ABSTRACT

Wireless Sensor Network (WSN) is a way of connecting a device to many wireless devices that is very flexible with a small weight and size. WSN is used to monitor and control an environment with data obtained from a central device.

The use of the protocol in this study using ESP-NOW many to one one-way communication as a communication method between sensor nodes and gateways using the millis function scheduling method on sensor nodes is expected to be a solution for easy scheduling to manage data output from sensor nodes.

The result of this study measures the power consumption of the sender using ESP32S when the sensor reads only heart rate data and heart rate - temperature data. ESP32 Devkit V1 when reading sensor data heart rate, heart rate – temperature, and measuring the power consumption of the gateway when receiving sensor data from the sender. Then compare the output generated from quality of service (QoS) such as throughput, packet loss and packet generation period with the control parameters of the number of nodes that have been determined, namely 2 nodes, 3 nodes, and 4 nodes.

In the QoS (Quality of Service) experiment, it was found that the more sensor nodes used will affect the quality of QoS such as throughput, packet loss, and packet generation period. As well as using ESP32 with a different series and paired with a MAX30102 sensor that has a different power consumption.

Keyword: *ESP-NOW, Wireless Sensor Network(WSN), One-way Communication Many to One, Quality of Service (QoS), ESP32S, ESP32 Devkit V1*