ABSTRACT

Home security system using sensors that are connected to a WiFI module to form a "wireless sensor node" are now being widely used to minimize cable installations in homes. But with this wireless installation, what is interesting to research is how reliable this wireless system is in carrying out its notification delivery function, how feasible is the notification delivery delay associated with the need to immediately handle theft symptoms, and how far the sensor node can reach the access point as an illustration of its ability type of house is still worth using in the case without repeater ..

In this Final Project, a home security system using Passive Infra Red (PIR) motion sensor and door magnetic sensor is designed and realized, each of which is equipped with a WiFI module so that each sensor forms a "wireless sensor node" connected to the access point. Raspberry Pi is used as a local server for sending notifications in the form of email to the user's smartphone (home owner) via the network (internet). To find out what is happening at home, users can do surveillance of the area around the house that is installed by a camera via a smartphone.

From the tests carried out, the results of the function test for both sensors and the success of displaying video on a smartphone are 100% of success rate. While the performance in terms of delay (response time) notification of the PIR sensor: 10.53 seconds, and for door magnetic sensors 9.84 seconds, and delay in the appearance of videos on smartphones since clicking the application is 7 seconds. In terms of range, the average distance is 29.5 meters for the PIR sensor node and 28.5 meters for the door magnetic node sensorKeywords: home security, PIR sensor, magnetic door sensor, wireless sensor node, wireless IP camera, video live streaming

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