ABSTRACT

Security is always something that is of concern to everyone. One of the concerns is home security. At this time, modern society is more active outside the home, which makes abandoned homes vulnerable to crime. The rapid development of technology offers convenience in overcoming these problems. To make it easier for users to secure their homes or buildings is by monitoring and remote control that can be done from an Android smartphone.

At present the concept of automation and home security is growing rapidly, the purpose of home automation systems and home security includes ease, energy efficiency, security and comfort. Home automation systems usually operate statically which means that the controller must be reprogrammed if added sensors or actuators. This can interfere with the ease of homeowners in adjusting system functions to their needs because the system must be reprogrammed according to the modifications made.

The development of embedded system technology enables the creation of a controller for automation and home security systems that are dynamic in terms of work. So, if you want to add sensors or actuators, the controller's work can be reconfigured using a desktop application and can be monitored and controlled using a mobile application.

This research is implemented on a homestead model that has been prepared according to the test requirements. The controller board can be configured using desktop application via Bluetooth connection at maximum distance of 4.8 meters without obstacles. The controller board can be connected to a Wi-Fi network at maximum distance of 18 meters in order to send its event logs to the server for monitoring purpose. The results of this study indicate that the controller board can be configured with 100% accuracy and can send its event logs to the server with 100% data transmission accuracy.

Keywords: *embedded system, microcontroler, home automation and security system*