



Presenting Members: Paige Meskan, Charles Olson

Absent Members: Brent Duenow, Adam Gunderson, Lance Nelson

Advisors: Dr. Ali Amiri, Dr. Ghodrat Karami

The Team



Competition Background

- International NASA design competition
- April 12-13, 2019 in Huntsville, AL
- Course that simulates lunar tasks and terrain



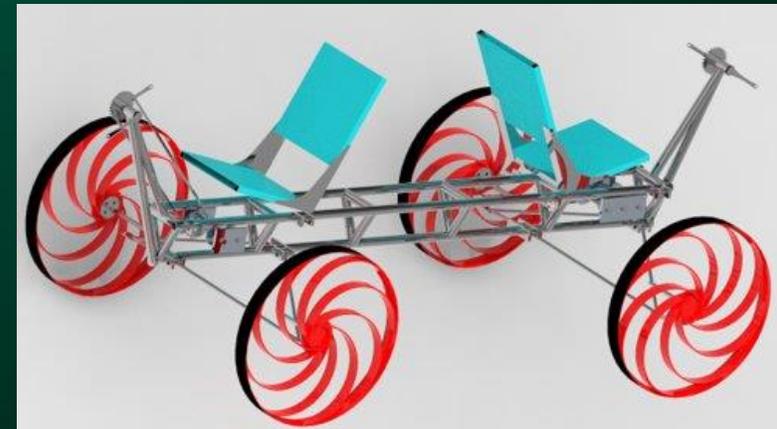
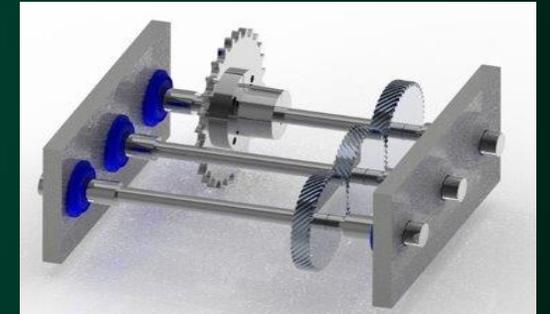
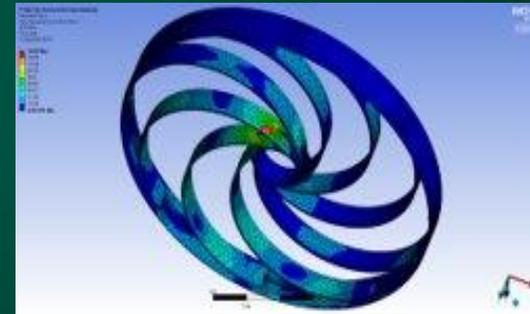
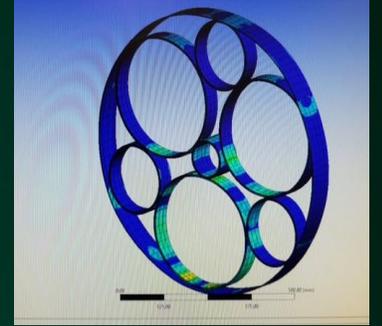
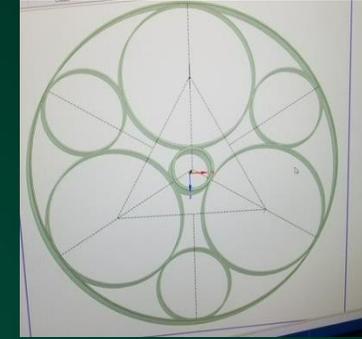
NASA Marshall Photo Archive – 2018 Human Exploration
Rover Challenge

Team Objectives

- Complete the course in under 7 minutes
 - Improve reliability of rover from previous year.
- Receive the Technology Challenge Award for wheel design.

Design Process

- Problem Definition
- Project Planning
- Brainstorm Concepts
- Preliminary Budget
- Design Refinement and Selection
- Manufacturing
- Revised Project Plan and Budget
- Rover Testing



