by breeders or sellers is still using the manual method, which is doing a visual observation of the eggs. The observation process is done by irradiating one side of egg in a dark place while the other side of egg is observed by looking through into the egg. Another way that can be done is to check the egg from the outside conditions (shell), namely the state of the skin, shape, and size, and can also be sorted out by weight.

In this final project, the aiming is to design an automatic egg detection system using an ArduinoUno microcontroller-based conveyor that can detect egg quality in good and bad conditions or those that are still proper to consume or not. Detection process uses the BH1750 light intensity sensor while sorting uses two output lines installed on the conveyor system and regulated by a bar driven by a servo motor.

The result of this final project is a prototype for egg sorting. The average accuracy of the BH1750 sensor in reading the light intensity is 98.52% and the average error is 1.48%. The ranges of light intensity for fresh eggs, textured eggs are rather runny but still feasible for consumption and rotten eggs are (13,205 - 16,586) lux, (9,294 - 12.38) lux and (5,872 - 7,630) lux. The system's accuracy for detecting and sorting eggs automatically is 100%.

Keywords : Conveyor, Automatic, Egg, Light Intensity