ABSTRAK

Sistem Rumah Pintar bertujuan memaksimalkan pengawasan, pemantauan, keamanan dan sebagainya. Sistem ini terintegrasi dari telekomunikasi dan sistem pengendali dari mikrokontroller, sehingga tercipta *Internet Of Things.* Pada Penelitian ini dilakukan perancangan sistem *Smart Home,* dengan *sistem client-server* berbasis Raspberry Pi Zero W dengan *user interface* Telegram *Messenger* yang melakukan komunikasi data melalui Wifi. Tahapan perancangan terdiri dari perancangan *server, interface,* serta sistem kendali *Smart Home* nya. Hasil akhir pengujian tersebut dapat disimpulkan Aplikasi **Telegram** *Messenger* sangat cocok untuk pengontrol dan pemantauan *Smart Home* jarak jauh, berdasarkan Jarak yang diukur dari 1,7 km sampai 151 km area beda wilayah didapatkan relay rata-rata 20,66 detik.

Kata Kunci: *Smart Home,* Arduino Nano, Raspberry PI, Arduino IDE Relay, Bot Telegram.

ABSTRACT

The Smart Home System aims to maximize surveillance, monitoring, security and so on. This system is integrated from telecommunications and the control system from the microcontroller, thus creating the Internet of Things. In this research, a Smart Home system was designed, with a client-server system based on the Raspberry Pi Zero W with the Telegram Messenger user interface that communicates data via wireless. The design stage consists of designing servers, interfaces, and the Smart Home control system. The final results of the test can be concluded that the Telegram Messenger application is very suitable for controlling and monitoring Smart Home remotely, based on distances measured from 1.7 km to 151 km in different areas, an average delay of 20.66 seconds is obtained.

Keywords: *Smart Home, Arduino Nano, Raspberry PI, Arduino IDE Relay, Telegram Bot.*