



Human Powered Vehicle (HPV)

04-October-2018

Team Members

Project Manager: Tyler Schilf
 Powertrain Engineer: Jacob Thomas
 Ergonomics Engineer: Kyler Marchetta
 Steering Engineer: Tristan Enriquez

Sponsor

Jess Ball
 Shayne McConomy, Ph.D.

	IT	Notetaking/Minutes	Systems/Analysis	Aero	Safety/Quality	Finance	CAD
Tristan	X		X			X	
Jacob		X		X	X		
Kyler		X			X	X	X
Tyler	X		X	X			X

Table 1: Additional Roles

Objective

Produce a vehicle for the Human Powered Vehicle Competition (HPVC) that is mechanically driven and controlled by the occupant.

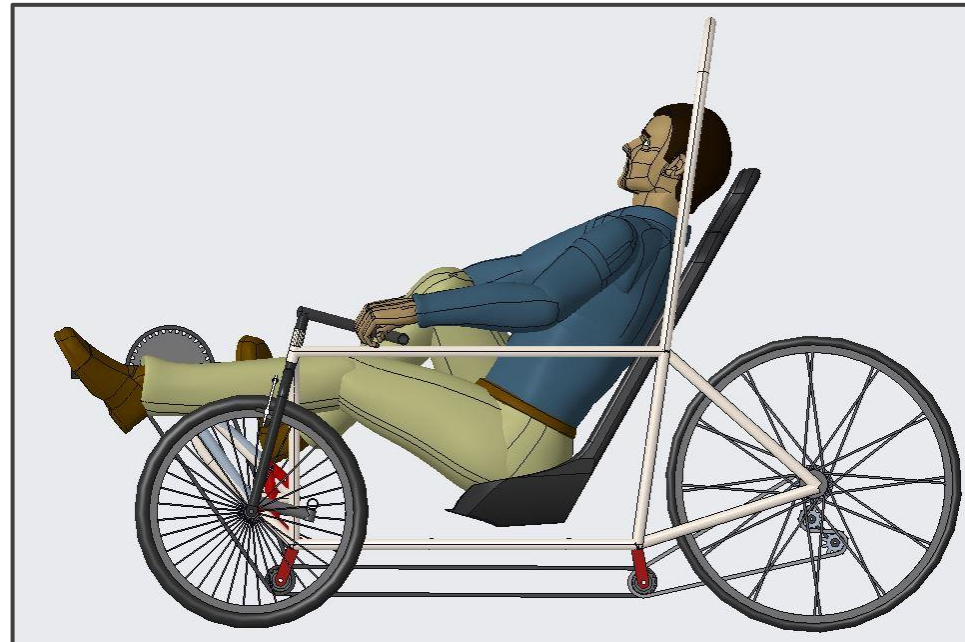


Figure 1: Team 512 (2017 Team) conceptual model with occupant

Project Background



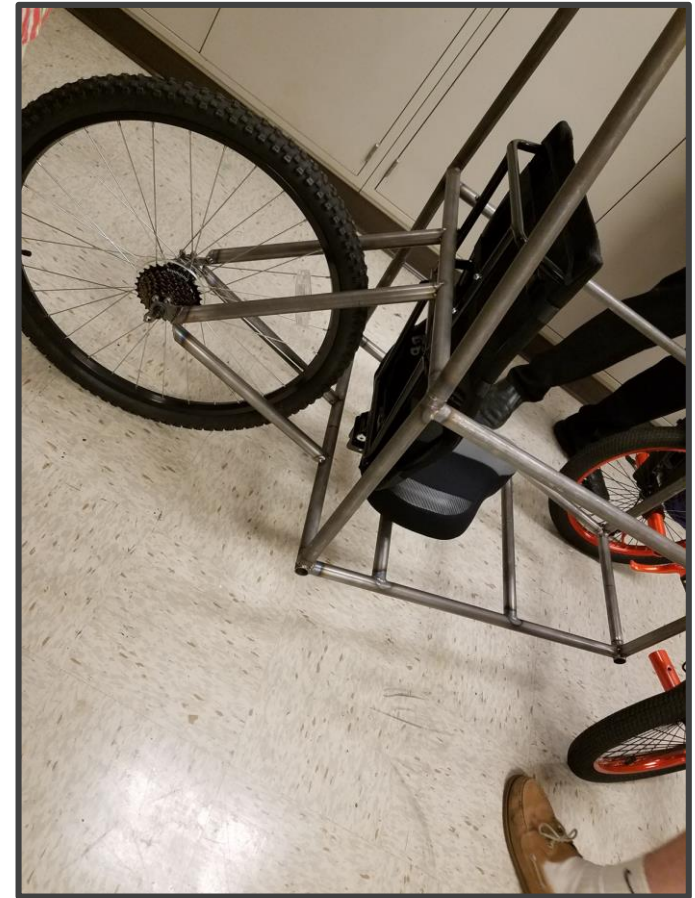
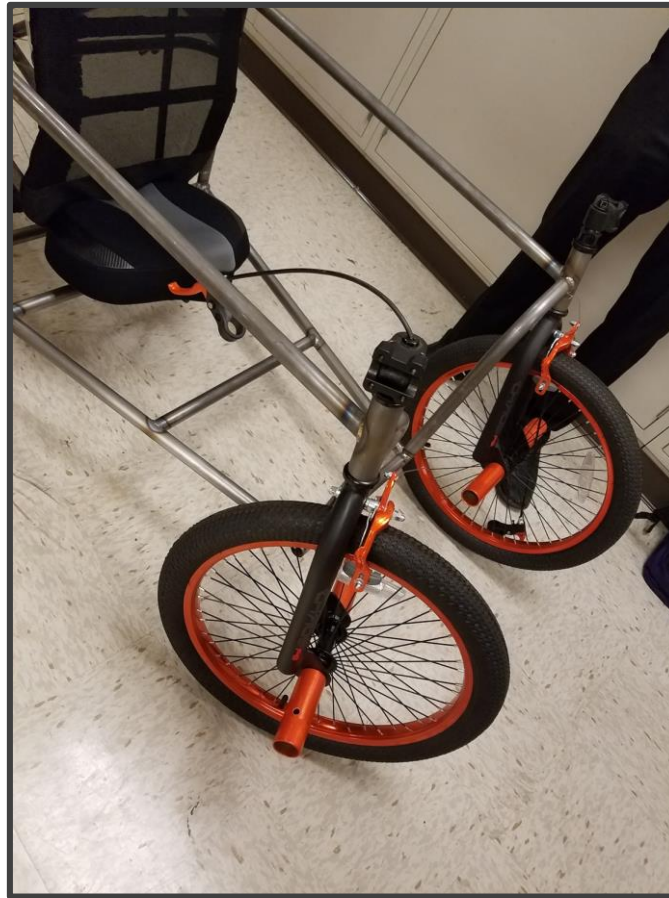
The Competition

- **Design Event:** Score based on application of engineering principles and practices toward vehicle design
- **Innovation Event:** Scored on our design and demonstration of a technical innovation related to the vehicle
- **Speed Event:** Scoring will be based on a speed test that will be announced at a later date
- **Endurance Event:** Scoring based on speed, practicality, performance and reliability of the vehicle in a race format with urban transportation obstacles and challenges

Key Goals

- Design an HPV that will satisfy all the competition requirements.
- Utilize existing frame in the HPV.
- Appeal to the four main events of the competition
- Focus on the design and innovation events.
- Accomplish the competition objectives.
- The team will target additional aspects of the HPV once it meets base requirements.

The Existing Frame



Markets

Primary

Designed for the **HPV Competition** (appealing to the competition judges)

Secondary

Individuals in :

- **rural areas,**
- **cities**
- **third world countries**
- **suburban areas**

Competition Needs

RULES FOR THE 2018 HUMAN POWERED VEHICLE CHALLENGE

- Must compete in Design, Innovation, Men & Women Speed, and Endurance events
- HPV must be Innovative
- HPV must be able to stop in a short distance at speed
- HPV must have brakes on front wheels
- Roll-over protection system (RPS)
- Secured driver in HPV by safety belts or shoulder harness
- May want Aero devices, energy storage device, vehicle modifications

