

ABSTRACT

The house is one place to mingle with family, a place to exchange ideas between families, and a place to rest from the day's activities that have been carried out. To support comfort in low light situations, optimal, efficient and comfortable lighting is needed. One of the lighting is coming from the lamp. Lights that are quite popular now are LED lights because they are more energy efficient, more efficient and produce a variety of color choices.

A sensor is a device that functions to detect changes in the physical and chemical environment. In this Final Project research LDR sensors and temperature sensors are used. The LDR sensor detects the level of light intensity in a particular room that has been given an algorithm. From the recommended light intensity then information is sent to the microcontroller (NodeMCU) so that it turns on the RGB LED. On the other hand, the temperature sensor (DHT11) provides information regarding the temperature in that quantity to the microcontroller (NodeMCU), with a predetermined algorithm, then information from the temperature sensor that will change the color of the LED. The entire sensor is connected to a network called the WSN (Wireless Sensor Network). Information from each node is sent to the server wirelessly. All information is monitored on the UI dashboard so that users can control the device directly from a computer or mobile web device that is connected to a network.

Using one RGB LED light will produce a variety of colors. Smart lighting systems that are connected to the internet network can control RGB LEDs automatically and manually in all network conditions. The use of WSN on this system can save physical energy on average by 30.88457 Watts or 35 % more energy efficient.

Keywords: LED, RGB, sensor LDR, WSN, DHT11, smart lighting, wireless.