ABSTRACT

In today's modern era, the Internet of Things is growing very fast in various fields, including in the field of chicken farmer. One of them is the use of the Internet of Things in the egg hatching process. The process of hatching eggs is closely related to temperature. Therefore, the temperature must be controlled to get optimal egg hatching results. An Internet of Things-based egg incubator was made using the ESP8266 microcontroller to control the temperature. This egg incubator system is controlled using the Mamdani fuzzy method and is equipped with a 16x2 LCD display, a DHT22 temperature sensor, a cooling fan, a relay, and a DC motor.

In this egg hatching system, the input processed by the microcontroller is the temperature obtained from the DHT22 sensor. Meanwhile, the output of the microcontroller is the fan speed. The fan is used to even out the temperature in the incubator. All important activities in the incubator are communicated to the user wirelessly using the Telegram application.

The results showed that this egg hatching system had worked well. This was indicated by the success rate in incubating eggs. The data shows the success rate obtained was 85%. This system can incubate eggs well because the microcontroller and the Mamdani fuzzy method that works in it can control the temperature in the range of 37.8 C to 38.2 C. The stable temperature is obtained by controlling the fan speed and the temperature produced by the lamp. The QoS test results for sending data from the device to Telegram show the following: an average delay of 0.207 ms and a throughput of 431.55 bps.

Keywords: Mamdani *Fuzzy Logic Control*, ESP8266, DHT22 Sensor, Internet Of Things, Egg Incubator.