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2023-2024 ASME eHPVC

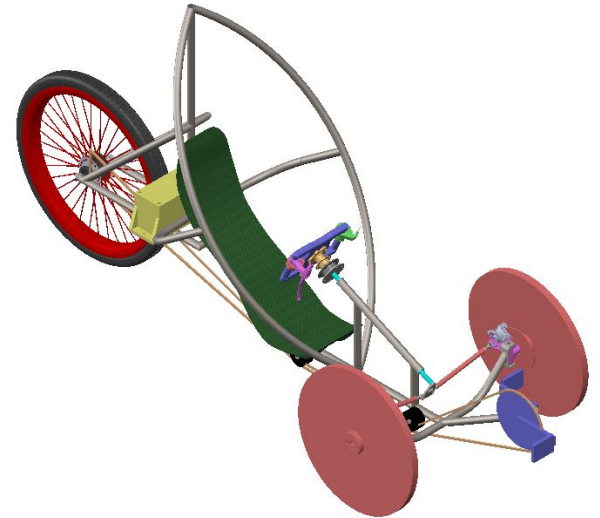
Department:
Mechanical Engineering



Faculty Mentor Name(s):
Dr. Daniel Codd

Project Abstract:

The University of San Diego is participating in the annual ASME e-HPVC. ASME's e-Human Powered Vehicle Challenge (e-HPVC) is an engineering design and Innovation competition that gives students the opportunity to network and apply engineering principles through the design, fabrication, and racing of human-powered vehicles. These competitions will consist of three events: Design Event, Drag Event, and Endurance Event. Scores from each event are totaled to obtain the overall score to determine the winner. There will also be an award for best innovation at these competitions.



