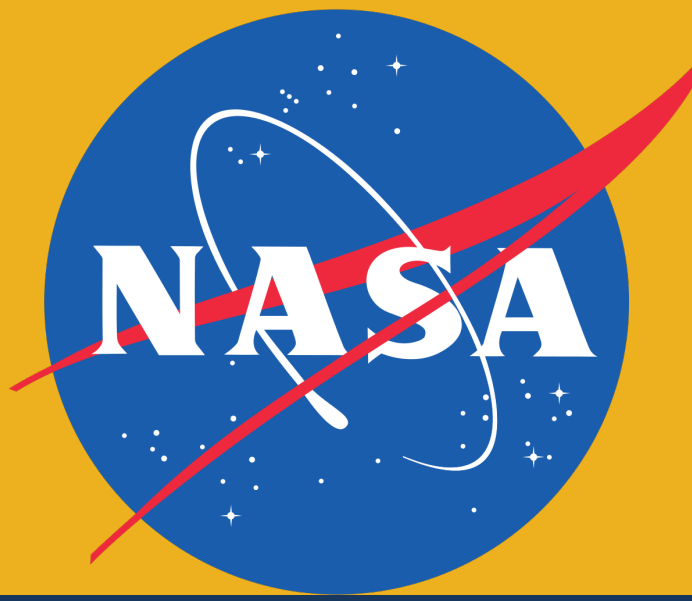




# Design and Development of a Human Powered Vehicle – Competition Hosted by NASA



**Team 17:** Luke Maeder, Katherine Estrella, Quentin Hardwick, Jacob Van Dusen, Garrett Rady  
**Advisors:** Nikhil Gupta, Chiang Shih **Donors:** Great Bicycle Shop, University Cycles

