Development Plan
Software Engineering

Team #10, Five of a Kind
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Table 1: Revision History

Date	Developer(s)	Change
Date1	Name(s)	Description of changes
Date2	Name(s)	Description of changes
...	...	...

The following document will provide an overview of the team plans for the project development process. It will establish plans to promote effective collaboration throughout the entire project as well as define roles and responsibilities to help guide successful team dynamics. It will provide insight into the plans for project execution through a workflow plan that is supported by an outline of the methods that will successfully demonstrate proof of concept as the project progresses. It also provides a high-level understanding of the technological concepts that will be explored and adopted throughout the project.

1 Confidential Information?

At this time, there is no confidential information that is relevant to note within the current project scope.

2 IP to Protect

At this time, an IP is not relevant to the current project scope.

3 Copyright License

This project is licensed under the MIT License. See the LICENSE file for details.

4 Team Meeting Plan

A basic group standard will be the organization of a group meeting that occurs a minimum of at least once a week to allow for discussion on current project progress and future planning. Given weekly variations in personal schedules, there will not be a specific date and time that the group abides by each week. Instead, the individual who takes on the role of the Meeting Chair will be in charge of organizing a date and time each week that best accommodates the schedule of each person. The nature of the meeting, regarding whether it will be in-person or virtual, will be established upon determining the date and time of the meeting. As a general principle, in-person meetings will be favoured as they typically help facilitate deeper collaboration and build better relationships amongst team members. All in-person meetings should be conducted on campus, unless a different location is agreed upon by the group. If a group member is unable to attend a certain meeting, they should notify the group through the Instagram group chat as soon as possible.

The individual who takes on the role of the Notetaker will document all parts of the meeting. Certain points of discussion may be established prior to the meeting, either during a previous meeting or during the period leading up to the meeting. The Notetaker will work with the Team Manager to establish

an agenda of all discussion points and deadline reminders prior to the meeting. This agenda will be documented in the meeting report. During the meeting, the Meeting Chair will be responsible for ensuring all points of discussion are adequately covered. At the end of the meeting, it is the responsbility of the Notetaker to ensure the meeting has been properly documented. The meeting documentation expectations have been specified under the Notetaker description in Section 6.

Meetings with our supervisor, Dr. Onaizah, will be organized based on the need to provide more in-depth explanations on the progress of the project or to facilitate a discussion if there are many questions in which Dr. Onaizah can provide insight. There will be no set schedule for when these meetings will occur. Once the team establishes that a meeting with Dr. Onaizah is required, the team will create a list of potential dates and times that they are able to present as options for Dr. Onaizah. Unless the group decides to specifically request either an in-person or online meeting to accommodate specific group needs, the nature of the meeting will be determined based on the preference of Dr. Onaizah.

5   Team Communication Plan

All informal communication should be initiated through an Instagram group chat that has already been established. It is the responsibility of all group members to ensure they have access to the group chat and are actively monitoring all messages that occur through this channel of communication. The primary focus of this group chat is to facilitate easy and quick communication regarding small issues and meeting organization.

Meetings should be a regular occurrence to establish consistent and clear communication that can't be achieved solely through text communication. As established within the Team Meeting Plan, there will be a standard weekly scheduled team meeting. If a discussion that starts through the group chat seems to require additional time, effort, or broader input to consider different perspectives, the discussion may be postponed until it is able to be discussed during a meeting. This means that it can either be noted as an official point of discussion within the weekly scheduled team meeting or a separate meeting may be scheduled depending on the urgency of the discussion.

The creation of issues in the GitHub team repository will be the primary way to formally document all plans, discussions and deadlines that have been discussed. All notable information that should be known by all group members must be documented as a GitHub issue. Even if information has been stated in a different communication channel, such as a group chat or team meeting, it must still be documented in GitHub to provide consistency and ensure there are no oversights.

In the event that any communication occurs outside the Instagram group chat or a team meeting, it must still be noted in the GitHub team repository. Individuals should do their best to not stray from the standard communication channels unless extenuating circumstances apply or an additional standard communication channel has been established by the group throughout the project progression. This will help ensure there is consistency in communication amongst the entire group.

