ABSTRACT

The development of the Internet of Things (IoT) technology is growing very rapidly in the current era of globalization and provides many benefits and advances in various aspects of human life, especially in the field of technology because basically IoT technology is a technology that allows objects around us to be connected to the network Internet. To connect various electronic devices, IoT requires a container called a platform or it can also be called an IoT Platform. The Patriot Platform from previous research used in this final project is still in the development stage in several aspects. Patriot Platform currently only supports HTTP protocol which still has some disadvantages, namely the use of bandwidth is quite large, large packet size so it is not reliable to run on systems that have low bandwidth or high latency.

Based on the lack of the HTTP protocol, the implementation of the MQTT server protocol is needed to support the development of IoT Platform. MQTT is a very simple and lightweight communication protocol. The MQTT protocol is also designed for limited-capable devices, low bandwidth, high latency and less reliable networks

After testing, the results of network quality testing with delay parameters obtained by the average MQTT QoS delay of 0.0017s, QoS 1 at 0.0628805s, MQTT QoS 2 at 0.16987s and HTTP at 0.124591s. The packet loss is 0% for MQTT QoS 1, QoS 2 and HTTP while QoS 0 is 13.3333%, the MQTT protocol throughput is lower $\pm$324.7943 Bytes/s compared to the protocol HTTP so that the MQTT protocol can be more reliably running in a state of low bandwidth or high latency compared to the HTTP protocol.

Keywords: MQTT, IOT *Platform*, IOT, *publish*, *subscribe*, *broker*