

### ***Project Charter***

Project Name: Face Recognition Attendance System with Canvas LMS Integration

Project Sponsor: Professor Diana Rabah

Date: Jan 23, 2025

Revision: 1

Project Manager: Brendon Stepanek

### ***Record of Amendment –***

<b>Date</b>	<b>Version</b>	<b>Change Description</b>	<b>Changed by</b>
January 23 <sup>rd</sup> , 2025	1.0	Initial draft of the project charter created.	Brendon Stepanek
February 16 <sup>th</sup> , 2025	2.0	Declared our use of OpenCV and DeepFace in project scope	Brendon Stepanek

### ***Overview of the Project***

This project aims to design and develop a facial recognition attendance system that integrates with Canvas LMS. It will use AI technology to automate attendance recording and tracking which in turn will eliminate the inefficiencies of the methods typically used today. It will provide real-time, accurate, and reliable updates to the users accompanied by a user-friendly, easy-to-use interface. User and student data will be stored securely with institutional data privacy laws in mind.

### ***Objectives***

The objective of this project is to develop and deploy a face recognition system that will automate the attendance taking process in classrooms. It will seamlessly integrate with Canvas LMS APIs to allow for real-time attendance updates and data synchronization. We expect that the system will offer a minimum accuracy rate of 95% by conducting extensive testing that considers factors like lighting, camera quality, and different facial profiles. We shall ensure that our system complies with all data privacy laws and policies by encrypting and securely handling all data provided to us. To users of our system, we intend to provide user training documentation to assist in the adoption and allow for ease of use from the start.

### ***Scope***

Included in the scope of the project:

- **Canvas LMS integration:** Our facial recognition attendance system will be fully integrated with Canvas LMS to allow for real-time attendance tracking and updates.
- **Existing AI models:** We will be using the existing AI facial recognition models OpenCV and DeepFace.
- **User-friendly Interface:** Our system will offer a clear and intuitive interface that will allow teachers and administrators to easily monitor, record, and manage attendance within their classroom/s.

- **System Testing:** Our system will be thoroughly tested using various methods and conditions like different lighting scenarios, different cameras, and picture quality to ensure accuracy and reliability.
- **Training Documentation:** We will create and provide detailed training documentation and guides to support deployment and assist in the institutions' adoption of our system.
- **Data Storage:** Data security and protection, such as encryption, will be established to comply with current data privacy laws and policies.
- **Platform Compatibility:** Our system is to be designed and developed to support Windows and MacOS computers, and potentially mobile devices such as iOS and Android.
- **Access Control:** Our system will have permission-based access controls for administrators, teachers, and students for data handling and security.
- **Errors and Manual Input:** Our system will allow administrators and teachers to manually change attendance records in case of any inaccuracies or technical issues.
- **Attendance Analytics:** The system will create reports for teachers and administrators to review.

Not included in the scope of the project:

- **New AI Model:** We do not have the intention of developing a new AI model for facial recognition.
- **Integration with other LMS:** Our system will be designed to work only with Canvas and not with other LMS systems like Blackboard, etc.

### *Major Milestones*

- **Project Charter and Initial Planning**  
Deadline: January 26, 2025  
Finalize the project charter and complete the initial project plan draft.
- **Requirements Matrix and Work Breakdown Structure (WBS)**  
Deadline: February 2, 2025  
Submit a refined requirements matrix and the detailed WBS.
- **Software Requirements Specification (SRS) and Complete Project Plan**  
Deadline: February 9, 2025  
Deliver the finalized SRS document and the completed project plan.
- **Research and AI Model Selection**  
Deadline: February 15<sup>th</sup>, 2025  
Research and choose the AI facial recognition model that best satisfies our system's needs.
- **End of Sprint 0 Submission**  
Deadline: February 16, 2025  
Submit all Sprint 0 deliverables, including peer evaluations and the activity log.
- **System Design**  
Deadline: February 28<sup>th</sup>, 2025  
Develop the system architecture, database design, API integration plans, and begin interface wireframes.
- **Design Documentation**  
Deadline: March 2, 2025 (Design Doc 1)  
Deadline: March 9, 2025 (Design Doc 2)  
Submit both parts of the design documentation.
- **Development and Initial Testing (Sprint 1 Completion)**  
Deadline: March 23, 2025  
Complete development and initial testing, submit Sprint 1 deliverables, and conduct peer evaluations.
- **Testing and Final Development (Sprint 2 Completion)**  
Deadline: April 13, 2025  
Finalize the system with comprehensive testing and submit Sprint 2 deliverables.

