

INTISARI

Sistem deteksi kebakaran rumah tinggal merupakan salah satu aspek penting dalam keamanan rumah tinggal. Masyarakat umum menganggap bahwa pemasangan dan penggunaan sistem keamanan kebakaran pada rumah tinggal cukup merepotkan. Dalam penelitian ini, sistem keamanan kebakaran dibuat untuk rumah tinggal. Penelitian di bidang telekomunikasi berbasis *wifi*, yaitu dengan mengembangkan teknologi berbasis nirkabel sebagai sistem komunikasi peringatan bahaya kebakaran dengan 1 *server* sebagai penerima data peringatan.

Penelitian ini menggunakan Arduino UNO sebagai pusat pengolah data. Sistem deteksi kebakaran mempunyai 2 bagian, yaitu *server* dan *client*. Sistem *client* mempunyai 3 sensor sebagai masukan Arduino UNO, yaitu sensor asap, sensor suhu, dan sensor api, untuk mendeteksi kebakaran. Sistem *server* mempunyai indikator berupa LED dan *buzzer* serta waktu deteksi kebakaran. Sistem komunikasi menggunakan jaringan *wireless* melalui frekuensi yang terkoneksi antara *server* dengan *client*.

Sistem deteksi kebakaran berbasis *wifi* berhasil mengkoneksikan sistem *server* dan *client*. Sistem *client* dapat mendeteksi kebakaran sesuai kriteria kebakaran berdasarkan kadar asap pada rumah tinggal di atas 1000ppm, suhu udara di atas 35°C, serta adanya cahaya api yang timbul akibat kebakaran. Sistem *server* mampu merespon indikator kebakaran berdasarkan data yang dikirim oleh sistem *client* dengan jarak komunikasi *wireless* optimal 15 meter.

Kata kunci: Arduino UNO, deteksi kebakaran, sensor asap, sensor api, sensor suhu, *Wireless*.

ABSTRACT

Home fire detection system is one important aspect in home security. The general public assume that the installation and use of the fire security system on a home is quite troublesome. In this research, fire security systems were made for residential houses. Research in the field of wifi-based telecommunication, namely by developing a wireless-based technology as a fire alarm warning communication system with 1 server as a receiver of warning data.

This research uses the Arduino UNO as the central data processing. Fire detection system have 2 parts that is server and client, at the client system have 3 sensors as input the Arduino UNO, namely temperature sensors, smoke sensors and flame sensors, to detect fire. On the server system there are indicators in the form of LEDs and buzzer as well as the time of the fire detection. For communication systems using wireless network via the connected frequency between server and client.

Wifi-based fire detection system to successfully connect to the server and client systems. Client system can detect fire according to criteria based on the fire smoke level at home living above 1000ppm, the air temperature above 35⁰C, as well as the presence of the light of fire, caused by a fire. Server system capable of responding to a fire indicator based on the data sent by the client system with the optimum wireless communication distance of 15 meters.

Keywords: Arduino UNO, fire detection, smoke sensor, flame sensor, temperature sensor, Wireless.

