

Development Plan

Software Engineering

Team 11, technically functional

Matthew Huynh

Cieran Diebolt

Vaisnavi Shanthamoorthy

Maham Siddiqui

Eman Ashraf

Table 1: Revision History

Date	Developer(s)	Change
September 19th, 2025	Maham	Preliminary Input
Date2	Name(s)	Description of changes
...

[Put your introductory blurb here. Often the blurb is a brief roadmap of what is contained in the report. —SS] This document contains a proposed development plan.

[Additional information on the development plan can be found in the [lecture slides](#). —SS]

1 Confidential Information?

[State whether your project has confidential information from industry, or not. If there is confidential information, point to the agreement you have in place. —SS]

The application will be recording and analyzing a video of the user performing the exercise. This will be addressed in the Terms and Conditions that the user has to accept if they want to use the application.

[For most teams this section will just state that there is no confidential information to protect. —SS]

2 IP to Protect

[State whether there is IP to protect. If there is, point to the agreement. All students who are working on a project that requires an IP agreement are also required to sign the “Intellectual Property Guide Acknowledgement.” —SS]

3 Copyright License

[What copyright license is your team adopting. Point to the license in your repo. —SS]

4 Team Meeting Plan

[How often will you meet? where? —SS] The team will be meeting in person on a weekly basis at the library at McMaster University. The time of the meetings needs to be adjusted in order to accommodate all the members’ time constraints.

Additional virtual meetings may be required when approaching a deliverable deadline.

[If the meeting is a physical location (not virtual), out of an abundance of caution for safety reasons you shouldn’t put the location online —SS]

[How often will you meet with your industry advisor? when? where? —SS] The advisor selection process is currently in progress.

[Will meetings be virtual? At least some meetings should likely be in-person. —SS]

[How will the meetings be structured? There should be a chair for all meetings. There should be an agenda for all meetings. —SS] Matthew H. will be in charge of the agenda. The rest of the team will be recording meeting minutes interchangeably. All members will be encouraged to chair meetings throughout the duration of the project.

5 Team Communication Plan

Our team communication plan will be as follows:

- Issues: GitHub/GitHub Projects
- Weekly Meetings: In-person on campus
- Meetings outside the weekly meetings: Teams
- Meeting minutes: GitHub
- Meetings with stakeholders: Zoom
- Project discussion (asynchronous): Teams

6 Team Member Roles

[You should identify the types of roles you anticipate, like notetaker, leader, meeting chair, reviewer. Assigning specific people to those roles is not necessary at this stage. In a student team the role of the individuals will likely change throughout the year. —SS]

Table 2: Member Roles

Name	Role	Possibility of Change
Maham S	Editor	If needed
Cieran D	Liaison	No
Vaisnavi S	Researcher	Yes
Eman A	Task Manager	Yes
Matthew H	Github Manager	Yes

7 Workflow Plan

We will primarily be using GitHub for managing the project files.

Each team member has their individual branches on which they will engage with. The member should open a pull request after completion of their assigned task. If multiple members are collaborating on the same task, they will use either member's branch. Once completed, a pull request can be opened which

will be reviewed by the other team members.

Issues that focus on a single aspect of the project may be opened and will combine all relevant items. Sub-issues can be used if additional refinement is needed.

- How will you be using git, including branches, pull request, etc.?
- How will you be managing issues, including template issues, issue classification, etc.?
- Use of CI/CD

8 Project Decomposition and Scheduling

- How will you be using GitHub projects?
- Include a link to your GitHub project

[How will the project be scheduled? This is the big picture schedule, not details. You will need to reproduce information that is in the course outline for deadlines. —SS]

9 Proof of Concept Demonstration Plan

The application will follow the steps below (high-level):

1. A user will record them performing a physio exercise (decide on body part?)
2. Determine if the exercise is “good” form or “bad” form based on requirements from the stakeholders
3. From the analysis, the application will provide guidance to improve the efficacy of the exercise

Some potential risks from this process flow are:

- Variations in how different users will record each video.
 - Having a guide overlay to indicate where they should film the exercise from.
- Inaccuracies with depth or monitoring a 3D motion on a 2D plane
 - Prompting the user to also perform the exercise from another angle and then analyzing two different recordings.

- Hardware limitations - as the application would be easiest to use on a phone due to the camera already being on there, it may have limitations when processing the footage.
 - Using a lightweight solution to process the recording to reduce lag.
- Accuracy in the footage may be different in a non-controlled environment and lead to inaccurate assessment of the exercise.
 - A demonstration can consist of seeing if we are able to obtain the same feedback in different light levels/clothing to see if it will affect our input data.

