

ABSTRACT

Car is vehicle that is needed by human which the number continues to grow every time. The car is also a valuable item that must be cared for and stored in a proper place. Then a garage is needed to store the car to protect it from harmful things. In designing this system an automatic garage door is made which can be controlled through an android application using the NodeMCU ESP8266 microcontroller, where the garage door is driven by using a servo motor. Beside to automatic garage doors, in this system there is also a fire prevention monitoring that uses the IR flame sensor as a fire detector and will give a warning through a buzzer and notifications on the Android application. In this system, if the application instructs to open, the servo motor will move 110° and at that moment the notification that the door will open will appear on the application, if the application gives a close command, the servo motor will return to the condition of 0°. From the fire monitoring side of the garage, it can operate well if the ir flame sensor can detect fire at a distance of 50 cm in conditions where the fire is at 0° from the sensor, and if the sensor can detect fire at 90° position only within 10 cm , and a notification will appear when the sensor detects a fire. The results of Quality of Service testing the large amount of data and distance do not affect the delay in the range of distances from 1 m to 10 m. In testing throughput the largest value is 12198,544 bit/s and the smallest throughput is 174,902 bit/s. The resulting packet loss has an average of 0% error, so the data transmission in this system has good quality because there is no data loss.

Keywords: Smart Garage, NodeMCU EPS8266, IR Flame Sensor, Android Application