IoT-Based Automated Employee Attendance System Using RFID with Web-Based Monitoring

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ABSTRACT

Employee attendance systems play a crucial role in human resource management as they relate to discipline, performance evaluation, and salary calculations. However, the manual attendance system used at CV Pustaka Pelajar still has weaknesses, such as being prone to recording errors, potential data manipulation, and delays in the attendance recapitulation process. This study proposes the design of an Internet of Things (IoT)-based automated employee attendance system using Radio Frequency Identification (RFID) technology with web-based monitoring. The system utilizes RFID cards as employee identification, which are read by the RC522 RFID module and controlled by an ESP32 microcontroller. Attendance data is automatically sent via Wi-Fi to the web system for real-time storage and monitoring, and displayed on the LCD as live information. Test results show that the system is capable of recording employee attendance automatically, accurately, and efficiently without manual processing. Furthermore, the system simplifies monitoring and recapitulation of attendance data through a web dashboard, thereby increasing the efficiency and accuracy of employee attendance management.

Keywords: RFID, ESP32, Internet of Things, Employee Attendance