

ABSTRACT

Currently, the security systems of residential environment that mostly done conventionally, ie by observing (patrol) house-to-house periodically. In fact, often "missed" because the perpetrators are in hidden places that are difficult to reach by security officers, so this method is less effective.

In this final project has created a prototype sensor system in each home based on various type of senso, including light sensor (light dependent resistance / LDR), magnetic switch, heat sensors (infrared), and motion sensors. Those sensors placed at some certain location in the house that are considered vulnerable to security such as doors, windows, hallways, etc. All of these sensors are connected to the Raspberry Pi which is equipped with a communication module WiFi to transfer the results of the sensor through inter-house WiFi ad-hoc network towards security center of residential, so the officer will know the event form audio alarm and a notification on the screen about the identity of the home and point location (doors, windows, etc.). Furthermore, the officer can notify by using public communication to the ownwer of the house where an event occured. In this Final Project realization in the form of a prototype experiment with three raspberries representing three houses of residential. All of three "houses" are fitted with average distance 10 m.

From the test results, the system can function properly as planned. And of a number of experiments obtained in concern of response time performance of 2.89 ms (in average) which neasured start from detecting by sensor until the alarm heard and notification appear on monitor screen.

Keywords: environmental security, ad-hoc network, Raspberry Pi