

Team Charter

Human Powered Vehicle Propulsion System Team

"I agree to do an equal amount of work in the team. I understand that my grade will reflect my effort in the team."


Signatures:

Abdulh Alsabaie: Abdulh Alsabaie

Yen Clutter: 

Daniel Quezada: Daniel Quezada

Connor Tolman: Connor Tolman

Yujie Zhang: 

Team Purpose

The hpvc propulsion team has been established in order to create a drive train that is different from a typical bicycle drive. It has become apparent that the dominant drive system for the hpvc vehicles in past years has become a simple bicycle chain drive. This design is effective, and readily available, but it is uninspired, and can be replaced with a more effective drive, which this team has been tasked with developing.

The client has explicitly stated that the drive should be powered by a compound movement that will be more productive than a bicycle drive. The team goal is to not only achieve a system that is more effective than a drive powered solely by the legs, but one that can store excess energy as well while being comfortable for the driver and causing minimal fatigue. In doing this the system will be as lossless as possible, and far outdrive competitors.

Team Goals

The product goals of the team are to create an isolated drive system that can be implemented into an existing HPV, that will be more efficient than existing drives. The team expects to be able to produce this by combining expertise from multiple disciplines. It is expected that each individual will bring the information from the assigned areas of study, in order to collectively create the most effective final product possible.

Ultimately, each team member will be expected to invest their efforts so that each portion of work and research is of the highest possible quality, leading to a refined final output. The grade of an A should be easily achievable if each team member applies this goal to his or

her work. Additionally, it is expected that each member is to be present for all team meetings, in order to make sure that every member is up to date with current goals and progress. This will help to prevent miscommunications, and promote continuity among the different components of the propulsion system.

Team Member Personalities/Roles/Responsibilities

The project manager will be Daniel Quezada. This role is fitting, as he holds a managerial role in his professional life outside of school, and is comfortable in such positions. He is laid back, but good at facilitating productive discussion, and helping to keep groups from straying from the initial goal. He has also spent many years as a competitive cyclist, as well as an avid weightlifter. These combined qualities will help to keep the project in a realistic perspective, based on real life experience.

Abdulh Alsabaie will act as the client contact. Abdulh knows how to manage his time well and how to work well within a group. Abdulh needs to make sure the Client has all the information that he needs to know for the project and keep the client aware step by step for our work. Abdulh enjoys giving many ideas to the team and thinking out of the box.

The Budget Liaison position should be Yujie Zhang. Yujie is good at calculating and managing bills. He has a superb mathematical foundation and proficiency in calculating calculus. This position needs to count the purchased equipment and calculate the total expenditure. Although such advanced math skills may not be used, this job still requires good organizational skills and statistical knowledge. Yujie also has a high interest in statistics and economics.

The Document Manager position will be filled by Connor Tolman. Connor is organized and enjoys keeping documents organized and up to date. One of Connor's favorite things to do, when he has enough time, is to make excel spreadsheets to facilitate whatever it is he is doing, whether it is engineering based, or day to day life. Connor is a laid back, responsible person who dreams of one day becoming an aerospace engineer. These, along with his love for engineering, math, and physics, will make Connor a valuable team member.

The Website Developer position will be filled by Yen Clutter. This position will be a good fit for her as she is majoring in computer science and has experience in developing and maintaining websites. Yen is a reserved but capable person and is good at mediating conflict and working in group environments. She is always interested in learning new things and primarily enjoys reading, painting, baking, and training her service dog in her free time. Yen's multidisciplinary experience and interests should bring in a different perspective and fill unmet needs in the project.

Ground Rules

This HPVCP team has decided to meet primarily through the use of discord, where all of our main communication will be held. The current decision has been to meet on Wednesday mornings at 8:30, and at the scheduled meetings with the client at the same time, on Tuesdays and Thursdays. In these meetings, open communication is expected, including but not limited

to: recent findings in research related to the project, individual progress updates, and proposed ideas to further improve the project's design.

Decisions will be based on the groups collective affinity for an idea, or upon a disagreement, a group vote will decide how to proceed based on majority rule. Upon the absence of one member during a vote, that may lead to a split decision, the vote will be postponed. If the action is immediately necessary, the final decision will go to a coin flip if the absent person cannot be reached.

As mentioned previously, all members are expected to input equally, and with a focused effort. If this is very clearly not occurring, it is expected that another member respectfully voices this opinion that not enough work is being accomplished. Accountability for this is not expected to require punishment, however the peer evaluations will ensure that all members are working equally to ensure group success.

Potential Barriers and Coping Strategies

Immediately apparent potential barriers are location, language, and the fact that the team is an interdisciplinary composition. The fact that not all team members are located in Flagstaff at all times means that there may be an inability to participate and aid in certain team tasks. This means that the team members not present will be required to compensate by picking up a heavier administrative load, in order to alleviate the overload on members doing the extra work in person.

Not all of the members speak English as their primary language, which means there may be a language barrier. This will require patience, and teamwork to ensure that everyone is understanding each other in order to effectively accomplish tasks and be included equally in the project. Similarly, not all members are as familiar with engineering concepts or computer related concepts, which is effectively the same as speaking a different language, and will require similar patience and effort to make sure all members are of the same level of understanding where need be. In the past projects, it has been seen that these barriers can lead to individuals giving up and doing poor work (or simply less work) so as a team, it is expected that everyone works to help one another as well as accomplish individual tasks to prevent this.

Due to the compressed schedule, the team expects to have a faster pace, but many of the members hold full time jobs over summer. This issue will also need to be addressed by everyone making his or her schedule known, which will make meetings much easier. Furthermore, it is expected that there will be times where some people will be unavailable to

travel, in which case appropriate warning to the group will be required. The group can decide how to allocate tasks to accommodate these temporary disruptions.