Anteater Racing

FSAE ELECTRIC THOR

UCI Samueli School of Engineering

Goals

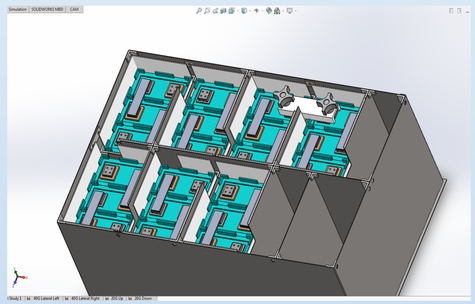
- Compete at FSAE Electric in June 21, 2017
- Pass technical inspection following all 1200 rules
- Compete in at least one dynamic event
- Complete running car 45 days before competition

Current Status

The picture above of the mock up accurately depicts our progress. We currently have a working high voltage drivetrain with both electric motors spinning and being controlled by our low voltage controls circuits. Below discusses a bit more about our components and their progress.

Requirements

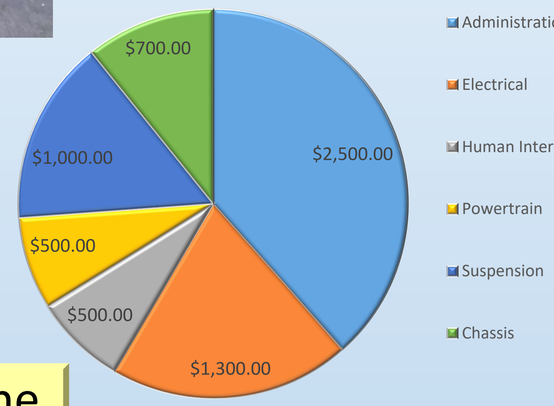
Requirements are set based on the FSAE rules document, every single rule is a requirement the racecar must meet. The other requirement is to follow safe practices in all aspects of the project including manufacturing and testing.

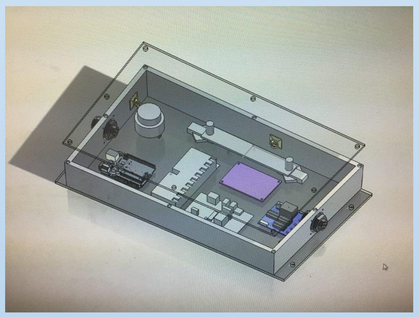


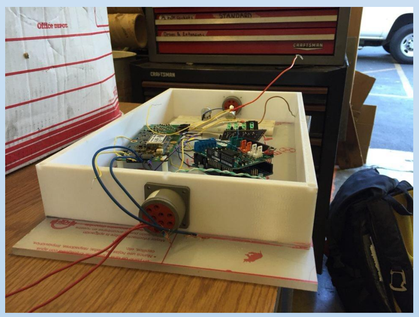
Team Structure

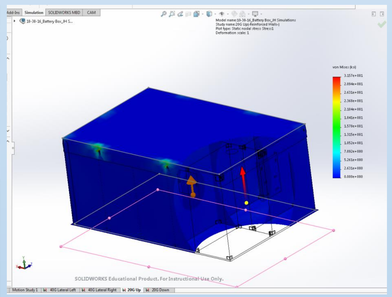
- Advisor: Professor McCarthy
- Chief Engineer: Zach DeMotte
  - Electrical Lead: Xavier Dedenbach
  - Batteries Lead: Mark McCorkle
  - Chassis Lead: Peter Bui
  - Human Interface: Haoli He
  - Suspension Lead: Liam Buchanan
  - Powertrain Lead: Antonio Rojas
  - Team Engineers

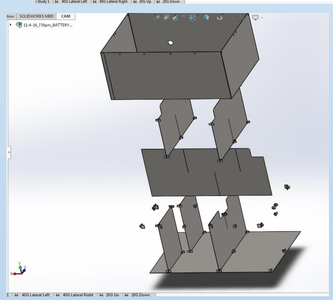
Budget











Timeline

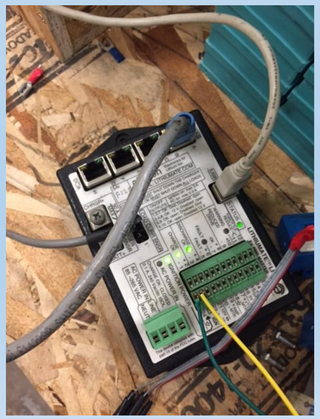
Fall Quarter
- Electrical Design
- Battery Box Design
- Electrical circuit testing
- Chassis design
- Suspension design
- Human Interface Design

Winter Quarter
- Battery box manufacturing
- Suspension Manufacturing
- Chassis Manufacturing
- Finalize Human Interface design, begin manufacturing

Spring Quarter
- Finish manufacturing all components
- Testing
- Go to competition

LV Electrical

Provides the control for the car. FSAE rules require a throttle plausibility circuit, a brake system encoder, a brake plausibility device, an insulation monitoring device, a ready to drive sound, a battery management system, a shut down relay board, a precharge discharge circuit, and a tractive system active light. Every circuit except the IMD is working.



Battery Box

This year we hope to run one battery box in the rear of the car. The battery box must be able to easily hold 150 lbs of batteries while meting the FSAE requirement of up to 40g loads without structurally failing. The box simulation is shown above and a mock up to the right.

Powertrain

Powertrain is the high voltage electrical as well as the mechanical component of the drivetrain. Thor will use 2 ME1003 motors and operate at 72 volts.

Chassis

The chassis is the frame of the car, it is still currently in design, though this is the current iteration.