ABSTRACT

Hypertension or high blood pressure is a chronic disease that is a global health problem. Hypertension is called the silent killer and is a non-communicable disease that is currently a serious health problem. One of the reasons why hypertension is considered a silent killer is because sufferers often do not have specific health complaints. Therefore, a monitoring tool is needed so that it can help make faster decisions in treating hypertension. This research uses a blood pressure monitor connected to an ESP32 microcontroller as a tool for collecting blood pressure data. The data is sent to the IoT platform using the MQTT protocol. By applying the Sugeno fuzzy logic method to process data based on data taken from the tensimeter as a process for diagnosing the severity of hypertension using Node-RED software to carry out the fuzzyfication process and display the results on the Node-RED dashboard. The test results show that the average error is 3.60% for systolic and 4.50% for diastolic. In this research, the overall end to end test results were obtained according to the dashboard and device. The results of manual fuzzyfication testing with the fuzzyfication results carried out by Node-RED have overall final results that are in agreement. In the Quality of Service testing results, the 109 data taken had an average delay of 623 ms, blood pressure data can be sent almost in real-time, a delay of less than 1 second is still considered quite good.

Keywords: *Hypertension, IoT, Fuzzy Logic*