

Smart Campus Attendance Management System

The main goal of this project is to create a Smart Campus Attendance Management System for a university called EduTrack University (EduTrack). EduTrack has several departments such as Academic Affairs, Faculty Management, and IT Services, which all work together to improve the learning process. The system helps teachers and students record attendance automatically and replaces the old paper-based method with a faster, more reliable digital solution.

The attendance process starts when a teacher begins a new lecture. The teacher opens the EduTrack Attendance System and creates a new session for the class. Once the session is created, the system generates a unique QR code for that specific lecture, along with a session ID to track attendance records. The QR code is displayed on the screen or board in the lecture hall. Students use the EduTrack mobile or web app to scan the QR code. The system checks the student's information, course registration, and location to make sure they are inside the lecture hall before accepting the attendance. If a student tries to scan the code outside the hall or after the time limit, the system rejects the attendance.

In addition to QR code check-in, students can also mark attendance using fingerprint verification. Each student's fingerprint is registered in the system during admission and stored securely in the database. In classrooms equipped with fingerprint devices, students simply place their finger on the scanner at the start of the lecture, and the system automatically confirms their presence. This helps prevent fake attendance and ensures accurate tracking.

After the attendance is recorded, the Faculty Management System (FMS) reviews the data and updates the student's attendance percentage for each course. Teachers can view attendance summaries, download reports, and make manual corrections if needed — for example, when a student is excused for a valid reason. The information is also sent to the Academic Affairs Department, which uses it to monitor overall attendance and student performance.

At the end of the term, the system automatically generates attendance reports for every class and student. The Academic Affairs team can use these reports to identify students with low attendance and send them warning notifications. The system also helps the administration analyze attendance trends across different courses to improve scheduling and student engagement.

Finally, the IT Services Department maintains the system, making sure that all data is safe and the app works smoothly on both mobile and web platforms. All attendance data is stored in a secure central database that can only be accessed by authorized staff.

This system makes attendance faster, more accurate, and fair for everyone. By using both QR codes and fingerprint technology, it ensures that students are physically present in the lecture hall and that all attendance data is stored and reported automatically. The attendance process ends when the teacher closes the session and the data is saved for future academic records.