

ABSTRACT

Duck farming presents a business opportunity that can be fairly wide-ranging due to the high demand for both duck meat and duck eggs. This necessitates the availability of good-quality duck egg hatchlings for successful incubation, rearing, or breeding. An effective egg incubation technique is essential to yield healthy hatchlings, which involves the selection of quality eggs and the utilization of an egg incubator device as a temperature regulator during the incubation process. The recommended temperature range is between 36°C and 38°C. Currently, most conventional egg incubators produced and marketed for livestock businesses lack integration with the Internet of Things (IoT). The IoT can be used to monitor parameters like temperature and light intensity within the egg incubator. Hence, researchers have devised a prototype egg incubator system integrated with the IoT to facilitate temperature and light intensity monitoring for enhanced efficiency. The designed system employs an embedded system based on the Esp8266 platform. Testing the DHT22 sensor yielded an error value of 7.72%, with an accuracy level of 92.28% in temperature measurement. In LDR (Light Dependent Resistor) testing, a dark condition is indicated by an LDR ADC value of 50-51, a dim condition is indicated by an ADC value of 302-661, and a bright condition is indicated by a value of 766-789. Delay testing using Wireshark within a distance range of 1 to 10 meters resulted in an average delay of 150 ms.

Keyword: *Egg Incubator, Internet of Things, LDR, DHT22, MQTT.*