

ABSTRAK

**SISTEM ABSENSI PENGUNJUNG PERPUSTAKAAN MENGGUNAKAN
TEKNOLOGI RADIO FREQUENCY IDENTIFICATION (RFID)
BERBASIS DATA BASE DAN INTERNET OF THINGS (IOT)
(2026: XV + 101 HALAMAN + 62 GAMBAR + 14 TABEL + 7 LAMPIRAN)**

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JURUSAN TEKNIK ELEKTRO

PROGRAM STUDI DI DIII TEKNIK TELEKOMUNIKASI

POLITEKNIK NEGERI SRIWIJAYA

Proses pencatatan kunjungan di perpustakaan Politeknik Negeri Sriwijaya sebagian besar masih menggunakan metode manual yang dinilai kurang efektif, membutuhkan waktu lama, serta rentan terhadap kesalahan manusia (human error) dalam rekapitulasi data. Penelitian Laporan Akhir ini bertujuan untuk merancang, membuat, dan menguji sistem absensi otomatis berbasis teknologi Radio Frequency Identification (RFID) dan Internet of Things (IoT). Sistem ini menggunakan mikrokontroler ESP32 sebagai pusat pengendali utama yang terhubung dengan modul RFID Reader RC522, LCD 16x2 I2C, LED indikator, buzzer, dan push button. Data kehadiran yang dipindai oleh alat akan dikirimkan secara real-time melalui jaringan Wi-Fi ke database MySQL dan ditampilkan pada dashboard website monitoring. Metode penelitian meliputi studi literatur, analisis kebutuhan sistem, perancangan perangkat keras dan lunak, implementasi, serta pengujian sistem secara menyeluruh. Hasil pengujian menunjukkan bahwa sistem mampu membaca kartu RFID dengan sangat cepat dengan rata-rata waktu respon sistem sebesar 0,59 detik dan durasi penempelan kartu rata-rata 1,76 detik. Komponen output berupa LCD, LED, dan buzzer memberikan umpan balik visual dan audio yang valid sesuai dengan status kartu. Sistem ini berhasil mencegah pencatatan ganda (double data) dan mengamankan riwayat absensi ke dalam database secara terstruktur, sehingga pengelola perpustakaan dapat memantau serta mengeksport data laporan kehadiran ke format Excel secara efisien dan akurat.

Kata Kunci: *Absensi, RFID, ESP32, Internet of Things, Website, Database, Otomatisasi.*

ABSTRACT

LIBRARY VISITOR ATTENDANCE SYSTEM USING RADIO FREQUENCY IDENTIFICATION (RFID) TECHNOLOGY BASED ON DATABASE AND INTERNET OF THINGS (IOT)

(2026: XV + 101 HALAMAN + 62 GAMBAR + 14 TABEL + 7 LAMPIRAN)

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DEPARTMENT OF ELECTRICAL ENGINEERING

DIPLOMA III TELECOMMUNICATION ENGINEERING STUDY PROGRAM

SRIWIJAYA STATE POLYTECHNIC

The process of recording visitor attendance in the Politeknik Negeri Sriwijaya library is still largely conducted using manual methods, which are considered ineffective, time-consuming, and prone to human error during data recapitulation. This final report research aims to design, construct, and test an automated attendance system based on Radio Frequency Identification (RFID) and Internet of Things (IoT) technologies. The system utilizes an ESP32 microcontroller as the central controller integrated with an RC522 RFID reader module, 16x2 I2C LCD, LED indicators, a buzzer, and a push button. Attendance data scanned by the device is transmitted in real-time via Wi-Fi to a MySQL database and displayed on a web-based monitoring dashboard. The research methodology includes literature studies, system requirements analysis, hardware and software design, implementation, and comprehensive system testing. The test results indicate that the system can read RFID cards rapidly with an average system response time of 0.59 seconds and an average card tapping duration of 1.76 seconds. The output components, including the LCD, LEDs, and buzzer, provide valid visual and audio feedback matching the card status. The system successfully prevents duplicate data entry and secures attendance logs in a structured database, enabling library administrators to efficiently and accurately monitor and export attendance reports to Excel format.

Keywords: Attendance, RFID, ESP32, Internet of Things, Website, Database, Automation.