ABSTRACT

The field of livestock farming, which is an important commodity in Indonesia, experiences increasing demand for food supply every year, highlighting the necessity for innovations in the livestock sector. The comparison between conventional weighing and IoT-based weighing is a measurement approach. By integrating the weighing devices with IoT systems, it is expected to facilitate farmers in conducting measurements, ensuring that the growth process of chickens is not disturbed.

This research aims to analyze the Quality of Services (QoS) comparison between HTTP and MQTT protocols in an IoT-based system for *monitoring* the weight of broiler chickens. The system consists of input components in the form of weight sensors installed on a platform to measure the pressure of the objects. The data obtained from the sensors is read by the HX711 module and transmitted through two microcontrollers, Node MCU ESP8266 types Amica and Lolin. After the microcontrollers send the weight data using the two protocols, Node-Red receives and forwards the data to the MySQL database, which is then displayed on the Grafana dashboard.

Performance testing on broiler chicken weight monitoring system showed that the use of MQTT and HTTP protocols on amica and Lolin microcontrollers resulted in an average value of MQTT delay of 57,9771 ms, while the HTTP protocol of 15,3002 ms. There is no packet loss in both protocols on both types of microcontrollers. With a total average value of MQTT throughput of 919,900 bps, the HTTP protocol of 1248,719 bps, because the MQTT protocol has a lower throughput value than the HTTP protocol due to smaller packet size, it can reduce network bandwidth usage.

Keywords: HTTP, MQTT, Sensors, Weight, and IoT