

Formula SAE Drivetrain

Mechanical Engineering

Students: Sem Arroyo, Gerardo Manriquez, Michael Serena

Advisors: The Nguyen

FRESNO STATE

Lyles College of Engineering

Abstract

The SAE Drivetrain team is responsible for delivering a functional drivetrain for the Fresno State Bulldog Racing Club. The main objective of this year's Drivetrain is to design functional differential mounts. The differential enables the vehicle to have differential speeds at the rear wheels; this makes turning, without slipping, possible. The redesign of the differential mounts allows the differential to handle the various forces the engine and brakes cause on the system.

Scope of Project

- Deliver A Functional Drivetrain
- Redesigning Differential Mounts
- Analysis of Components
- Differential Housing
- Sprocket Sizing
- Chain Guard

Design Process

- Examine and analyze the limitations caused by the frame's inconsistencies.
- Every component in this project is custom built for the needs of the vehicle.
- Careful selection of materials is key to build components that are able to withstand vehicle loads.
- Differential Mounts are designed out of steel at a thickness of $\frac{1}{4}$ inch for component life and safety factor.

Drivetrain Components



Benefits

- Opportunities for student involvement in all integration phases; legal agreements, engineering, and production.
- Students gain project experience which opens new opportunities for them.
- The thrill of building a functional vehicle.
- Fresno State peer to peer exposure.
- Application of theoretical knowledge gained in the class room.

2016