



To: Jennifer Wade

From: Team D - Hobby Dynamometer

CC: Sarah Oman

Date: 1-29-17

Re: *Capstone Team Charter*

1. Project Manager

- Sean Stone

2. Team Purpose

- Our team (Team D) was formed to create a dynamometer (dyno) for testing the potential output of small scale wind-turbines. This dyno will help wind turbine teams to measure electrical outputs of designs before full-scale testing. First, our team will study the existing dyno to find areas for improvement, followed by research of other small-scale dyno designs. By following the engineering design process, Team D hopes to improve the accuracy and ease of testing currently performed by the wind competition capstone teams. As a final result, our team hopes to improve NAU's team performance at wind-power competitions.
- Stakeholders for this project are the wind competition capstone teams, David Willy, and the mechanical engineering department of Northern Arizona University. Along with being a stakeholder, David Willy is our client for the project and expects us to improve upon the current dyno design. He has given us several initial expectations as outlined in the team goals.

3. Team Goals

- Replace the controlling AC motor with a DC motor
- Provide reliable torque and cogging measurement (Missing in the current design)
- Provide a more aesthetically pleasing and safer (electrically protected) design
- Additional goals will be discovered with a more in-depth interview with Mr. Willy
- We are all committed to delivering a project worthy of an A grade and are aware of the time and effort needed to meet this goal

4. Team Member Personalities/Roles/Responsibilities

Personalities/Skills

- Andrew Barton - INTJ, machine shop skills,
- Connor Maldonado - ENFP, electronic knowledge
- Sean Stone - INTJ, machine shop skills, electrical skills

Roles

- Andrew Barton - Budget Liaison, Website Development
- Connor Maldonado - Secretary/Document Manager, Website Development
- Sean Stone - Project Manager / Client Contact

5. Ground Rules

- We are planning on meeting Monday or Wednesday evenings. If that doesn't work then we will meet after class on Tuesdays or Thursdays, or possibly weekends. We want to meet at least once a week, preferably two. We all have other classes together, and will be talking about the project outside of these meetings. We have a group text setup for quick communication. Because there are only three of us, it is much easier to plan a quick meeting and have the entire team attend.
- Our discussions are always open, with decisions being made by the group. Usually we all can agree, but if there is a problem we will make decisions by majority vote. We have google docs set up so we are able to see if a teammate is working on his part and are also able to make live comments on his work to improve the project for the team. We expect each member of the team to complete their assignments before the due date and to be in touch with the team on all new material they learn. Because we are a team of three, we need excellent cooperation for constructing the dyno. We are all going to need to be in touch with each part of the device to ensure success in the project.
- Some ground rules we have set are:
 - If you are assigned something, have it done at least 24 hours in advance of the due date. If you know you aren't going to be able to complete an assignment, let the team know 48 hours in advance so they can ensure completion.
 - Don't be afraid to ask for help.
 - Constructive criticism is encouraged, don't take it personally.
 - Group edits, before assignments are due.
 - Any differing opinions between group members will be decided by majority rules.
 - All looking for an A on the project.

6. Potential Barriers and Coping Strategies

We all have had team experiences where a team member(s) was not pulling his/her weight and/or submitting work that was not of acceptable quality. In order to prevent disagreements and team conflict we have decided upon the following:

- Team members will rotate first picks on what portion of an assignment they would like to be responsible for.
- If a team member is unable to contribute an appropriate amount for a given assignment, they will be expected to contribute an additional amount on the next assignment
- Before our team begins combining work to form a document or assignment, we will all peer review each other's work and provide comments and suggestions. If both reviewees are in agreement about major issues with quality and/or content, they will inform the other teammate.
- If a teammate has persisting issues and warnings with work quality or tardiness, they should expect a special team meeting with Dr. Wade.