

ABSTRACT

Lights are important for home lighting, safe, comfortable and energy efficient atmosphere today needs to be improved in every home. Lights in the house are not only for lighting equipment but also can be an important element to beautify the house to be comfortable and energy efficient. Nowadays many residents of houses do not realize the importance of comfort and energy saving. To overcome this, energy-efficient lamps are needed, namely LED strip lights. LED strip lights have several advantages that make it more energy efficient and color control ability to influence the sense of beauty in the house.

In this final task is created a strip LED light system that can adapt to the environment using Fuzzy Sugeno logic. The system uses *light input* from the LDR sensor, the temperature of the DHT11 sensor, and motion from the PIR sensor. Furthermore, in the process using NodeMCU and *output* results into an automatic lighting system that will turn on if there is a human and die if there is no human. *This smart* LED strip finds an effective way to set the color to determine the temperature and luminance of the light emitted depending on the light level delivered by the sensor. *Smart* LED strips utilize internet of *things* technology that can monitor in real time using a firebase.

Based on the test results that have been *done*, *smart* LED strips have average results of accuracy, response time, and QoS. LDR sensor accuracy is 80.11%, the response time of bright to dim light is 2.6 seconds while the light dims to bright 3 seconds. DHT11 sensor accuracy is 96.94%, response time of cold to hot temperature is 1.35 seconds while hot to cold temperature is 1.62 seconds. Pir sensor accuracy is 96%, response time there is movement that is 0.733 m/s while there is no movement 1,076/sec. QoS parameters obtained from package delivery from NodeMCU with firebase obtained a very high delay of 0.8215048/sec, throughput of 1578 Kbit/sec, and packet loss of 0%.

Kata kunci: *Smart Lighting, Internet of Things, NodeMCU, Firebase, Fuzzy Logic*