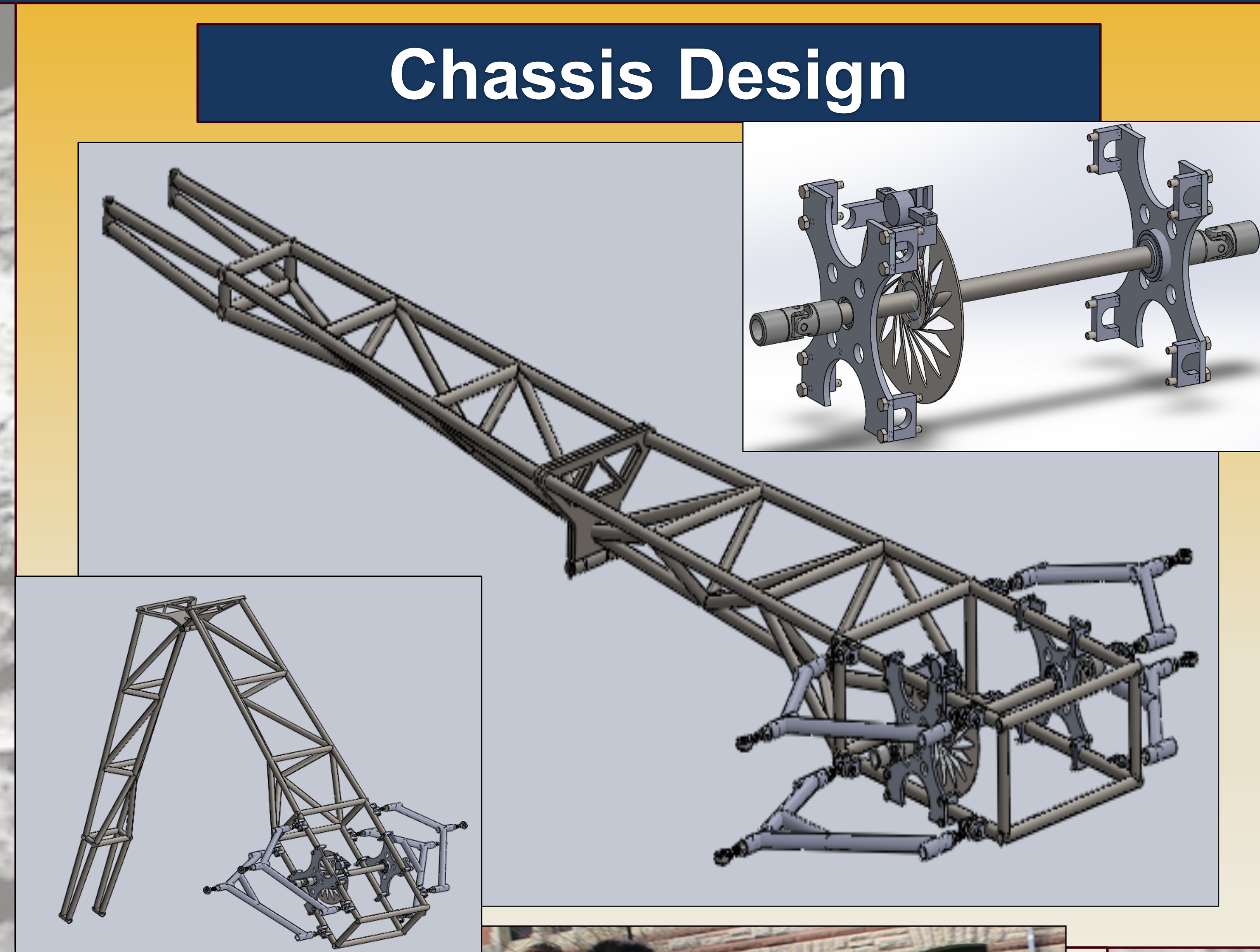
## Project Scope

The goal is to design a human powered vehicle to compete in the 2016 NASA Rover challenge. The vehicles will race across a simulated extraterrestrial terrain, which consists of crates, boulders, ridges, inclines, crevasses, and sand pits. Team 17 will focus on designing a lightweight vehicle that is capable of winning the Featherweight Award.

## Competition Constraints

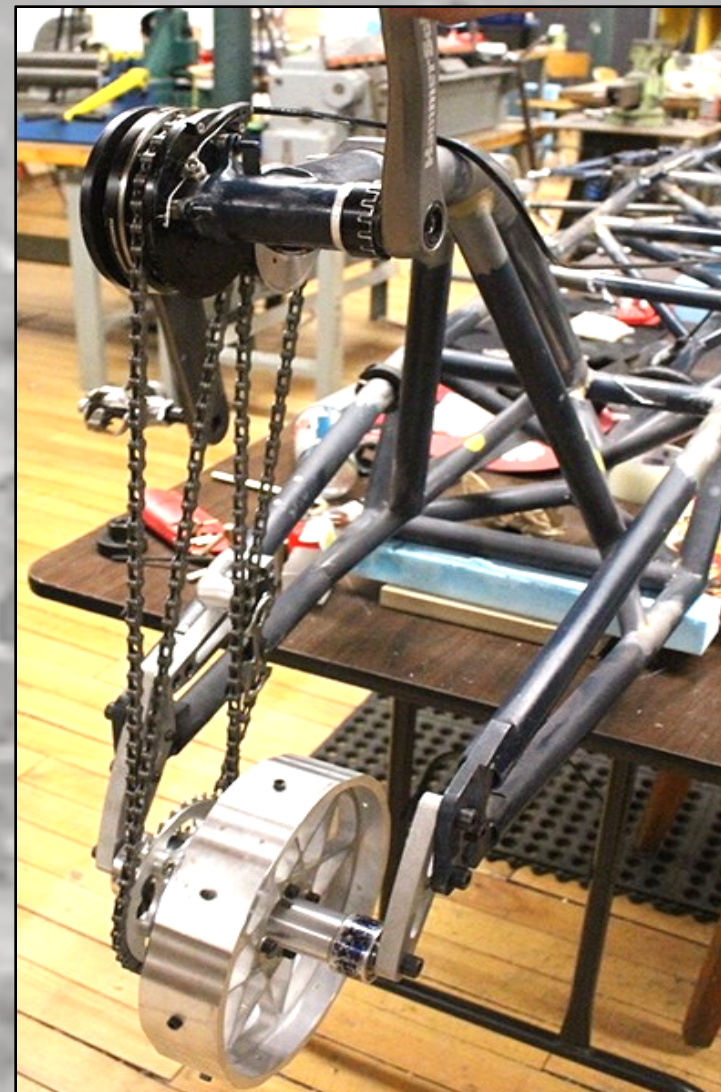
- Human Powered (Male and Female)
- Collapsible into 5ft cube
- Safe and lightweight
- 15in. clearance from ground to human extremities
- Wheels must be designed, constructed, and tested by the team

## Chassis Design



## Challenges

**Rear Drive Train**  
Back-to-back configuration means rear wheel is driven in reverse direction of pedaling motion.



## Future Plans

- Steering Assembly
- Design of wheels
- Seats Assembly



## Acknowledgements

As a team, we would like to give thanks to: the machine shop for information on designing for manufacturing, SAE for advice on vehicular design, and to Dr. Shih and Dr. Gupta for design advice and project management.

## References

- [1]"McMaster-Carr,". Accessed: 2016.
- [2]P. C. Info, "RISD: DTC moon buggy parts on RISD portfolios," 2015: Accessed 2016



Rhode Island School of Design  
Lunar Rover

