

ABSTRACT

Smart home is a living place with several devices connected to internet network inside, giving a safe, comfort and safety feelings for the owner. One of the smart home implementation is to detect fire. Fire is one of the unwanted event for everyone, it causes damages, loss, and also could take someone's life. Therefore we need a device that able to detect fire inside the smart home so it will prevent and reduce the spreading fires.

This final project is designed to detect fire using DHT11, Flame and PIR sensors connected to NodeMCU. When sensors detected determine fire indications, NodeMCU will send notifications to user in the form pf voice call through module SIM900A so the LED that assumed as water sprayer will automatically turned on and user may monitoring smart home's condition in real-time using android based application. This study has done some testing, such as temperatures comparison, delay voice call testing, QoS testing and device functionality.

Based on the study results and analysis by comparing temperature sensors, the fire detector have an error value 3.6% on brun wood, 4.53% on gas stove and on candle of 3.12%. Delay voice call testing show average delay value of 7400 ms and QoS testing shows average delay value in the amount of 225.26 ms, 0% packet loss and 5032.4 bits/s throughput. On functionality testing, the results shows that avery hardwares and softwares are goes well so the fire detector is feasible to use.

Keywords: Fire, voice call, module sim 900A, nodemcu