SENIOR Design Day

Department of Mechanical & Energy Engineering
University of North Texas

Nov 17
2017

EST. 1890

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PROGRAM

View Projects in Main Hallway
8:00 AM to 4:00 PM - Discovery Park Foyer

Lunch Break
11:30 AM to 1:00 PM

Design Presentations
9:00 AM to 4:00 PM

Presentation Schedule

	Room F175
9:00 AM	Team: SAE Baja Car
9:30 AM	Team: Agriculture
10:00 AM	Team: Schneider Energy
10:30 AM	Team: Textron
11:00 AM	Team: Human Powered Vehicle
1:00 PM	Team: NGC (Gear Support System)
1:30 PM	Team: NGC America (Gear Wrapping System)
2:00 PM	Team: Rockets
2:30 PM	Team: Avenger Sprint Car
3:00 PM	Team: Forney Duct Burners
3:30 PM	Team: Bio Medical Design

Avenger Sprint Car

Team Members: Raul Alaniz, Jeremy Jonas, Alexander Lopez, Jacob Smiddy, James Weems

Sprint Car racing is one of the most jaw dropping forms of racing in the world. Sprint Cars reach speeds in excess of 150 mph on dirt ovals in the United States, Canada, Australia, and New Zealand. After seeing several injuries and part failures in the last few years our team took the initiative to try and revolutionize the Sprint Car industry. Our company sponsor; Avenger Chassis and their predecessor, McDaniel Chassis has been manufacturing sprint car chassis and components for over 30 years. Avenger wanted to take their products to the next level by putting the designs in the hands of a group of young Engineer's with fresh minds on the subject at hand.

Team Avenger took several of the products Avenger produces and applied Engineering methods to improve the design with the goal of increased safety, strength, durability, and speed. The chassis, torsion arms, birdcages, and rear motorplate were the parts that were split amongst our group to design. Through analyzing previous crashes, part failures from customers, studying sprint car dynamics, and using Finite Element Analysis we created an all new line of parts. The chassis was then TIG welded applying Meta-Lax stress relief methods and purge welding. Team Avenger also wrote the G-Code using Featurecam to machine our parts on a three axis CNC machine. Overall, all of our parts had improved strength/function and design optimized for maximum weight reduction while meeting the necessary goal at hand.

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