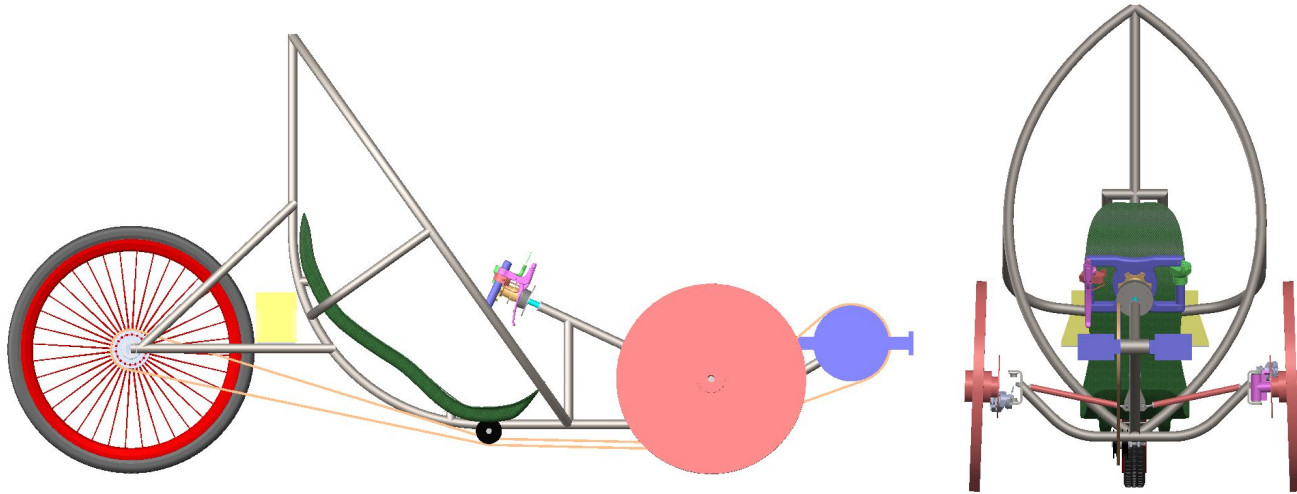
Schedule



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					COMP REGISTRATION	DESIGN REPORT	DESIGN PRESENTATIONS	SAFETY VIDEO	BSU EFX
Milestone marker:		March			April				
Milestone description	Assigned to	Week 21	Week 22	Week 23	Week 24	Week 25	Week 26	Week 27	Week 28
Framing/RPS	Ethan								
Prototype Manufacturing		Full frame bent, tubing notched	50% assembled	Frame complete					
Testing and Refinement					RPS Physical Test				
Braking	Dan								
Analysis									
Prototype Manufacturing / Ordering									
Testing and Refinement			Brakes assembled off frame		Brakes mounted				
Battery	Cam								
Charge/Discharge Modeling									
Analysis									
Prototype Manufacturing									
Testing and Refinement			Continued Testing		Completion				
Steering	Jake								
Analysis									
Prototype Manufacturing		Create Drawings and Spec Sheet	Fabricate all steering parts	Weld and assemble steering parts					
Testing and Refinement		Test Steering Wheel	Adjust print settings/material + reprint	Retest Steering if necessary	Test Steering Assembly				
Electric Motor	Yaqoub								
Analysis									
Testing and Refinement			Continued Testing						
Mechanical Drivetrain	Brendan								
Analysis									
Chain Tension and Idler Routing		Remove existing cassette from old bike	Finish 3D modeling						
Prototype Manufacturing									
Testing and Refinement			Idler Installation	Idler / Chain Installation	Chain Installation				
Integration and Final Testing	All								
Full Vehicle						FULL ASSEMBLY COMPLETE	BENCHMARK TESTS		

The New Egg Shell Frame



Key Points of Change from previous year's model is the "Egg Shell frame." This design was inspired by the Formula 1 Race vehicles. The driver will be encapsulated, safe and secured in the event of a roll-over. Driver contact with the surface are grounds for automatic disqualification.

Go-Kart/Airplane Yoke design

The steering wheel was inspired by a “Go-Kart steering wheel as well as an “Airplane’s Yoke.”

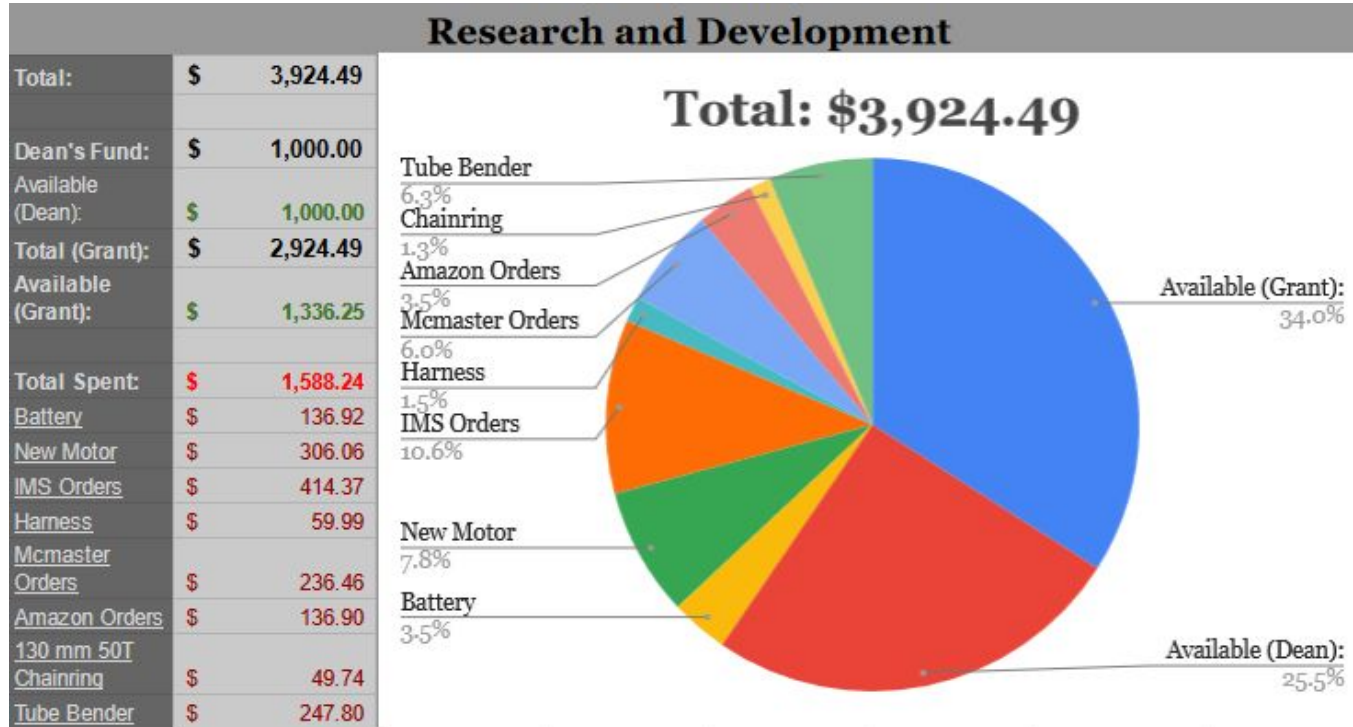
Future plans include to create this system with carbon fiber incorporated for added strength.