Persona Needs



- Unpaved Roads
- Long Distances
- Head/Tail Lights



- Conjested Streets
- Frequent Turns
- Close Proximity to Cars
- Navigates small areas

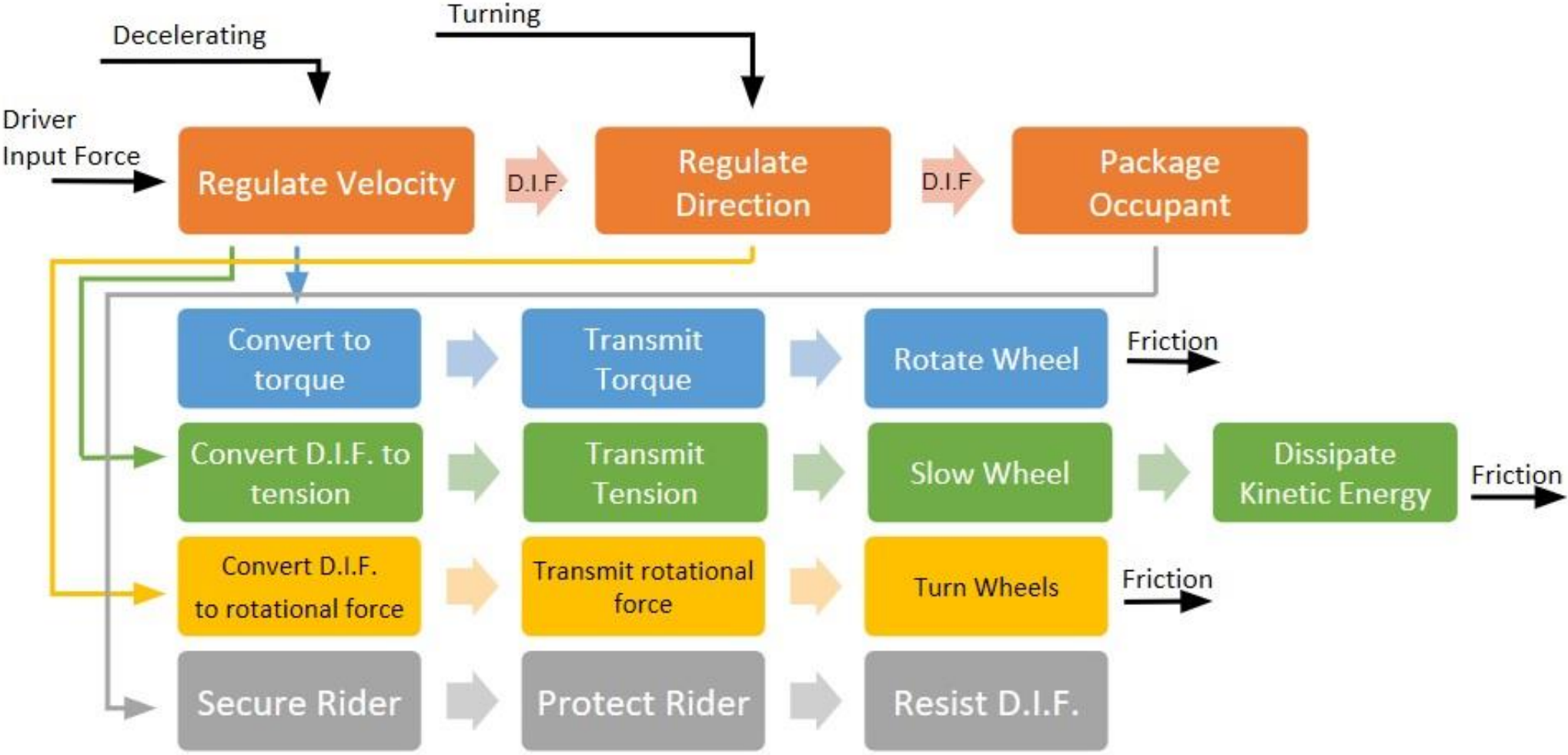


- Obstacles
- Theft



- Fast
- Light-Weight

Functional Decomposition



Any Questions?



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