

ABSTRACT

In this age and time, our society has demanded for a greater efficiency both in work conditions and day-to-day activities. Technology has developed to answer those needs. One common technology that is already used in many homes are electronic devices such as lamps, fans, etcetera. However, the daily use of electronic devices tends to be less efficient and could be wasteful due to user negligence.

Therefore, this research proposes the design of home automation system using wireless sensor networks (WSN). WSN will be used to switches the electronic devices and communicate with the user interface. Communication between the WSN and the user interface are governed through the MQTT protocol.

The result of this research is that the home automation system can both acquire data and also control electronic devices via wireless network using MQTT messaging protocol with an average delay performance of 0.496 seconds. The designed WSN quality is classified as "good" with a maximum wireless network range of 10 meters using the TIPHON standard, where the designed WSN has a 44,786 ms latency, 22,933 ms jitter, and 6.7% packet loss.

Keywords : *Home automation, MQTT, WSN, microcontroller*