

Project Ares

University of Central Florida

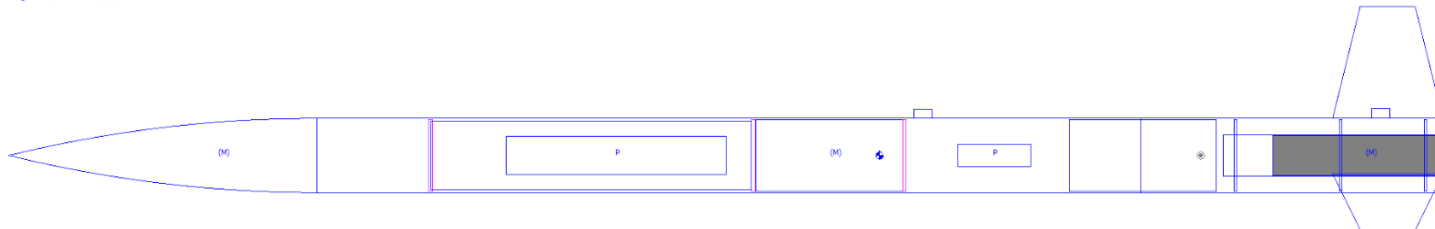
NASA Student Launch

11/12/2014

Vehicle Dimensions

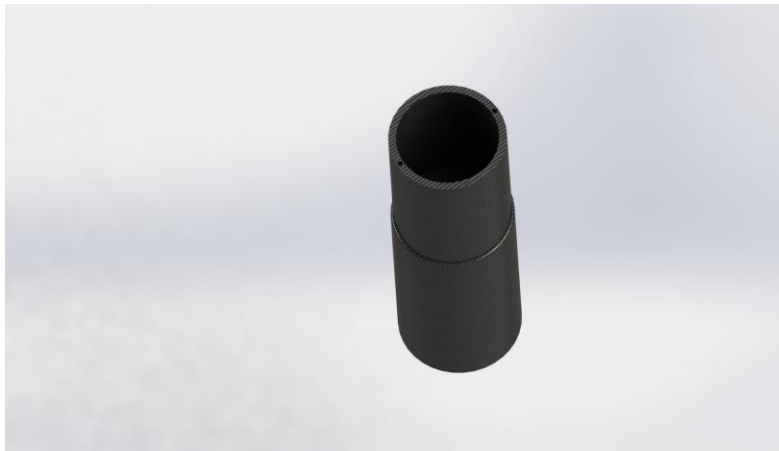
- Length: 78.3 in.
- Diameter: 4 in.
- Mass: 12.92 lb

Length: 78.3000 In. , Diameter: 4.0201 In. , Span diameter: 16.0201 In.
Mass 172.0898 Oz. , Selected stage mass 172.0898 Oz.
CG: 47.3530 In., CP: 65.0870 In., Margin: 4.38 Overstable
Engines: [J210-None,]



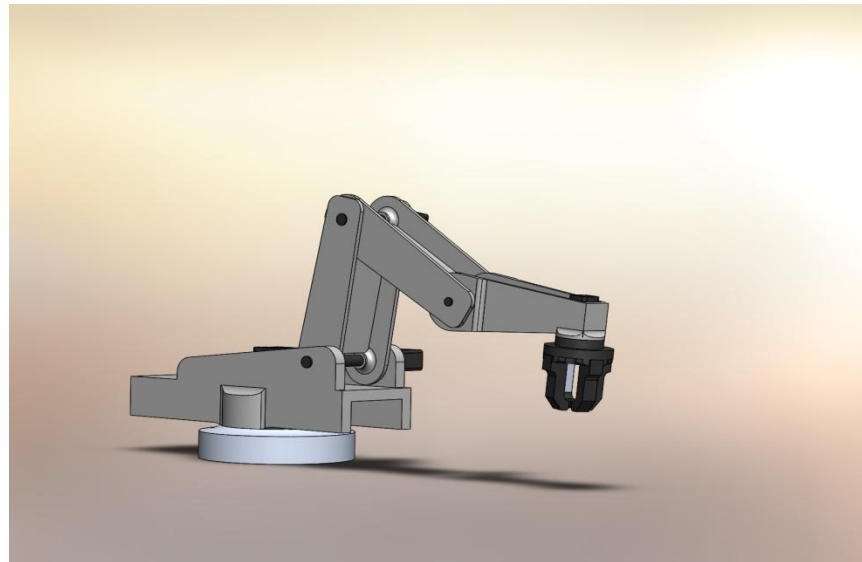
Materials and Justifications

- Carbon Fiber for Rocket Frame and Parts
 - Strength
 - Lightweight
 - Manufacturability
- Aluminum for Motor Casing



