

ABSTRACT

Ade Rio Bayu Saputra, 50419122

DESIGN AND DEVELOPMENT OF SECURITY MONITORING DEVICE USING PIR SENSOR AND ESP32-CAM MICROCONTROLLER-BASED INTERNET OF THINGS (IOT): IMPLEMENTATION AT SRC IMAH STORE.

Department of Informatics, Directorate of Informatics Bachelor's Program, Gunadarma University, 2023.

Keywords: *Microcontroller, ESP32-CAM, PIR Sensor.*

(xiv + 46 + Appendices)

A store is a place of business that sells various daily necessities, offering a diverse and comprehensive range of products. Typically, the products sold include household items and supplies, such as rice, kitchen spices, bathroom essentials, laundry detergent, and more. This research aims to design and develop a security monitoring device using a Passive Infrared (PIR) sensor and an ESP32-CAM module based on a microcontroller with integration into the Internet of Things (IoT). This device is designed to detect human motion through the PIR sensor and capture images using the ESP32-CAM module when motion is detected. The captured image data is then transmitted via an internet connection to Telegram for storage and remote access. The development of this device involves the design of electronic circuits, programming of the ESP32 microcontroller, and IoT configuration. The PIR sensor is used to detect changes in temperature produced by human body movement, while the ESP32-CAM module is used to capture high-resolution images. Integration with IoT technology allows users to access image data from the device through an application. In testing, this device successfully detected motion with good accuracy and captured images promptly upon motion detection. Image data was successfully transmitted and accessed through the cloud platform. The results of this research indicate that the use of PIR sensors and ESP32-CAM modules with IoT integration has significant potential to enhance security monitoring systems efficiently and make them easily accessible over the internet.

References (2012-2023)