

ABSTRACT

Nowadays, Internet of Things or known as IoT is growing up in the era of computing intelligence. Smart home is one of the most popular forms of IoT application, which is a system built in a home system equipped with smart technology that allows various devices at home to communicate with each other. Utilization of IoT technology makes it easy for peoples to monitor and control the devices at home.

In this final project built form IoT application such as smart house. The system built can monitor the state of the house and control electrical devices using the Android application. The system is built using NodeMCU and several sensors such as DHT11 sensors, Light Dependent Resistor (LDR) sensors, and Passive Infrared (PIR) sensors, as well as relays as actuators. The data obtained from the reading of sensors sent via NodeMCU to the internet, will then be displayed on the Android application. The control system will be done through Android applications and will be run by relays that have been connected with lamp and table fan. MQTT Brokers are required as bridge data transfers from NodeMCU to Android application.

After several tests, the network quality testing found that the highest average delay in the monitoring system and control was 313,54 milliseconds, the average value of throughput obtained by compiling 1 active node was 8,992 Kbps on 2 active nodes is 15,614 Kbps, the average value of packet loss obtained by compiling 1 active node was 0,17% on 2 active nodes is 0,25%, the average value of reliability is 96,45% and the average value of availability is 96,60%.

Keywords : *Internet of Things, NodeMCU, DHT11, LDR, PIR, Relay, MQTT Brokers*