Document Control

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1.0	*2/4/2025*	*Added document information, document approvals, project team*

Document Approvals

Role	Name	Signature	Date
Project Sponsor *(faculty or external sponsor)*	Diana Rabah		
Project Review Group *(team members)*	CSCE 4905 Group 3	CSCE 4905 Group 3	2/4/2025
Project Manager	Brendon Stepanek	Brendon Stepanek	2/4/2025
Quality Manager *(if applicable)*	N/A		
Procurement Manager *(if applicable)*	N/A		
Communications Manager *(if applicable)*	N/A		
Project Office Manager *(if applicable)*	N/A		

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1.1 Project Purpose, Goals and Objectives

Project Purpose	
The purpose of this project is to create a face recognition system that will integrate with Canvas LMS and automate the attendance taking process in classrooms.	
Project Goal	**Project Objectives**
Implement facial recognition/detection	Create a function and efficient backend that uses OpenCV for facial detection and DeepFace for facial recognition
Integrate with Canvas LMS API	Our system will integrate with Canvas LMS to provide real-time attendance updates
Design and develop an intuitive UI	Build a user-friendly frontend for teachers and administrators to interact with the system
Ensure data security	Utilize encryption, authentication, and secure data storage

1.2 Project Success Criteria

Determine what will make this project successful. These standards vary based on the project, but they typically include considerations like time, cost and scope. Additional criteria considerations include quality, risk management, stakeholder satisfaction, business value, regulatory compliance and customer satisfaction, to name a few.

Category	Success Metric	Measurement Method	Target	Assigned to
Scope	A facial recognition attendance system integrated with Canvas LMS	Thorough testing for functionality and user feedback	Completely satisfies stakeholders requirements	Team
Schedule	System deployed on time	Set and meet milestones	Delivered by total project deadline	Team
Budget	N/A	N/A	N/A	N/A
Quality	Facial recognition accuracy, good system performance, easy to use UI	Test different conditions for facial recognition, stress test system to ensure efficiency under load, stakeholder feedback	95% facial recognition accuracy, low system response times, 80% positive feedback from users	Max
Stakeholder satisfaction	Users/stakeholders approve of usability	User feedback and surveys	Majority positive responses	Team
Risk management	Address risks proactively	Risk mitigation plans	Minimal risks at launch	Brendon
Resource utilization	Efficient use of team members and tools	Task tracking and even work distribution	Limit overallocation and under utilization	Team

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Compliance	Ensure data security and privacy	Conduct security testing	Fully compliant with current standards and policies	Zain

1.3 Project Team

List the members of the project team who will be involved in this project, including their name, role and responsibilities to better understand what's expected of them.

Name	Role	Responsibilities
Brendon Stepanek	Project Manager/Developer	Manages overall project, ensuring project deadlines are met, develop backend and assist in system deployment
Zain Jamal	Developer	Implement authentication for OAuth and Firebase, integration of Canvas API
Joshua Odegai	Developer	Create database structure, API handling, and connection of backend with frontend
Maximiliano Hernandez	Developer	Implements OpenCV and DeepFace, design the UI, assists in development of React components
Neel Patel	Developer	Assists in API performance and UI development, API integration and frontend interactions

1.4 Project Governance *(use N/A where not applicable to you)*

Here, outline the framework, processes and mechanisms for accountability and decision-making throughout the project. This helps the project align with the organization's strategic goals so that it's managed effectively.

Area	Description	Responsible Party/Role
Steering Committee	N/A	N/A
Change Control Board	Reviews and approves of any project scope, timeline, or budget changes	Team
Compliance Auditing	N/A	N/A
Stakeholder Communication	Provide updates to project sponsor and other stakeholders	Team
Performance Reviews	Evaluate teams' progress and individual team member contributions	Team
Project Closure Review	Evaluate the final product to ensure that all deliverables meet the project requirements/goals	Team

1.5 Stakeholder Management Plan

A stakeholder management plan helps manage stakeholder expectations and address any concerns they may have. It includes the following sections.

- **Stakeholder Register:**

Name	Role	Power	Interest	Contact information
Diana Rabah	**Project Sponsor**	**High**	**High**	**diana.rabah@unt.edu**
Group 3	**Project Team**	**High**	**High**	

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- **Stakeholder Map:** This visually represents the groups or individuals with a vested interest in the project and helps develop a strategy for stakeholder management.

- **Stakeholder Engagement Strategies:**
    - Regular Project Status Updates
    - Weekly Team Meetings
    - Bi-Weekly Feedback Meetings

1.6 Scope Management Plan

Begin with the project scope. What activities and tasks as defined in your project must be completed to make the project a success? Use the project charter as a springboard. You can also use a work breakdown structure to identify all the activities, tasks, deliverables and milestones of your project.

'Dependencies' are logical relationships between phases, activities or tasks which influence the way that the project must be undertaken. Dependencies may be either internal to the project (e.g. between project activities) or external to the project (e.g. a dependency between a project activity and a business activity).

