

# Development Plan

## Baja Dynamics

Team #17, Team Name  
Grace McKenna  
Travis Wing  
Cameron Dunn  
Kai Arseneau

Table 1: Revision History

Date	Developer(s)	Change
Date1	Name(s)	Description of changes
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]

[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]

[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

The team will meet in person between 2:30-4:30pm on a weekly basis. Additionally, the team will plan to meet virtually or in person as the team sees fit on Fridays at 1:30-2:30pm. Additional meetings may be scheduled as needed, based on the current status of the team’s progress towards upcoming course deadlines. All meetings held will have a corresponding GitHub issue templates that are to be filled out by the meeting chair in order to document the meeting and hold the meeting agenda. The role of the meeting chair will rotate depending on the content being covered during the meeting. The default role of meeting chair will be designated to Cameron Dunn.

[How often will you meet with your industry advisor? when? where? —SS]

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

## 5 Team Communication Plan

The team will use a structured Discord server with specific channels to organize conversations and content. The team will have a channel for scheduling, re-

sources, meetings and general questions and communication. Additionally, the team will communicate through the use of GitHub issues and commits. The team will use tags to improve the communication of GitHub issues, for example backend and frontend tags.

## 6 Team Member Roles

### Grace McKenna

- Notetaker

### Travis Wing

- GitHub issue manager

### Cameron Dunn

- Meeting chair

### Kai Arseneau

- GitHub Reviewer

Although some roles are listed above, the team will plan to rotate larger roles throughout the project to ensure all team members have an equal role in the project. Additionally, this will ensure all team members have knowledge about all parts of the project.

## 7 Workflow Plan

Main branch - releases + mandatory 3 code reviews (everybody) Develop branch - development + mandatory 1 review Feature branches - individual features being added to develop

CI or linting and automatic testing once implemented CD doesn't really make sense since we are making a local application and doesn't really apply to our stakeholders

Make our own code template for bug report, new features, etc. Same for PRs Ticket types: Bug, New feature, Refactor, Documentation, Testing Backend, frontend, testing

In cases where teammates collaborate on an issue or document, the team will use co-authored commits in GitHub

integration tests on full features, then run on each PR for regression testing

- 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

### 8.1 Project Schedule

Team Formed, Project Selected	September 16
Problem Statement, POC Plan, Development Plan	September 23
Requirements Document Revision 0	October 9
Hazard Analysis 0	October 23
V&V Plan Revision 0	November 1
Proof of Concept Demonstration	November 11–22
Design Document Revision 0	January 15
Revision 0 Demonstration	February 3–February 14
V&V Report Revision 0	March 7
Final Demonstration (Revision 1)	March 24–March 30
EXPO Demonstration	April TBD
Final Documentation (Revision 1)	April 2
- Problem Statement	
- Development Plan	
- Proof of Concept (POC) Plan	
- Requirements Document	
- Hazard Analysis	
- Design Document	
- V&V Plan	
- V&V Report	
- User's Guide	
- Source Code	

### 8.2 GitHub Projects

The team will be using a GitHub project titled CVT Simulator Planner. This project will track items based on existing items, items that are in progress and completed items. Each item is intended to have a description and the team of the team member/members who will be working on the item. The goal of this GitHub project is to ensure all team members are on the same page regarding what needs to be started for upcoming project deliverables and project features. Additionally, there is a section to monitor the progress of items and will contain the information on tasks/features that are actively being worked on by team members. This will increase communication between team members as all members are able to see what each other are currently working on. This project also has a section to show the items that have been completed.

GitHub Project Link: <https://github.com/users/gr812b/projects/1>

- 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 main risks include not being able to validate our simulation, not being able to successfully reflect real world factors such as friction and having limitation due to the level of the mathematics our team is able to simulate. During our proof of concept demonstration our team will demonstrate the mathematics and compare our calculations to existing data that exists and is available to our team through McMaster's Baja Racing team. Our proof of concept will aim to simulate the math behind our team's project.

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 external libraries? —SS]

- Python
- C#
- Framework: Unity
- Unity test framework
- Math
- Version Control: git
- GitHub
- GitHub Projects
- 3D model - CAD
- Microsoft Excel
- VS Code

- The Data Viewer - pre-existing website to graph and view data, designed by McMaster's Baja Racing Team.
- Linter tool: Flake8
- Specific unit testing framework
- Investigation of code coverage measuring tools

## 11 Coding Standard

The team will adhere to Google Python style guide in order to help format code correctly.

## 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

[What are your team’s external goals for this project? These are not the goals related to the functionality or quality of 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

All team members are to communicate regarding their attendance of team meetings. If a team member is unable to attend a meeting, the meeting will either be rescheduled, depending on the importance of the content being covered in the meeting, or the team member will be debriefed by another team member. Team members are expected to communicate with one another if they will be late or need to leave the team meeting early.

#### 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

Team members will always treat one another with respect and have a positive attitude towards one another.

[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]