ATTENDANCE MANAGEMENT SYSTEM USING FACE RECOGNITION

Kavish Shah - 220962398 - Roll No.66

The Attendance Management System using Face Recognition is a mini-project aimed at revolutionizing attendance tracking in educational institutions. Through the integration of cutting-edge facial recognition technology, the system provides real-time, accurate identification of students, automating the attendance marking process.

Powered by SQL, a robust database management system, the project ensures efficient storage and retrieval of student data and attendance records, thereby optimizing administrative tasks. Leveraging Python for development, the system seamlessly integrates essential libraries such as OpenCV for webcam access and image processing, and face_recognition for precise face recognition tasks.

The inclusion of a graphical user interface (GUI) enhances user interaction, allowing administrators to effortlessly access attendance reports and manage student data. By streamlining attendance tracking, reducing manual efforts, and enhancing overall efficiency, this project promises to significantly benefit educational institutions.

Problem Statement

In educational institutions, traditional methods of taking attendance involve manual processes, such as calling out names or using paper-based attendance sheets, which are time-consuming and prone to errors. Additionally, these methods do not provide real-time tracking or reliable authentication of students. Hence,the need for a more efficient and accurate attendance management system is evident.

The proposed Attendance Management System using Face Recognition aims to address these challenges by leveraging facial recognition technology and database management capabilities.

Data Requirements

- **Student Information:** The system should store comprehensive details of students, including their name, roll number, class, and any other relevant information.
- **Attendance Records:** The system must maintain a database of attendance records, including date, time, student ID, and attendance status (present/absent).
- **Face Templates:** For each student, the system needs to store facial templates generated from their images during enrollment. These templates will be used for face recognition during attendance marking.

Functional Requirements

- **Face Detection and Recognition**: Utilize Python libraries (e.g., OpenCV, face_recognition) to detect and recognize faces captured by the webcam.
- **Database Integration**: Utilize SQL to establish and manage the back end database for storing student information and attendance records.
- **Attendance Marking:** Automatically mark students as present or absent based on the recognition results and update the attendance database accordingly.
- **User Interface:** Develop a user-friendly interface to interact with the system, allowing administrators to view attendance reports and manage student information.