- **Group Project Presentation and Submission**

Deadline: April 20, 2025

Present the complete project (Sprints 0, 1, 2) and submit the final prototype.

*\*These milestones follows the progress to be completed this semester and uses from of the dates provided in the syllabus calendar, and with the addition of some of our own team's deadlines.*

#### ***Major Deliverables***

- **A Fully Functional Face Recognition Attendance System:** A functioning system that automates the attendance recording process using AI facial recognition. The system will be fully integrated with Canvas to provide real-time attendance tracking. It will also operate on Window and MacOS devices.
- **User Interface:** Our system will have a user-friendly interface for teachers and administrators to navigate to manage attendance records and generate and view reports.
- **System Documentation:** Instructions on how to use our system will be created and provided to teachers and administrators. Technical documentation for developers and administrators will also be created showing the system architecture, integrations, and other technical details.

#### ***Assumptions***

We expect the Canvas API to remain accessible and functional during the development and deployment phases of our project.

We assume that the existing AI facial recognition models will offer the accuracy and performance we expect without the need for any additional development.

It will be assumed that students are to have valid, clear profile photos in Canvas or can provide photo IDs that can be scanned for use in the system.

It is assumed that classrooms will be equipped with cameras and proper lighting for our system to work properly.

#### ***Constraints***

All team members are students with school and work schedules. Any collaboration will be limited to available hours outside of those responsibilities.

Our system will rely on classrooms already being equipped with hardware and proper lighting.

Our system will rely on the availability and stability of the Canvas API. Any updates or outages will impact our system's functionality and performance.

Our team only has access to existing, free and open-source, online resources like AI models, development tools, and the Canvas API. There is currently no budget for any software or hardware that may be needed.

#### ***Business Need or Opportunity (Benefits)***

We decided to take on the project of developing a facial recognition attendance system because of the current inefficiencies in attendance-taking methods. It is not uncommon at UNT to have a 50-minute class with 80+ students in an auditorium, manual attendance taking are time consuming and at times, disruptive. By implementing this system, that process becomes automated and removes the burden of attendance taking, therefore enhancing the

overall classroom experience for students and teachers.			
<b>Preliminary Cost for the Project (Budget)</b>			
<p><i>If applicable,</i></p> <p>Our research estimates that it would roughly cost \$150 to host and manage the system's backend and facial recognition processing for the development and testing period. Amazon's Rekognition offers a free tier that allows 1,000 images per month, and it is an additional \$0.001 per image after that. Storage for data and logs may cost an additional \$50-\$100 a month.</p> <p>The cost of the project will be controlled through regular budget reviews and monitoring of all resource utilization. Will we track any and all expenses against the existing, approved budget and make sure that spending stays within that range. If there are any unexpected costs, budget adjustments will require approval from the project sponsor. The team will also conduct periodic meetings share cost reports with stakeholders.</p>			
<b>Project Risks</b>			
<p>The accuracy of our facial recognition system could be affected by factors like poor lighting or cameras with poor quality.</p> <p>The data we intend to store could create privacy concerns.</p> <p>If Canvas' API experiences any downtime or updates that disrupts its own functionality, it would have an impact on our system's functionality.</p> <p>Team members availability could have prevent us from hitting projects deadlines.</p>			
<b>Project Charter Acceptance</b>			
<b>Name</b>	<b>Title</b>	<b>Signature</b>	<b>Date</b>
Brendon Stepanek	Project Manager		1-26-2025
Maximiliano Hernandez	Developer		1-26-2025
Zain Jamal	Developer		1-26-2025
Joshua Odegai	Developer		1-26-2025
Diana Rabah	Sponsor		
<b>Project Stakeholders</b>			
<b>Function</b>	<b>Name</b>	<b>Role</b>	
Project Manager	Brendon Stepanek	Leads the project	
Sponsor	Diana Rabah	Project sponsor	
Developer	Zain Jamal		
Developer	Maximiliano Hernandez	Assists in the development of the project	
Developer	Joshua Odegai		
<b>Approval</b>			
Project Leader:	Brendon Stepanek	Date: 1-23-2025	
Sponsor:		Date:	