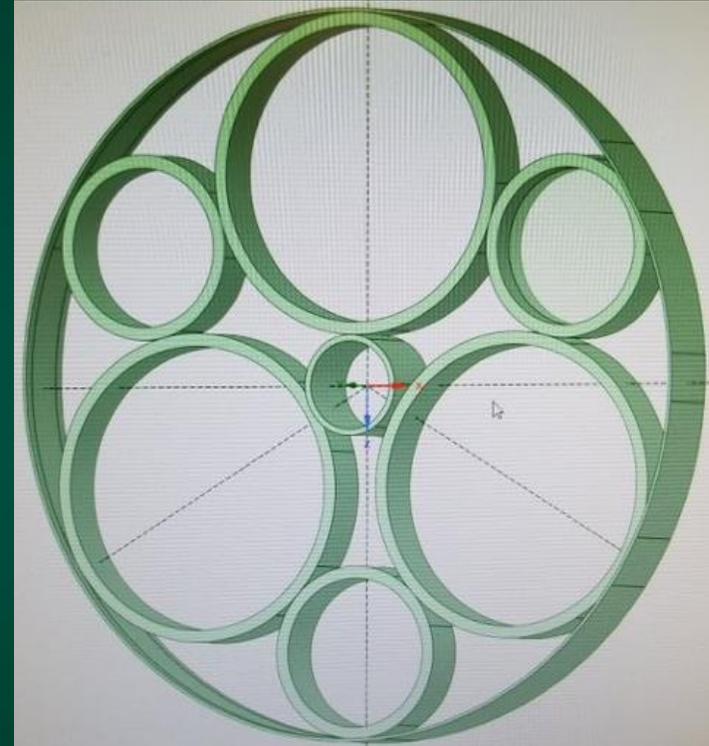
Major Changes

- Wheels
- Drivetrain
 - Brakes
- Seats and Restraints



Wheels

- Lightweight material
- Unique design
- Manufacturability



Drivetrain

- Remove bicycle components
- Simple and durable



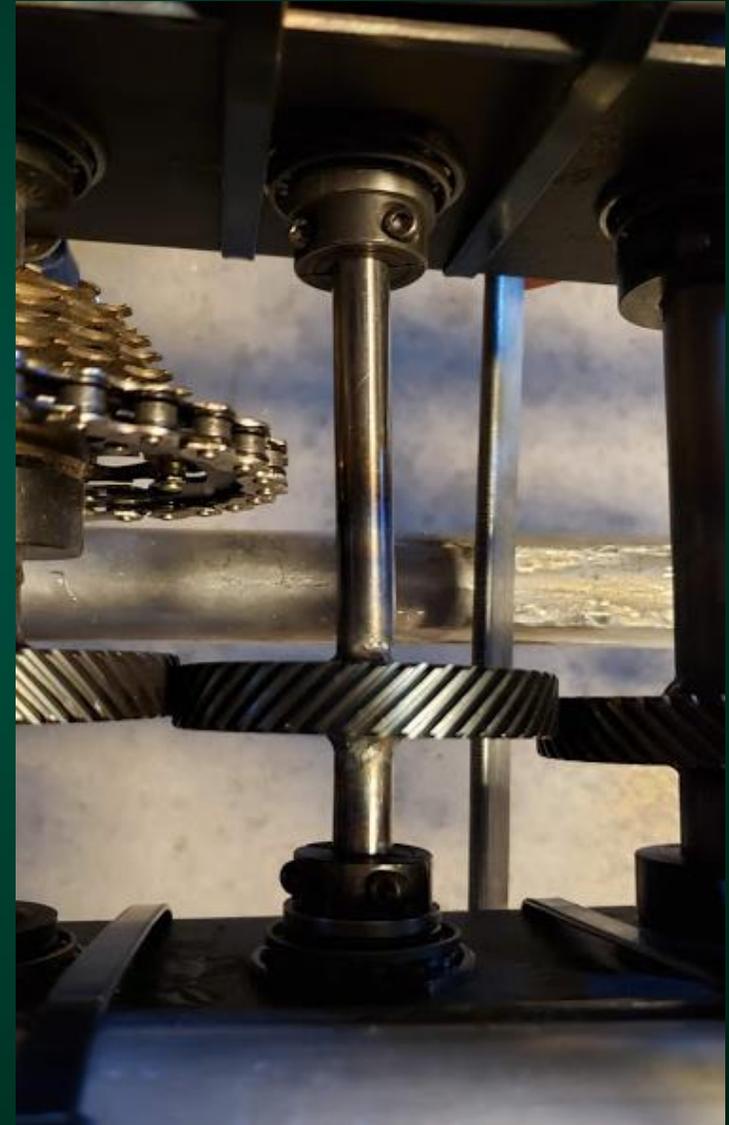
Seats

- Material change
 - Weight savings
- Size and function
 - Competition requirements



Obstacles

- Manufacturing
 - Experience
 - Tolerances
- Real life vs Theoretical



Current Progress



Big Takeaways

- Importance of alternatives
- Adapting
- Prototypes
- Sharing the workload
- Timelines



Looking Ahead

- Design validation
- Compete in 3 weeks

Fargo, North Dakota

Huntsville, Alabama

18 h 7 min (1,227.1 mi) via I-94 E

Directions

Map data ©2019 Google, INEGI

Acknowledgements

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