

ABSTRACT

Room access security is an essential requirement to protect data as well as critical equipment such as servers, networking devices, and storage systems that play a vital role in operations, especially in server rooms. In this final project, a digital *smart door lock* using *Internet of Things (IoT)* technology was designed and implemented with an ESP32 microcontroller and an RFID RC522 module. This system is capable of identifying users through RFID cards, controlling an electric door lock (*solenoid door lock*) via a *relay* module, and providing *real-time* notifications through the Telegram application. The power supply is obtained from a 12V DC adapter which is stepped down to meet the voltage requirements of each component. Test results show that the system can unlock the door only for registered RFID cards, deny unauthorized access, and send status notifications quickly and accurately. Therefore, this system effectively improves security and access management efficiency for server rooms.

Keywords: *Smart door lock, Internet of Things (IoT), ESP32, RFID RC522, Telegram.*