DESIGNING AND DEVELOPING A ROOM SECURITY SYSTEM USING E-KTP BASED ON THE INTERNET OF THINGS (IOT)

Awim Rizal Hadi
Electrical Engineering Study Program, Faculty of Science and Technology
University of Technology Yogyakarta
Jl. Ringroad Utara Jombor, Sleman, Yogyakarta
E-mail: awimrizalh@gmail.com

ABSTRACT

An Internet of Things (IoT)-based room security system is designed to enhance the efficiency and reliability of access control to secure areas. This study utilizes Indonesia's electronic ID card (E-KTP) as an identification medium, read by the RFID MFRC522 module, with the NodeMCU ESP8266 microcontroller serving as the core controller of the entire system. Supporting components include a relay to activate the electronic door lock, an RGB LED to indicate access status, and a buzzer as an alert system. The Blynk application is used as the IoT interface, allowing users to manage RFID card access rights remotely and in real time over the internet. Testing results demonstrate that the system can read RFID cards quickly and accurately, responding in under one second and granting or denying access based on card status. The system successfully delivers a practical, flexible, and remotely monitorable solution for room security.

Keywords: Security System, RFID, NodeMCU, Internet of Things