10 Expected Technology

[What programming language or languages do you expect to use? What external libraries? What frameworks? What technologies. Are there major components of the implementation that you expect you will implement, despite the existence of libraries that provide the required functionality. For projects with machine learning, will you use pre-trained models, or be training your own model? —SS]

[The implementation decisions can, and likely will, change over the course of the project. The initial documentation should be written in an abstract way; it should be agnostic of the implementation choices, unless the implementation choices are project constraints. However, recording our initial thoughts on implementation helps understand the challenge level and feasibility of a project. It may also help with early identification of areas where project members will need to augment their training. —SS]

Topics to discuss include the following:

- Specific programming language
- Specific libraries
- Pre-trained models
- Specific linter tool (if appropriate)
- Specific unit testing framework
- Investigation of code coverage measuring tools
- Specific plans for Continuous Integration (CI), or an explanation that CI is not being done
- Specific performance measuring tools (like Valgrind), if appropriate
- Tools you will likely be using?

[git, GitHub and GitHub projects should be part of your technology. —SS]

11 Coding Standard

[What coding standard will you adopt? —SS]

Appendix — Reflection

[Not required for CAS 741 —SS]

The purpose of reflection questions is to give you a chance to assess your own learning and that of your group as a whole, and to find ways to improve in the future. Reflection is an important part of the learning process. Reflection is also an essential component of a successful software development process.

Reflections are most interesting and useful when they're honest, even if the stories they tell are imperfect. You will be marked based on your depth of thought and analysis, and not based on the content of the reflections themselves. Thus, for full marks we encourage you to answer openly and honestly and to avoid simply writing "what you think the evaluator wants to hear."

Please answer the following questions. Some questions can be answered on the team level, but where appropriate, each team member should write their own response:

1. Why is it important to create a development plan prior to starting the project?
2. In your opinion, what are the advantages and disadvantages of using CI/CD?
3. What disagreements did your group have in this deliverable, if any, and how did you resolve them?

Appendix — Team Charter

[borrows from University of Portland Team Charter —SS]

External Goals

Our group's primary goal is to create a project that we are proud to have our names on, can be talked about in interviews and to peers. It is important for us to build a solution to our problem statement while also adhering to code quality such as readability and documentation. Through this, we seek to develop our technical skills through tackling a real world problem. Additionally, we are also aiming for above-average grades as a secondary goal.

Attendance

Expectations

Our team expects full attendance to meetings scheduled in advance for the entire duration of the meeting. If a member cannot attend a meeting or is going to miss a portion of the meeting, they must communicate it in advance to the team and catch-up on the missed portion of the meeting (i.e. meeting minutes). Missing 3 meetings in a row when a deliverable is not the main point of discussion will trigger a meeting with the rest of the team. Moreover, if a deliverable is the main topic, 2 missed meetings will be the limit. These standards are for non-emergency situations. For emergencies, see below.

Acceptable Excuse

[What constitutes an acceptable excuse for missing a meeting or a deadline? What types of excuses will not be considered acceptable? —SS]

In Case of Emergency

[What process will team members follow if they have an emergency and cannot attend a team meeting or complete their individual work promised for a team deliverable? —SS]

Accountability and Teamwork

Quality

[What are your team's expectations regarding the quality of team members' preparation for team meetings and the quality of the deliverables that members bring to the team? —SS]

Attitude

[What are your team's expectations regarding team members' ideas, interactions with the team, cooperation, attitudes, and anything else regarding team member contributions? Do you want to introduce a code of conduct? Do you want a conflict resolution plan? Can adopt existing codes of conduct. —SS]

Stay on Track

[What methods will be used to keep the team on track? How will your team ensure that members contribute as expected to the team and that the team performs as expected? How will your team reward members who do well and manage members whose performance is below expectations? What are the consequences for someone not contributing their fair share? —SS]

[You may wish to use the project management metrics collected for the TA and instructor for this. —SS]

[You can set target metrics for attendance, commits, etc. What are the consequences if someone doesn't hit their targets? Do they need to bring the coffee to the next team meeting? Does the team need to make an appointment with their TA, or the instructor? Are there incentives for reaching targets early? —SS]

Team Building

[How will you build team cohesion (fun time, group rituals, etc.)? —SS]

Decision Making

[How will you make decisions in your group? Consensus? Vote? How will you handle disagreements? —SS]