

DESIGNING AND TESTING HOUSE SAFETY SYSTEM BASED ON ARDUINO ATMEGA USING TELEGRAM MESSENGER

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ABSTRACT

A house is a building that is used as a residence for a certain period of time. Apart from housing, the house is also used as a means of protection. This protection includes rain, air temperature, and the safety of the occupants of the house. Many home owners lose their belongings when they leave their house. Given the profession that people live in today, which often requires leaving home to go to work, both in the city and outside the city. Therefore a house safety is needed to protect the house from thieves or from fires and gas leaks when the house is empty. In pre-existing research, the home security system that has been created is only to provide warnings or information to home owners and there is no control. To cover the weaknesses of the home security system in previous studies, researchers will make a home security system tool with multiple sensors and provide control over what happens. This study designed a home security system based on Arduino ATmega using Telegram Messenger, with PIR (Passive Infra Red) Sensor, MQ-2 Gas Sensor, and MQ-2 Smoke Sensor for parameter reading. The PIR sensor is used to detect human movement, so the system will activate an alarm and send a warning / notification to the user via Telegram Messenger. The MQ-2 Gas Sensor serves to detect a gas leak, so the system will cut off the gas flow and send a warning to the user via Telegram Messenger. The MQ-2 Smoke Sensor serves to detect the presence of smoke and the system will activate the DC Fan to release smoke from the room and will send a warning alert to the user via Telegram Messenger. From the tests conducted, it is proven that the system is able to detect and send alerts to the user. For the longest warning sending delay, the fastest time is 8 seconds and the maximum is 13 seconds.

Keywords: Arduino, PIR Sensor, Home Security, Telegram Messenger