

ABSTRAK

PERANCANGAN DAN IMPLEMENTASI SISTEM PRESENSI BERBASIS RFID DAN REKAPITULASI DI GOOGLE SPREADSHEET

(2025:xv+51 Halaman+37Gambar + 1 Tabel + 10 Lampiran)

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Sistem absensi yang efisien dan akurat merupakan kebutuhan penting dalam dunia pendidikan dan kerja. Metode absensi manual yang masih banyak digunakan memiliki berbagai kelemahan, seperti potensi pemalsuan data, keterlambatan rekapitulasi, serta ketidakefisienan dalam pengolahan data. Untuk menjawab tantangan tersebut, laporan akhir ini membahas perancangan dan implementasi sistem absensi otomatis berbasis teknologi Radio Frequency Identification (RFID) yang terintegrasi dengan Google Spreadsheet melalui mikrokontroler ESP32. Sistem ini memungkinkan pencatatan kehadiran secara real-time dan otomatis melalui koneksi WiFi.

Proses perancangan mencakup penggabungan perangkat keras seperti ESP32, RFID reader, LCD I2C, buzzer, LED, adaptor, dan modul stepdown, serta pemrograman menggunakan Arduino IDE dan Google Apps Script untuk menghubungkan data ke Google Sheets. Pengujian menunjukkan bahwa sistem mampu mencatat kehadiran dengan tingkat keberhasilan tinggi pada jarak ≤ 8 meter dari router, serta memberikan umpan balik visual dan suara kepada pengguna. Data absensi tercatat secara otomatis dalam Google Spreadsheet lengkap dengan ID pengguna, nama, waktu absensi, dan status pengiriman.

Kata Kunci: Absensi Otomatis, RFID, ESP32, Google Spreadsheet, IoT, Arduino IDE

ABSTRACT

DESIGN AND IMPLEMENTATION OF RFID-BASED PRESENCE SYSTEM AND RECAPITULATION IN GOOGLE SPREADSHEET

(2025:xv+51 Pages + 37 Images + 1 Tables + 10 Attachments)

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An efficient and accurate attendance system is essential in both educational and professional environments. Traditional manual attendance methods often present several issues, such as data falsification, slow recapitulation processes, and inefficiencies in data management. To address these challenges, this final project presents the design and implementation of an automated attendance system using Radio Frequency Identification (RFID) technology integrated with Google Spreadsheet via the ESP32 microcontroller.

The system enables real-time and automatic attendance logging through WiFi connectivity. The design process combines hardware components such as the ESP32, RFID reader, LCD I2C, buzzer, LED, adaptor, and step-down module, with software development using the Arduino IDE and Google Apps Script to connect data to Google Sheets. Testing results show that the system successfully logs attendance with high reliability at distances of up to 8 meters from the router, while also providing visual and auditory feedback to users. Attendance data, including user ID, name, timestamp, and delivery status, is recorded automatically in Google Spreadsheet.

Keywords: *Automated Attendance, RFID, ESP32, Google Spreadsheet, IoT, Arduino IDE*