Racecar Space Frame

Project Overview

We designed and fabricated the frame of MIT Motorsports' electric racecar to compete in the Formula SAE student engineering competition.

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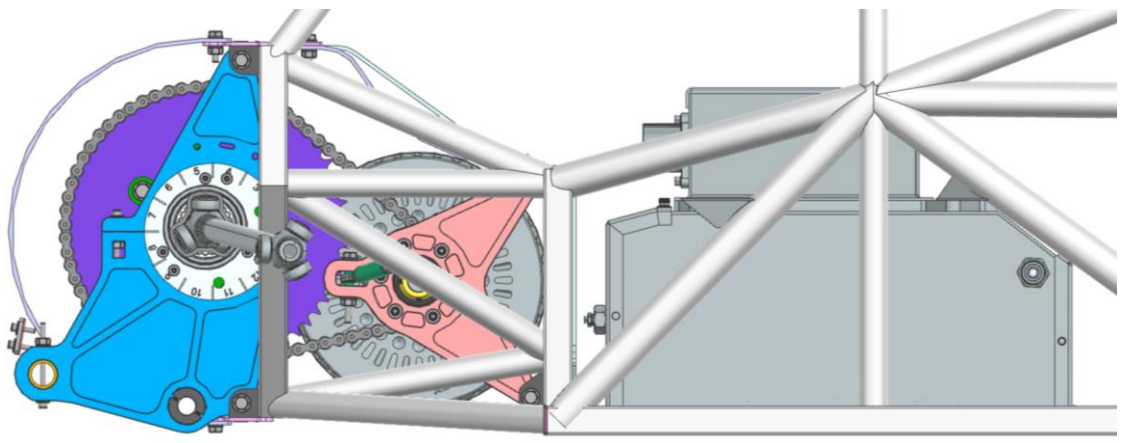
Design

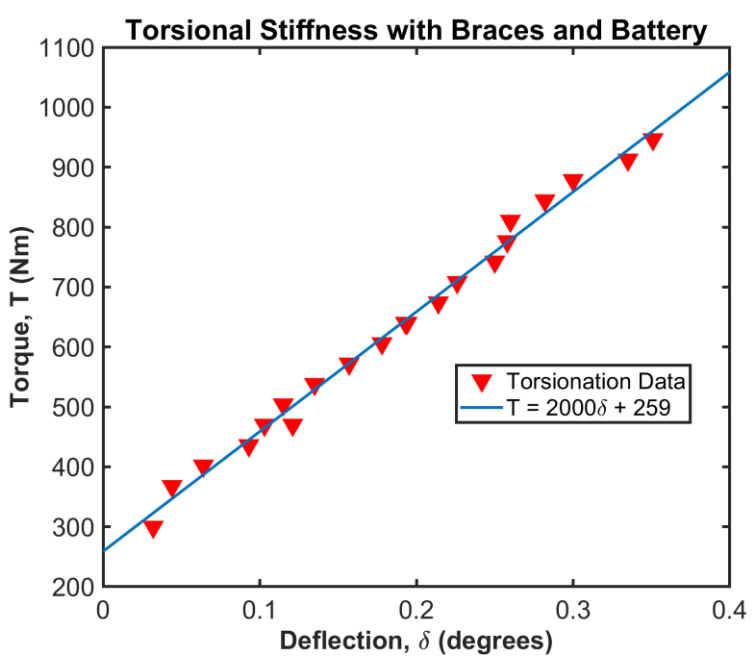
- Bending-free suspension load paths
- Tabs sized for bump load of 5,000 Newtons
- 37.6 kg and 2000 Nm/deg torsional stiffness



Torsional Stiffness

Measured with hub-to-hub torsion jig

	Nm/deg
Design Requirement	1900
Rules Minimum	900
With braces	1585
With braces and battery	2000



Fabrication

- TIG welded steel frame
- Suspension tabs jigged to ±0.1" positional tolerance
- 73 tubes welded in 8 days
- 187 tabs welded in a month