

Abstract

The attendance system is an important role in managing attendance at an educational institution. The attendance system is used to find out information about a person's attendance, such as time in, time out, attendance status (present, late, permission, or absent), as well as other relevant data. At this time the attendance system at Telkom University already uses a barcode system. However, there are several obstacles such as requiring a device that supports the barcode attendance system and barcode codes that often error when scanned. This causes the attendance process to sometimes still be done manually by calling the student's name, so that human error can occur during the process. Therefore, to overcome these obstacles, the author develops a system that utilizes IoT (Internet of Things) technology in the attendance process. IoT technology is used for the data transmission process to make it faster and minimize errors in transmission. The author also utilizes RFID (Radio Frequency Identification) technology to replace barcode technology in the previous system. In its application, RFID technology is supported by the main components that are already owned by all students and lecturers at Telkom University Surabaya City, namely Student Identity Cards and Employee Cards. In this system, an automatic lock feature is developed in each room which is useful for managing room security. With the use of IoT and RFID technology, this study achieved an accuracy rate of 80% from 15 trials. There were 3 failed attempts, which were attributed to the distance limitation, as the RFID reader can only scan within a range of 1-4 cm. This attendance system also demonstrated an average response time of 2.025 seconds. It can be concluded that the RFID system offers better accuracy and speed in attendance processing compared to the barcode system, with a success rate comparison of 4:5 and a response time difference of 4.175 seconds.

Keywords: Attendance System, RFID, IoT, KTM, Employee Card
