AttendU

Facial Recognition Attendance System

Project Abstract

AttendU is an intelligent attendance platform that automates classroom check-ins by utilizing **facial recognition** and **geofencing**. The system verifies a student's identity using the **DeepFace** recognition model and confirms that the student is physically present through **IP-based location validation**, ensuring accurate and reliable check-ins.

Students can access an interactive dashboard to view their attendance history, receive **automated notifications** of upcoming classes, and be alerted about class check-ins. Instructors can monitor attendance records **in real-time**, **make modifications to attendance records**, and **export class attendance data** in the form of a CSV file. Additionally, instructors are automatically notified when a student reaches five or more recorded absences, allowing for early intervention. Administrators maintain oversight through **role-based access controls**, which allows them to create, manage, and remove users and classes, while also ensuring **secure** and **efficient** system operation.

All information is protected using **encrypted** data storage, **Firebase Authentication**, and role-based access controls, ensuring proper compliance with institutional privacy and security standards.

Our system integrates **facial recognition**, **IP geofencing verification**, and **smart notification features** to provide a **reliable**, **user-friendly**, and more modern solution for managing university attendance. AttendU streamlines attendance management and enhances the classroom experience for both instructors and students.

Future Improvements

LMS Integration

Geofencing Improvements

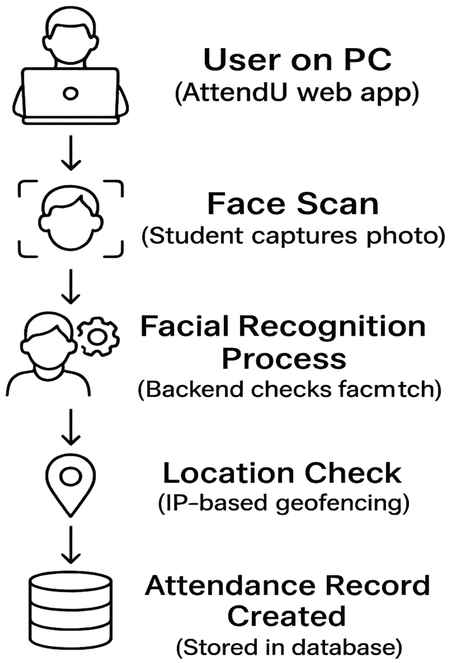
Mobile Application

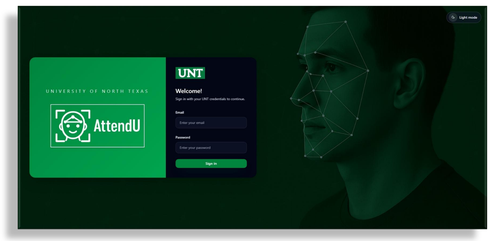
AI Model Optimizations

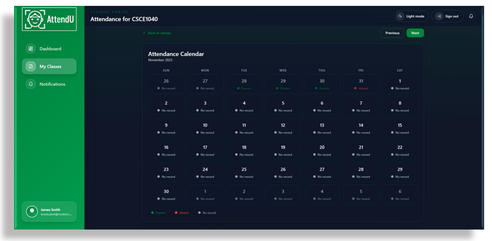
Expanded Attendance Data Analytics

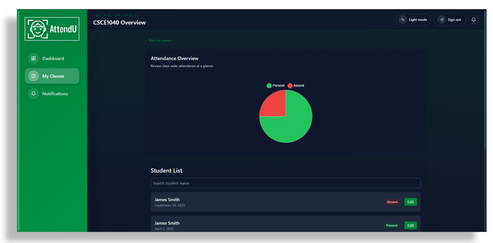
View our project on GitHub:

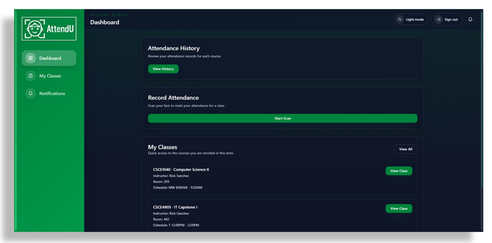
System Design & User Interface











Project Reflections

- Coordinating the planning, documentation, development, and testing phases presented challenges, especially when integrating multiple system components into one cohesive platform.
- Working in parallel across the frontend, backend, database, and facial recognition pipeline required clear technical alignment and consistent communication to ensure each part functioned correctly with the others.
- We learned how structured documentation—such as the Project Charter, SRS, and DDS—guides the SDLC and helps translate technical requirements into organized, implementable designs.
- Throughout development, we expanded our skills in full-stack development, using Python, Flask, JavaScript, React, HTML/CSS, and Firebase to build and connect core system features.
- Use of GitHub for version control and Trello for sprint management strengthened our ability to track changes, manage updates, and maintain a consistent development pipeline.
- Balancing technical development with documentation taught us how to manage a project from initial architecture to deployment, while maintaining quality and traceability.
- As challenges arose, we learned the importance of a problem-solving mindset, adapting our implementation to ensure accurate facial recognition, reliable geofencing validation, and stable backend–frontend integration.

Our Team

Brendon Stepanek

Maximiliano Hernandez

Joshua Odegai

Neel Patel

Zain Jamal

Our Sponsor

Prof. Diana Rabah
Diana.Rabah@unt.edu