There are four types of dependencies:

1. Finish-to-start *(the item this activity depends on must finish before this activity can start)*
2. Finish-to-finish *(the item this activity depends on must finish before this activity can finish)*
3. Start-to-start *(the item this activity depends on must start before this activity can start)*
4. Start-to-finish *(the item this activity depends on must start before this activity can finish).*

Scope Baseline			
Task	**Dependencies**	**Deliverables**	**Acceptance Criteria**
Project Planning & Requirements	N/A	Complete Project Charter, WBS, SRS	Team and Project Sponsor approval
Backend Development	Finished project plan	Functional backend with endpoints for API	Deployed API
Canvas LMS API Integration	Functional backend	Attendance tracking in Canvas	Real-time record updates
Facial Recognition Implementation	Backend API	Facial Detection/Recognition using OpenCV/DeepFace	Working recognition with 95% accuracy in acceptable conditions
Frontend Development	Backend API	UI for teachers and administrators	Responsive, easy to use UI

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Database Development	Backend	Database for attendance records	Data stored and retrievable
Backend/Frontend Integration	Frontend and API	Proper communication between frontend and backend	API functions with no issues
Testing	Functional system	Fully tested, functional system	All testing passes with little error
Deployment	Finalized product	System hosted/launched	System is accessible to end users
Documentation	Complete system	User manual, developer documentation	Approved documentation

Exclusions, Assumptions and Constraints	
Exclusions	• We do not have the intention of developing a new AI model for facial recognition. • Our system will be designed to work only with Canvas and not with other LMS systems like Blackboard, etc.
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.

Milestone	Description	Delivery Date
Project Planning & Requirements	Determine project requirements, scope, and set project milestones	2/9/2025
System Design	Complete backend, frontend, and database design	2/24/2025
Backend Development	Implement Flask backend, Firebase database	3/10/2025
Frontend Development	Implement React frontend	3/23/2025
Testing & QA	Conduct unit tests and fix any existing bugs	3/25/2025
Deployment	Deploy system using AWS	3/30/2025
Training Documentation	Create user documentation	4/20/2025

1.7 Resource Requirements

For each task identified, list the resources allocated to complete the task.

Task	**Resource requirements** ***Members***
Project Planning	Trello, MS Word
Backend Development	Python, Flask, Firebase Firestore
API integration	Canvas LMS API, OAuth2 Authentication
Facial Recognition	Python, OpenCV, DeepFace, Camera
Frontend Development	React, JavaScript,HTML/CSS, Firebase Authentication

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Database Development	Firebase Firestore
Backend/Frontend Integration	API Gateway, RESTful APIs, JSON Handling
Testing	Jest for React UI, Pytest for backend, Manual Test, Test Cases
Deployment	AWS EC2, Firebase Hosting, CI/CD Pipeline Testing
User Documentation	MS Word, Video Tutorials

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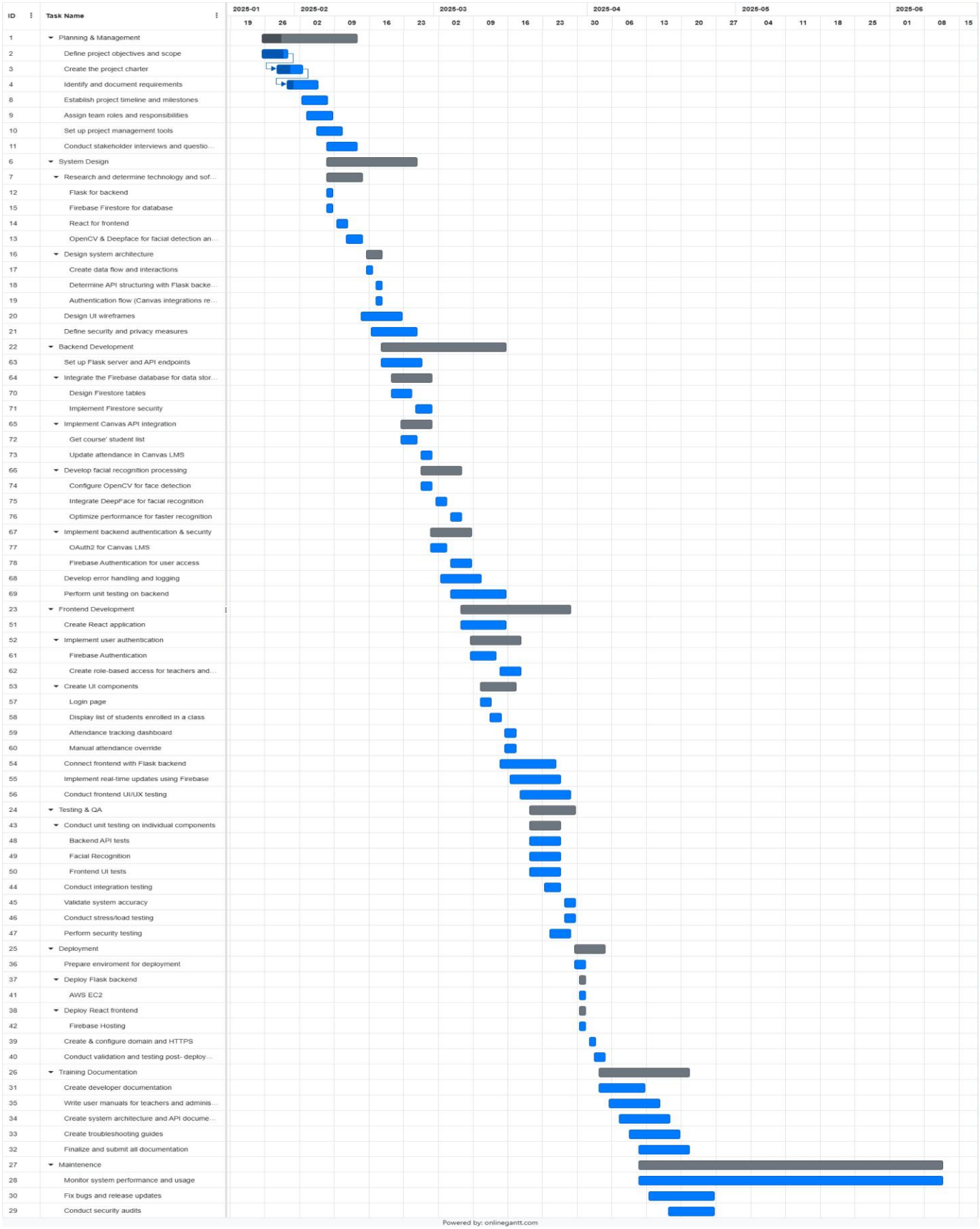
1.8 Project Schedule



