



FLORIDA A&M UNIVERSITY-FLORIDA STATE UNIVERSITY
COLLEGE OF ENGINEERING

EML4551 - Senior Design

Team 303: Formula 1/10

Project Charter

Group Members: Michael Calisi, Steven Roy, Nicholas Stiles,
Derek Swenson, Cody Vanderpool

Due: September 18 2018



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1.0 Project Scope

1.1 Project Description

Design and build an autonomous 1/10th scale race car (space Winnebago).

1.2 Goals

- Navigate around obstacles autonomously.
- Make decisions in real time.
- Operate at a safe and controlled speed.
- Ability to switch between autonomy and remote control.

1.3 Primary Market

The FAMU-FSU College of Engineering Electrical and Computer Engineering Department.

1.4 Secondary Market

RC car enthusiasts, the autonomous vehicle market, and cult movie enthusiasts.

1.5 Assumptions

- Design will adhere to the rules and guidelines presented in the F 1/10 Autonomous Racing Competition Rule Book.
- Physical prototype will be constructed by the end of the Spring 2019 semester.
- Full access to ME and ECE labs and equipment to facilitate design and testing.

1.6 Stakeholders

- Dr. Hooker
- Dr. McConomy
- F 1/10 Autonomous Racing Competition
- FAMU-FSU College of Engineering

2.0 Code of Conduct



2.1 Mission Statement

The Formula 1/10 team is committed to designing, programming, and operating a 1/10th scale autonomous Formula 1 car suitable for submission to competition. Our team believes in a professional, respectful, and open-minded work environment all while having a good time.

2.2 Team Roles

Project Manager : Cody Vanderpool

The Project Manager is responsible for delegating tasks to the team, keeping the project on schedule, and maintaining accountability of completed tasks. He is also responsible for scheduling meetings and communication with the project advisors/sponsors as well as any other stakeholders. The Project Manager will review all documents prior to submission for grade. In addition to these responsibilities, the Project Manager is tasked with keeping the team updated on project progress and scheduling events. Intrinsic to the role is keeping the team's morale high, resolving team conflicts, and providing additional help to team members to complete tasks if required.

Software Engineer and Web Designer : Derek Swenson

The Software engineer will Program portions of the formula 1/10 car and complete any necessary tasks related to programming in RoS and integrating equipment with the Nvidia Jetson TX2. The Web Designer will be responsible for creating a website for the Formula 1/10 design team. The website should showcase the teams design and give an overview of the project.

Electrical/Systems Engineering: Michael Calisi

The Lead Electrical Engineer will be responsible for, but not limited to, circuit design, research and power management of the autonomous system and powertrain of the 1/10 F1 car. The lead Electrical will assist with helping the lead programmer code the communication interface between the sensors and the processor . And complete extra tasks given by the Team manager.

Mechanical Design / Financial Advisor: Steven Roy

The Mechanical Designer will be responsible for creating CAD drawings and from there the team can meet with the Sponsor to ensure the team is headed the correct direction for the Sponsor needs. Most designs will be built on Computer Aided Drawing



Software using SolidWorks. Also being in charge of the finances means keeping records of all parts needed and parts needing purchasing and working it into our financial budget.

Software Engineer: Nicholas Stiles

The programming lead will be responsible for creating the software required for the autonomy of the Formula 1/10. The lead is to ensure that work on the program stays up to date with current project deadlines in order to ensure the program is completed within the required time. The program should allow the race car to navigate any track without contacting any wall.

2.3 Communication

The main form of communication between team members will be via text message or the group messaging app “Group Me.” In addition to text, communication will also occur through school email accounts. Team members are expected to participate in these conversations and check their email daily.

All team documents will be shared through Google Drive in order to allow all members to collaboratively edit and update documents in real time. The Google Drive will also contain a weekly schedule showing each team members availability. This weekly calendar should be updated weekly with other commitments such as travel, work, doctor appointments, etc. in order to plan meetings effectively and to avoid scheduling conflicts.

Communication with the team sponsor and advisor will be through email primarily via the Team Leader with all team members cc'd into the conversation.

2.4 Team Dynamics

Students will work both in coalition and by themselves to complete specific tasks. The team will be sure to create an environment where each member can feel comfortable to voice ideas and opinions without concern. In the event that a team member finds a task to be out of their capability, they should look towards their team for help. Should any member of the team feel disrespected, they should voice their concerns and resolve the issue immediately. Students should ensure that emotions will not obstruct the completion of this project.



2.5 Dress Code

For routine team meetings held throughout the year, there is no required dress code. Meetings with the client or advisors will be held in business casual attire. During presentations team members will be expected to dress in formal business attire. These dress code requirements are subject to change if the team decides it is necessary.

2.6 Attendance Policy

All team members are expected to attend all scheduled team meetings and presentations. If a team member is unable to make a scheduled meeting, at least 24 hours notice is required. Attendance of all meetings will be recorded in meeting logs for accountability. If a team member is continuously missing scheduled team meetings without a valid excuse, intervention with the Team Leader will be the first course of action. If the problem is not remedied it will then be brought to the attention of the instructor for resolution.

2.7 Ethics

The team will be required to follow the NSPE Engineering Code of ethics. This will ensure that they are upholding their responsibilities and obligations to the public, the sponsor, the college and the project.

2.8 Weekly and Biweekly Tasks

Every team member is responsible for being in attendance to all meetings with the sponsor, advisor and the instructor. During these meetings the team will discuss ideas, progress, budget, and due dates. Each team member will be responsible for specific tasks which will be delegated during or shortly after the meetings.



2.9 Decision Making

Decisions will be made by majority vote. In the case that an ethical or moral decision needs to be made, then the issue should also be evaluated as a group and decided by a majority decision. It is each individual's responsibility to act with ethics and the group's best interest in mind. If an individual has a conflict of interest, then they should not partake in the group decision. Below are the steps followed for each decision to be made.

- Identify Problem - Identify the problem and define it.
- Tentative Solutions - Brainstorm possible solutions. Identify the best ideas.
- Data Gathering and Analysis - Research and gather necessary data required to implement a plausible solution.
- Design - Design the plausible solution and construct it. Evaluate its effectiveness.
- Test/Simulate and Observe - Test the design and gather data. Continue to evaluate its effectiveness.

2.10 Conflict Resolution

Conflicts or disagreements between group members shall be handled according to the following guidelines. First, both parties involved should discuss and listen to the other sides points of contention and weigh the pro's and con's of each possibility. If an agreement cannot be reached between the two parties, a majority vote will be taken. If a conflict between two individuals arises, the Project Manager will listen to both parties and make a decision. If the team still has discord, instructor intervention will be the last course of action.

3.0 Statement of Understanding

By signing this document, the members of the Formula 1/10 Team agree to the code of conduct and understand its principles.

<u>Name</u>	<u>Signature</u>	<u>Date</u>
Michael Calisi		



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