Team 23: Redesign of High Powered Rocketry Landing Legs

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RUSS COLLEGE OF ENGINEERING AND TECHNOLOGY

Create for Good.

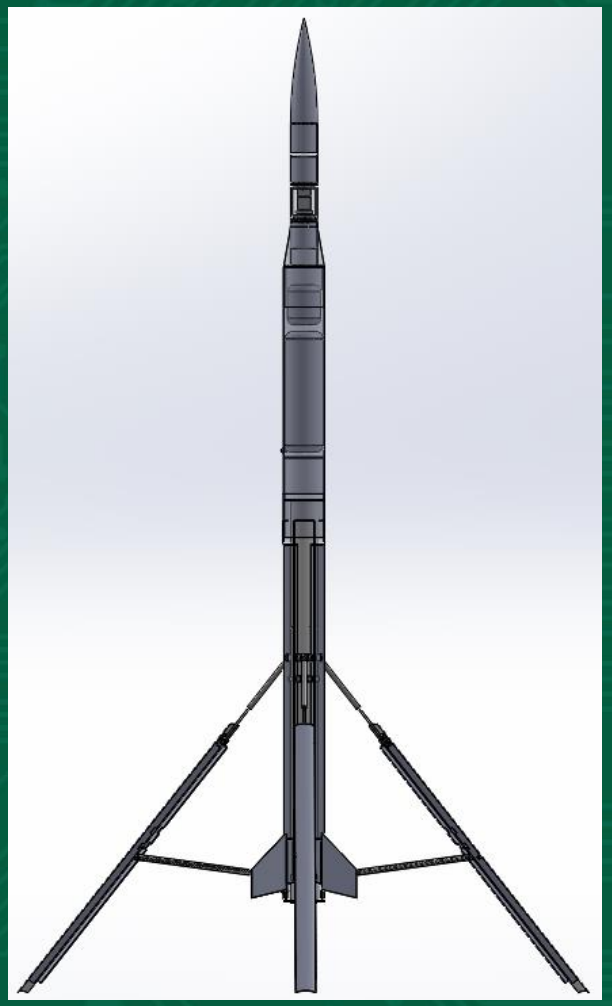
OHIO UNIVERSITY

The “Big One”

- N3300 motor
- Weighs ~93 lbs at takeoff
- Deployable landing leg system

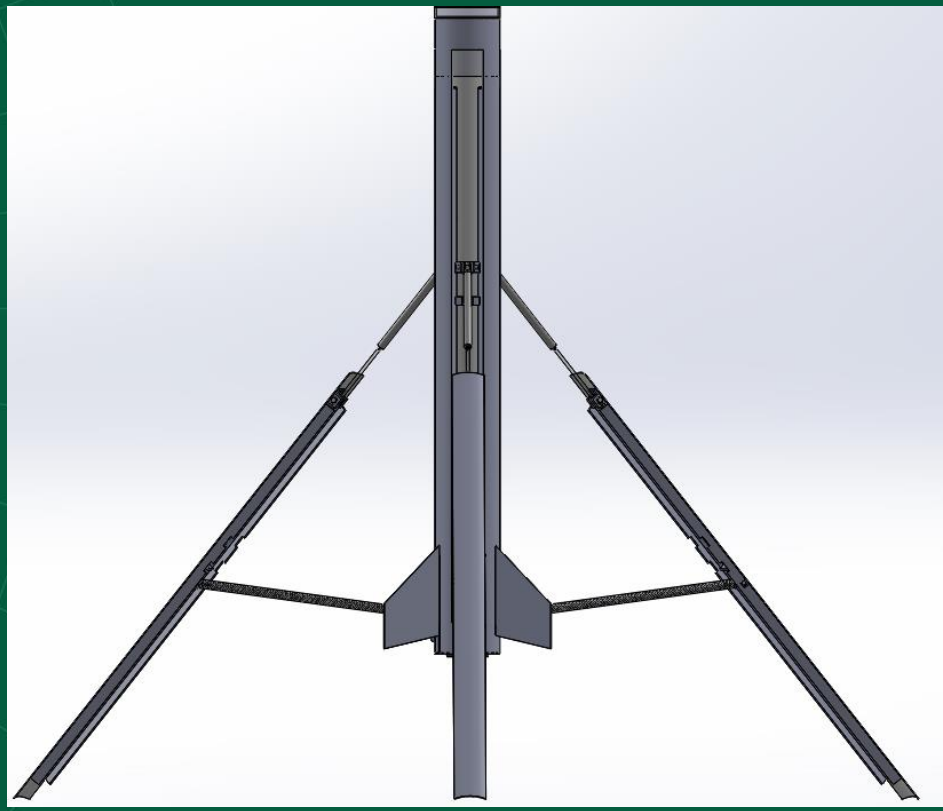
Landing Legs

- The “Big One” has three landing legs 120˚
- Made mostly of fiberglass
  - Reinforced the fiberglass legs with a fiberglass L-Bracket on each side
- Land at $18\,\frac{\text{ft}}{\text{s}}$
- Gas spring that has 15 lbs of extension force

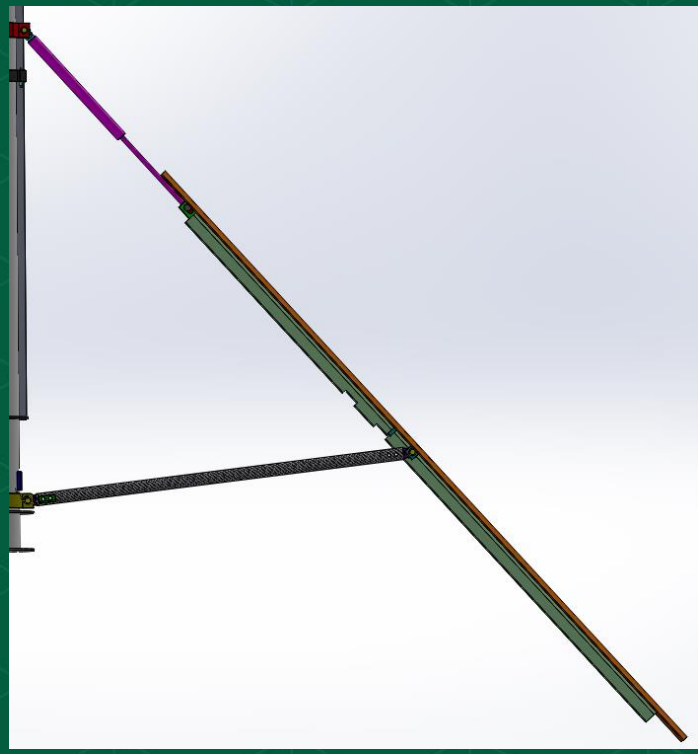


Design Parameters

- First and foremost: it had to be light
- Withstand impact force
- Aerodynamic
  - Flush mounted



Part of the leg	Material
Main shape	Fiberglass
Mounts on the airframe	6061 Aluminum
Gas Spring	Premade
Pins	6061 Aluminum
Mount from piston to fiberglass	6061 Aluminum
L-Bracket	Fiberglass
Cross member	Carbon Fiber



Improvements from Last Year

2017 Rocket	2018 Rocket
4 legs	3 legs
15 lbs per leg	5 lbs per leg
4130 alloy steel for rod	6061 aluminum rod
Obstructs airflow streamlines	Flush mounted to the airframe
Bolts	Rivets


Questions?