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1.9 Project Budget

Task	Labor Costs	Material Costs	Other Costs	Budget	Actual
Hosting	-	$150	-	$150	-
API Usage	-	$20	-	$20	-
Data Storage	-	$50	-	$50	-
Testing	-	$0	-	$0	-
Deployment	-	$20	-	$20	-
Total	-	$240	-	$240	-

1.10 Change Management Plan

When a change request is made, use this log to track its impact, response and whether the change control board has approved it or not.

Change Control Board

Name	Role	Responsibilities
Diana Rabah	Project Sponsor	Ensures alignment with project objectives, provides project oversight, and approves any major scope changes
Team	Manager & Developers	Reviews and approves/rejects change requests, assesses technical feasibility, and implements approved changes

Change Log

Date Identified	Request	Impact	Approval	Date Started	Date Completed

1.11 Risk Management Plan

- **Risk Matrix:**

Risk Matrix		Severity				
		Insignificant	Minor	Moderate	Major	Severe
Likelihood	Almost Certain	Medium	High	Very High	Very High	Very High
	Likely	Medium	High	High	Very High	Very High

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	Possible	Low	Medium	High	High	Very High
	Unlikely	Low	Low	Medium	Medium	High
	Rare	Low	Low	Low	Low	Medium

- **Risk Log:**

Risk	Likelihood	Impact	Response	Risk Level
Canvas API downtime	Possible	Major	Maintain backups	High
Facial Recognition accuracy	Possible	Major	Attempt to optimize/improve model	High
Data security	Likely	Severe	Encrypt all student data and ensure compliance with standards and policies	Very High
Deployment failures	Unlikely	Major	Have backup hosting services	Medium
Poor classroom environments	Likely	Major	Require adequate environments for recognition	Very High

- **Risk Mitigation Strategies:**
  - Risk Avoidance:
    - Minimize API dependency
    - Implement role-based access control
  - Risk Reduction:
    - Encrypt sensitive data
    - Optimize system performance
  - Risk Transfer:
    - Use third party services
      - Hosting, etc.
    - Use existing facial recognition models
      - OpenCV
      - DeepFace
  - Risk Acceptance:
    - Allow manual attendance recording
    - Plan for API downtime
    - Provide user documentation for system adoption

1.12 Quality Management Plan

Task or Deliverable	Quality Standards	Quality Assurance Guidelines	Quality Control Procedures
Facial Recognition System	Achieve at least 95% accuracy	Test models in varied lighting conditions	Confirm recognition on multiple devices and room settings.
Canvas LMS Integration	Attendance data with update without error	Integration testing with Canvas LMS	Very data integrity between local logs and Canvas logs
Frontend UI	UI must be intuitive and accessible	Gather feedback through initial testing with teachers and administrators	Ensure 80%+ positive feedback

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Security	Most comply with current data privacy policies	Encrypt all stored data	Conduct pen testing
System Performance	Page load time must be < 2 seconds	Optimize API requests	Perform stress tests

1.13 Project Communication Plan

Last but certainly not least in the project planning template is the project communication plan. This is an opportunity to outline key communication facets that will be present throughout the project.

- **Project Meetings:**
  - Weekly Team Meetings
  - Bi-Weekly Progress Reports

- **Project Documentation:**
  - Project Charter
  - Work Breakdown Structure
  - Software Requirements Specification
  - Gantt Chart

1.14 Appendix

Project Charter
Member & Project List
SRS
WBS

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