National University of Computer and Emerging Sciences

Deliverable #1

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Legendary Sentinel of Attendance

Group Members:

Name	Roll Number	Sub-section
Ahmed Abdullah	22L-7503	A
Ibtehaj Ali	22L-7476	A

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Department of Computer Science
FAST-NU, Lahore, Pakistan

Project Overview

Our project aims to develop a desktop application utilizing C# for an attendance system. The system incorporates face recognition technology to register and track students' attendance efficiently. It integrates with a database to store student information, including name, class, and gender, and utilizes the computer's camera to capture images for identification purposes.

Problem Statement

Traditional attendance systems often rely on manual methods, leading to inefficiencies and inaccuracies in recording attendance data. Additionally, managing large volumes of student information can be cumbersome and prone to errors. There is a need for a more automated and streamlined approach to attendance tracking that minimizes human intervention and ensures accurate data recording.

Problem Solution

Our solution addresses the aforementioned challenges by leveraging face recognition technology to automate the attendance tracking process. By integrating with a database, the application can store and retrieve student information efficiently. The use of the computer's camera allows for seamless identification of students, eliminating the need for manual entry and reducing the risk of errors. This approach offers a more convenient and accurate method for managing attendance records.

Scope

The scope of our project includes developing a desktop application using C# that integrates face recognition technology for attendance tracking. The application will feature functionalities for registering students, capturing and storing their images, and recognizing them during attendance sessions. It will also include database integration for storing student information and attendance records.

Basic Feature (Expected)

- **Student Registration:** Allows users to input student details such as name, class, and gender, and capture their image using the computer's camera for registration.
- **Face Recognition:** Utilizes face recognition algorithms to identify registered students during attendance sessions, ensuring accurate tracking without manual intervention.
- **Database Integration:** Integrates with a database to store and retrieve student information, including name, class, and gender, as well as attendance records for analysis and reporting.

- **Attendance Tracking:** Facilitates real-time tracking of student attendance by automatically marking their presence based on face recognition results.
- **User Interface:** Provides an intuitive user interface for easy navigation and interaction, allowing users to perform tasks such as student registration and attendance tracking effortlessly.
- **Reporting:** Generates reports summarizing attendance data, including details such as student attendance percentages, class-wise attendance summaries, and trends over time, aiding in monitoring and analysis.

Iterations

1. **Initial Setup**: Set up project structure. Integrate necessary libraries (EmguCV, SQLite). Create a basic UI layout**.**

   User Stories: As a user, I want to launch the application and see a basic interface. As a developer, I want to set up the project and integrate required libraries.

2. **Student Registration**: Implement student registration form. Integrate camera functionality for capturing student images. Save student information to the database.

   User Stories: As a user, I want to register new students by entering their details and capturing their images. As a developer, I want to save student information to the database for future reference.

3. **Face Recognition & Attendance Tracking**: Integrate face recognition for student identification. Implement attendance tracking functionality. Connect face recognition results with a database to mark attendance.

   User Stories: As a user, I want the application to recognize registered students' faces during attendance sessions. As a user, I want the system to automatically mark student attendance based on face recognition results. As a developer, I want to connect face recognition results with the database to update attendance records.

Prototype

Access the figma prototype via this link.

Roles

Member	**Role**(s)
Ahmed Abdullah	Lead, UI/UX Designer, Tester
Ibtehaj Ali	Developer, Requirements Engineer, Technical Writer