

Abstract

Web applications are currently developing rapidly from the front-end to the back-end, and this Web technology supports the development of distributed computing technology where this technology allows processes in many machines, and the results are used by many machines. One of the support of Web technology in distributed computing is the development of a Web Service that functions as a data transaction application between machines involved in it. The concept of Web Service appears to bridge the information systems used by each source. Basically, a data communication is a process of sending data from one computer to another for the delivery of the data packet. The architecture used in this thesis is the publish / subscribe and request / reply architecture. In this final project a MQTT and HTTP based temperature and humidity monitoring system has been implemented that is connected to NodeMCU, and a DHT22 temperature sensor that focuses on comparing the performance of the two protocols used. The results of the analysis in this thesis, namely the range of NodeMCU tools and DHT22 sensors work well and get room temperature data. The biggest throughput performance parameter is found in the MQTT protocol with a value of 110000 bits / s. The smallest delay and packet loss performance parameters are obtained in the MQTT protocol with a value of 0,00042% packet loss and 0.0086902 for delay. The performance of air monitoring systems is better using the MQTT protocol compared to HTTP in terms of performance values such as throughput, delay, and packet loss.

Keywords: MQTT, HTTP, NodeMCU, DHT22, Web Service