At a minimum, the team will provide the supervisor, Dr. Onaizah, with updates at least bi-weekly. Prior to providing an update for Dr. Onaizah, the team will establish whether a meeting with her is necessary within the next week. Meetings with Dr. Onaizah will be organized as needed. Key stakeholders will be handled in a similar manner. This includes the grad student, Kaitlyn Clancy, that created the 3D printer and works directly under Dr. Onaizah. If relevant, Kaitlyn may be cc'd onto email updates to Dr. Onaizah or separate meetings may be organized.

6 Team Member Roles

Team Manager - The individual who takes on this role will take the lead on keeping the team on track. They will closely monitor the deadlines and ensure that the team is on track with meeting the course deadlines as well as the group deadlines that have been agreed upon ahead of time.

Notetaker - During meetings, this individual will be responsible for keeping track of what was discussed and who attended the meetings. They will also be required to create a report, in the form of a GitHub issue, that is accessible to each group member at the end of a meeting. This report will include a summary of what was discussed, a meeting agenda for what has to be discussed, a review of what has changed since the previous meeting, a list of key tasks to complete prior to the next meeting and an outline of deadlines that are relevant at the current stage of the project.

Meeting Chair - This individual will be responsible for organizing meetings and ensuring that the team is following the Team Meeting Plan as specified above. They will ensure that the team is meeting at a sufficient frequency to facilitate effective collaboration both within the group and with Dr. Onaizah. They will also take the lead on team discussions regarding future meetings and do their best to reasonably accommodate the schedule of all team members when determining a date and time.

Document Reviewer - This individual will take on the responsibility of monitoring the review of all documents. They will ensure that team deadlines provide reasonable buffer for review prior to the official course due date. They will or-

ganize who reviews each section of the relevant documents being submitted as well as complete an overall final review prior to submission. This final review should include verifying the consistency, formatting, and grammar of the document. They will also work closely with the code reviewer to ensure the code and documentation properly align.

Code Reviewer - This individual will have similar responsibilities to the document reviewer but will focus on reviewing the code. This includes monitoring the integration of individual code contributions during each iteration in the development stage. They will organize milestone code check-ins to ensure that after major code contributions the functionality of previous code has not been compromised in any way and still runs seamlessly. They will also work closely with the document reviewer to ensure the code and documentation properly align.

Communication Officer - The individual who takes on this role will be responsible for handling the majority of the communication with our supervisor and key stakeholders. Specific communication responsibilities include sending emails when relevant, closely monitoring their email for replies, keeping all relevant parties in the loop regarding the progress of the project, and conveying important information from these emails to the rest of the team members.

7   Workflow Plan

- 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

Git will be utilized as the primary, centralized collaboration space for both project source code and its related documentation. Members will create new branches for each feature to be implemented, as well as per each member (eg. branches will not be shared). When a member is complete with their work on a given branch, they will create a pull request with appropriate labels and assignees. For instance, an acceptable assignee could be someone working on a related feature. Labels should give an estimate of how long it might take to review. Each pull request should also be linked to a given issue.

A milestone will be created for each deliverable (both documentation and revisions) and issgit ues created will be associated with it. Issue templates will be used in the following ways:

- lecture: to track attendance as well as general notes/questions

- meeting(s): to record meeting minutes, attendance, and catch up members that miss the meeting

- peer review: to request another team review a given section

Additionally, for general issues, new labels will be created:

- documentation

- code

- question

- easy / hard

- bug-fix

- need help

All issues should also contain a reasonable description describing the bug / feature / section of documentation.

To incorporate continuous integration, upon each push/pull request, all tests in the test suite will be run automatically via GitHub Actions.

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

What is the main risk, or risks, for the success of your project? What will you demonstrate during your proof of concept demonstration to convince yourself that you will be able to overcome this risk?

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

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

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

[What are your team's external goals for this project? These are not the goals related to the functionality or quality fo the project. These are the goals on what the team wishes to achieve with the project. Potential goals are to win a prize at the Capstone EXPO, or to have something to talk about in interviews, or to get an A+, etc. —SS]

Attendance

Expectations

[What are your team's expectations regarding meeting attendance (being on time, leaving early, missing meetings, etc.)? —SS]

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]