GinzVelo Senior Design Team

Overview

A velomobile (velo) is partially or fully enclosed human powered vehicle. Most velos are three wheeled recumbent bicycles with a teardrop shaped body shell for weather protection and aerodynamics. With the current design of most recumbent tricycles, velos become unstable while turning at high speeds and therefore roll over. The design team was given the task of designing a tilting tricycle that does not have this dangerous problem.

Objectives

- Design a tilting/turning recumbent tricycle
  - Simplicity and low cost of manufacturing is preferred.
- Build an alpha prototype to serve as a proof of concept
  - Frame to be made of wood
  - Prototype must support an average person’s weight
  - Prototype must be rideable

Approach

- Research and Prior Art Search
- Concept Generation
- Concept Selection
- Created SolidWorks Model
- Tested Solidworks Model
- Made necessary modifications to the design along the way
- Built Prototype
- Tested Prototype

Outcomes

The design team designed a tricycle that can successfully tilt and turn, allowing it to better navigate turns at high speeds. The prototype was completed and tested by numerous people at the design showcase. Feedback from the testers allowed the team to suggest modifications for the beta prototype. Although the design requires slight adjustments, it is expected to become the next major product for our sponsor, GinzVelo.