

SMART ATTENDENCE SYSTEM USING QR+WIFI IP CHECK

Abstract

The Smart Attendance System using QR + WiFi IP Check is an innovative solution designed to enhance the accuracy and integrity of attendance tracking in educational and organizational settings. By integrating a dual-authentication mechanism—scanning a dynamically generated QR code and validating the user's connection to a designated campus WiFi network—this system aims to eliminate proxy attendance and ensure that individuals are physically present when marking their attendance. The solution addresses the limitations of traditional attendance methods, which often rely on manual entry or single-factor authentication, both of which are susceptible to manipulation.

At its core, the Smart Attendance System utilizes a robust back-end infrastructure and intelligent verification logic to authenticate users in real time. The system automatically crossverifies the user's device IP address against a list of trusted campus network ranges, in addition to requiring a time-sensitive QR scan. This combination ensures higher accountability and restricts remote or off-campus check-ins. Attendance logs are maintained securely in a centralized database, allowing administrators and faculty to review, audit, and generate reports with ease. The system is scalable and adaptable, offering potential for deployment across various institutions and organizations seeking enhanced attendance reliability.

Key features of the project include a role-based access structure for admins, faculty, and students; dynamic QR code generation per session to prevent code reuse; integration with local network validation for physical presence confirmation; and real-time attendance logging. The administrative interface enables session creation, attendance monitoring, and report generation, thereby streamlining the entire attendance management process. These features not only improve operational efficiency but also foster a culture of accountability and digital transformation within the institution.

The Smart Attendance System emphasizing security and scalability, the system safeguards user data through modern authentication techniques and is designed for future enhancement, including integration with biometric or RFID systems if needed. The modular architecture allows institutions to tailor the solution according to their specific network and infrastructure requirements.

Overall, the Smart Attendance System serves as a reliable and cost-effective tool that brings automation, transparency, and trust to attendance processes, meeting the evolving needs of both academic and professional environments.