

Specifications

Features

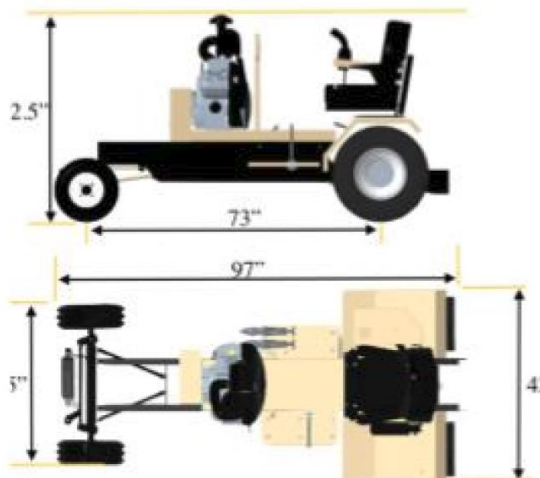
- 31 HP Briggs and Stratton Vanguard V-Twin
- Three Speed Midwest Supercub Transaxle
- Suspended Seat
- Four-Link Front Suspension
- 800 lbs (unballasted)
- Titan 26-12x12 tires

Value Proposition

- Filling the void in compact recreational tractor market

Impacts

- Developing future engineers
- Defend reputability of Purdue engineering



Special Thanks

Team Members:

- Calvin Sander
- Grant Wagner
- John Koellisch
- Terry Schwab
- Richard Chen
- Zoe Rainey

Advisor:

Dr. John Evans

Sponsor:

Dr. John Lumkes

Financial Sponsors



PQS-1: Quarter Scale Tractor: Hammerdown 22



**Pulling More Than Our
Own Weight**

**Daniel Foley, Matthew
Gobel, Nathan Sprague**

Background and Scope

The ASABE Quarter Scale tractor pulling competition is an annual event where collegiate teams design, build, and compete with 900 lb tractors.



Teams are scored by their performance in:

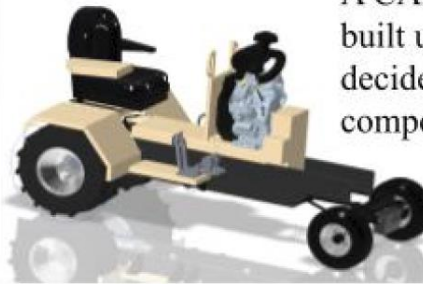
- Maneuverability
- Durability
- Noise level
- Safety
- Pulling ability
- Serviceability

The team used these events as criteria for the design of the tractor.

		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Problem Scoping	Problem Scope											
	Brainstorm											
	Outside Components											
Design	CAD											
	FEA											
	Build											
Test	Dynamometer											
	Qualifying											
	Practice Pull											
Final Report/Class End												
Complete	Competition											

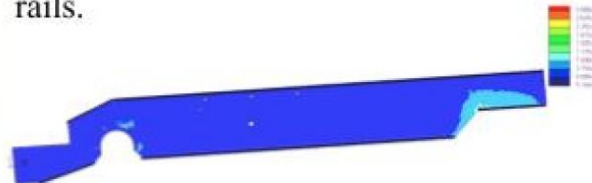
To be ready for the competition in early June, the team made schedule to stay on track:

Design

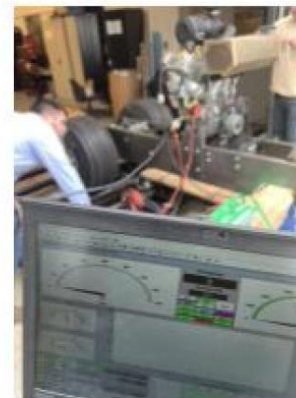


A CAD model was built using Creo, to decide layout and component fit.

FEAs were performed on components subject to high stress, such as the frame rails.



Many components were built and tested for function, such as the drivetrain in a dynamometer test.



Solution

The Hammerdown 22

The Hammerdown 22 is designed for maximum pulling and reliability.

It features:

- Mechanical 2WD driveline (high reliability & simplicity)
- Rear operator's station
- Joystick-controlled linear actuator
- Floor mounted clutch and brake system.
- 4-link suspension and seat suspension ensures operator comfort.
- Shielding on all moving parts