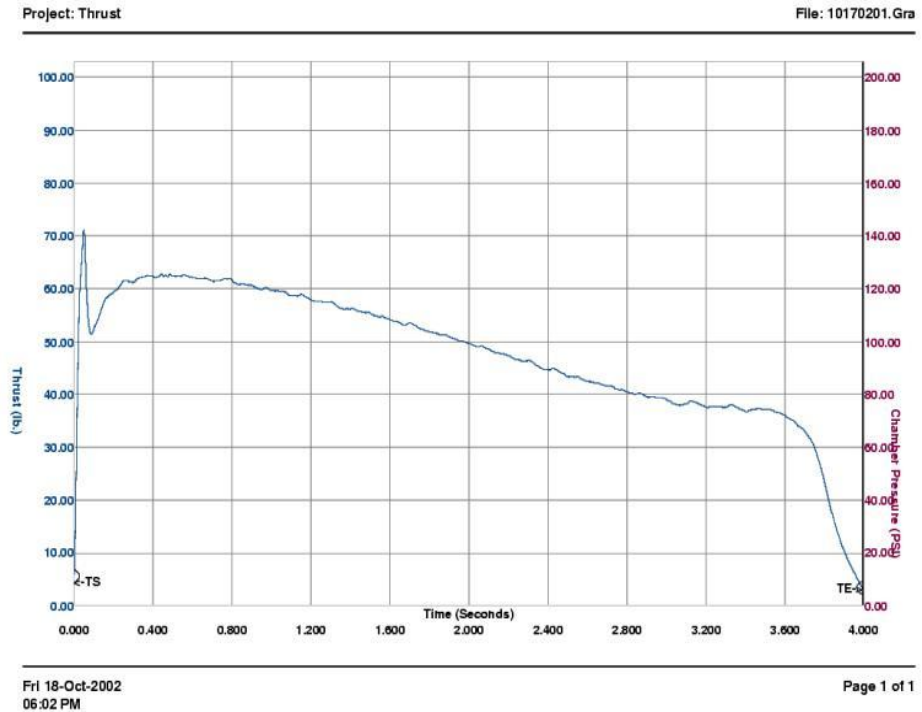
Materials and Justification (cont.)

- Aluminum For Rover Frame and Parts
 - Low Cost
 - Manufacturability
 - Strength



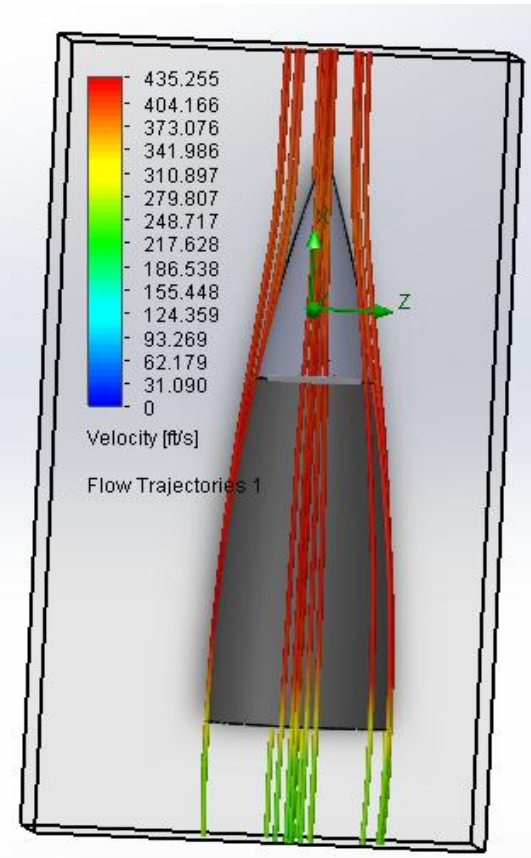
Motor Selection

- Cesaroni J210
- Burn Time
 - 3.99s
- Total Impulse
 - 3718 lb*s



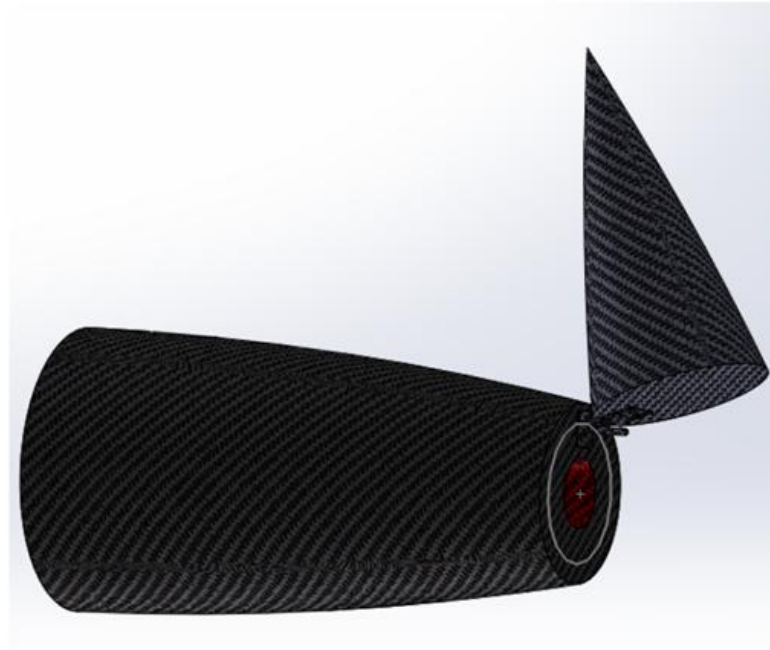
Launch Vehicle Verification

- Ran First Order Simulations
- External Flow at Max Q
- FEM Analysis
- CFD Analysis of entire Body



Major Components and Subsystems

- Payload Compartment with concealed Hinges
- Electronics Bay (flight computer, antenna, etc.)
- Motor
- Airframe
- GPS
- Parachutes



AGSE/Payload Design

- Chassis/Body Structure
- Controller/Wiring
- Arm
- Motors
- Wheels



AGSE/Payload Verification

- FEM Analysis
- Assembly for testing Constraints
- First order Simulations
- Moments and Forces