ABSTRACT

At the present time, security is an important thing in the modern era. However, in reality, humans can easily forget these important things, for example, whether the door is locked or not. So, security is needed that can monitor to prevent such incidents that will potentially occur theft. One example of a security monitor that can avoid these incidents by utilizing technology is using the Internet of Things (IoT).

In this final project, the IoT application used is Telegram as a recipient of notifications and photos. Combined with the tools used in this study, namely the ESP32 CAM with two sensors where the magnetic door reed switch sensor will detect the state of the door, the Passive Infrared (PIR) sensor will detect movement near the door, and the ESP32 CAM functions as a microcontroller as well as a 160° camera to take photos in real-time which is then sent to the Telegram application. As well as the Infrared Illuminator Board functions as an infrared light aid for photos at night.

The results of this study using a function test showed that the system worked as planned where Telegram was able to receive notifications and photos. And the results of the PIR sensor detection test can detect at angles and distances, namely <100° and < 7 meters. As well as in the detection using a magnetic door reed switch sensor can detect starting from a distance of 2cm. The light intensity test got a value of 1438.4 lux during the day, i.e. the weather looked cloudy, and at night, the value was 1 lux, which is a candle-like light. The image quality test got an average score of 2.55. Then the average value of delay is obtained at 4.2.

***Keywords**: Doors, ESP32 CAM, Internet of Things, Magnetic Door Reed Switch, PIR Sensor, Telegram*