ABSTRACT

This research aims to design and implement an RFID-based automated locker system that enhances security and efficiency in locker management within various public facilities, such as schools, campuses, or workplaces. The system uses RFID cards as keys to lock and unlock lockers, with each user utilizing an e-KTP (electronic ID card) that has a unique identifier (UID) integrated into the system. An Arduino Uno microcontroller serves as the central control unit, managing the interactions between the RFID module, relay, solenoid lock, ultrasonic sensor, buzzer, and LCD screen. The MFRC522 RFID module reads the UID from the user's card. The relay and solenoid lock work together to secure the locker, while the ultrasonic sensor is used to detect items inside the locker. If an item is not detected within the set range, the buzzer sounds as a warning. The LCD displays the system's status to the user. This system is expected to provide an effective and secure solution for locker management and can be adapted for other needs requiring RFID-based access control. The results of this research demonstrate that the system effectively identifies cards, activates the locking mechanism, and provides both visual and auditory feedback to the user.

Kata Kunci: *Access Control, Arduino, Automatic Locker System, RFID, Relay, Security, Solenoid Lock, Ultrasonic Sensor*