Budget allotment

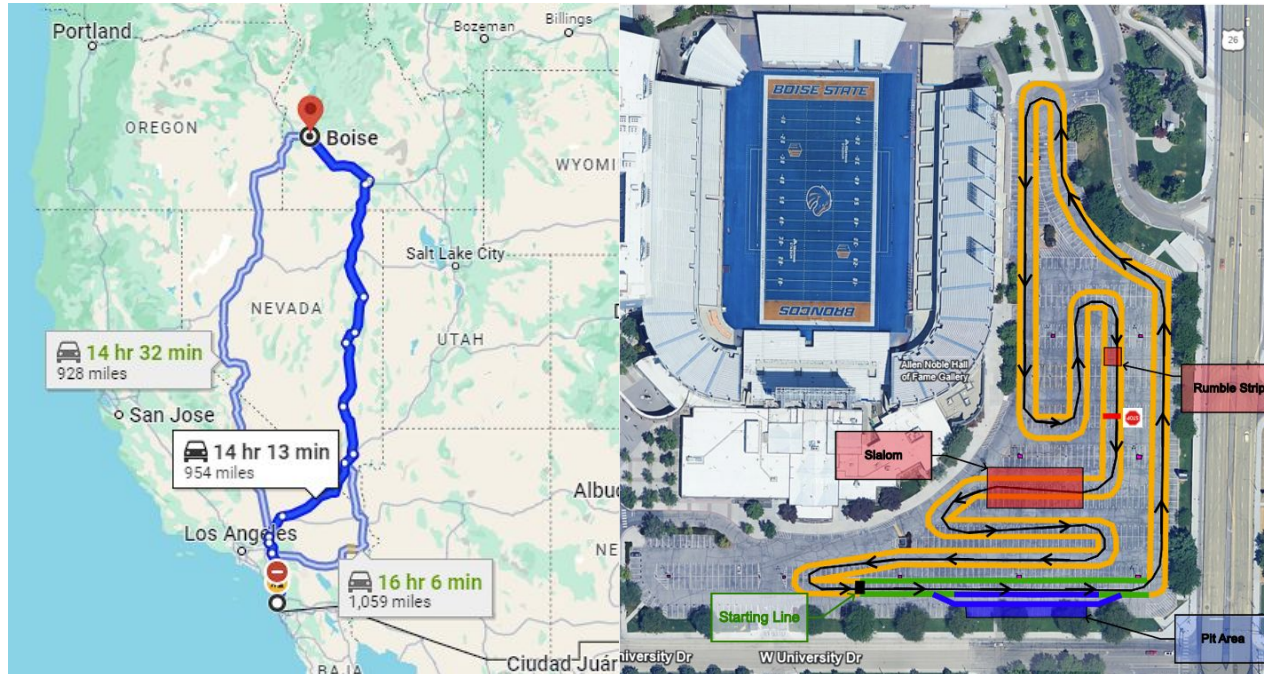


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ASME e-HPVC's 2023-2024 Budget allotment, from design to fabrication and national competition.

The Road to National Competition



Talladega Toreros will be representing the University of San Diego at the ASME e-HPVC event located in Boise, ID on April 27th-28th, 2024.