

Critical Design Review

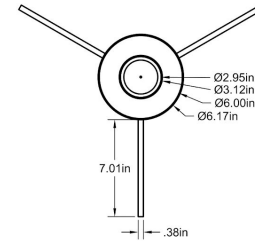
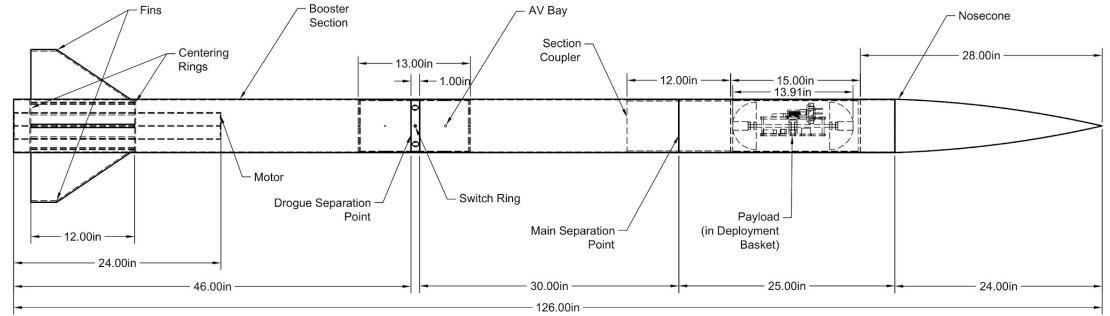
Piedmont Virginia Community College

Launch Vehicle

Launch Vehicle Dimensions

126" x 6" x 6" (not including fins)

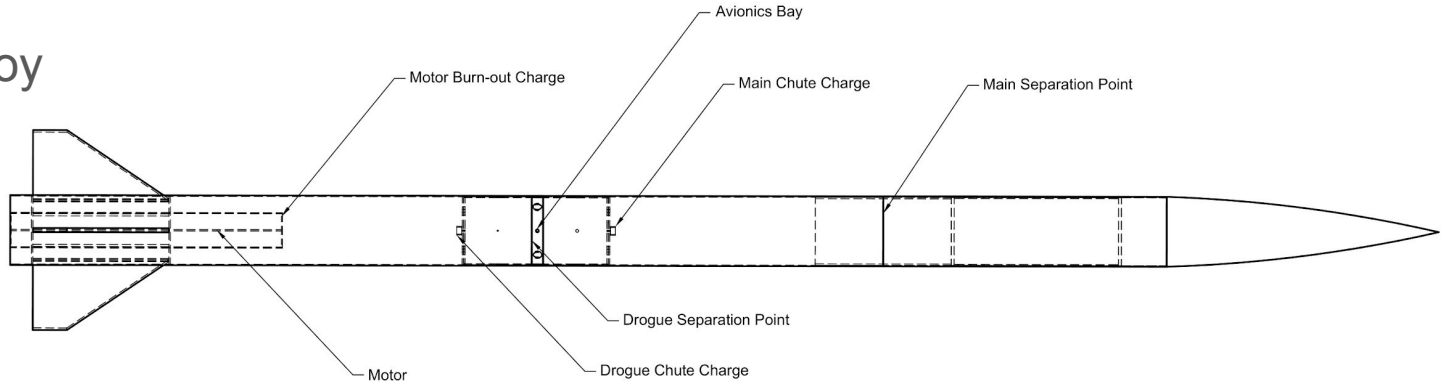
126" x 13.01" x 13.01" (with fins)



Key Design Features

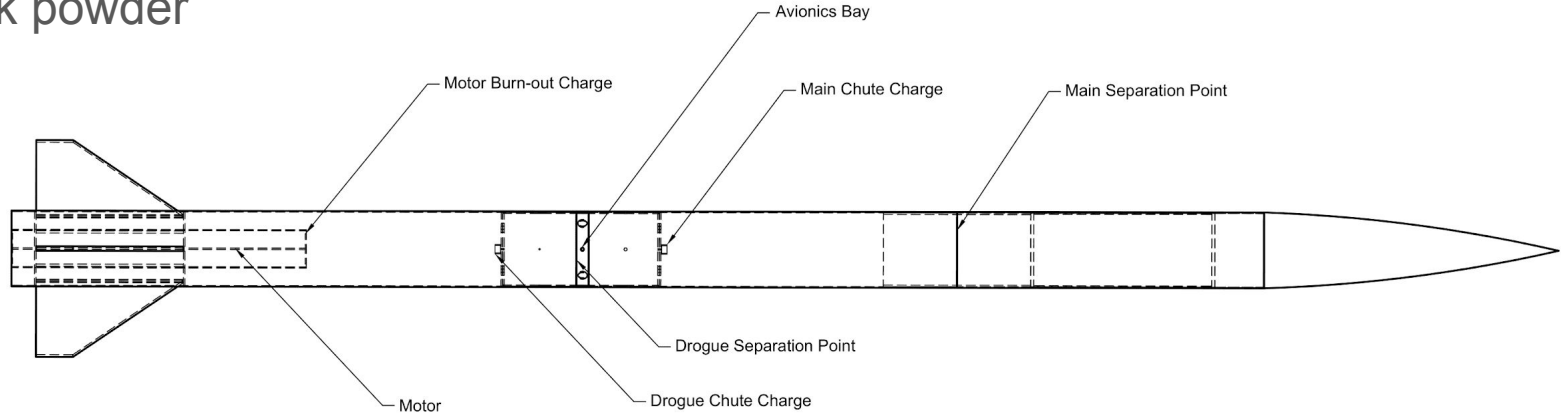
Three sections, one independent

Dual deploy



Separation Points And Energetic Materials

Black powder



Final Motor Choice

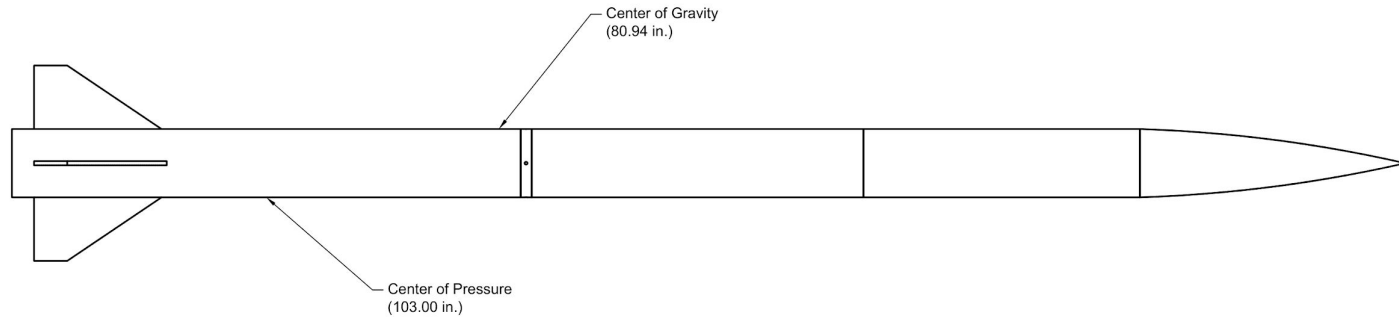
Aerotech L1150R

L-class motor



Rocket Flight Stability

Stability margin of 4.77 (Section 3.6.1 in CDR)



Mass Statement

41.27 lbs

Recovery

- Parachutes
- Harness
- Landing Energy
- Drift

Subscale

Launched January 3, 2021

Max speed and alt: 144.95 fps and ~449.18 ft

Flight duration 24.7 s

Motor: F42-8T

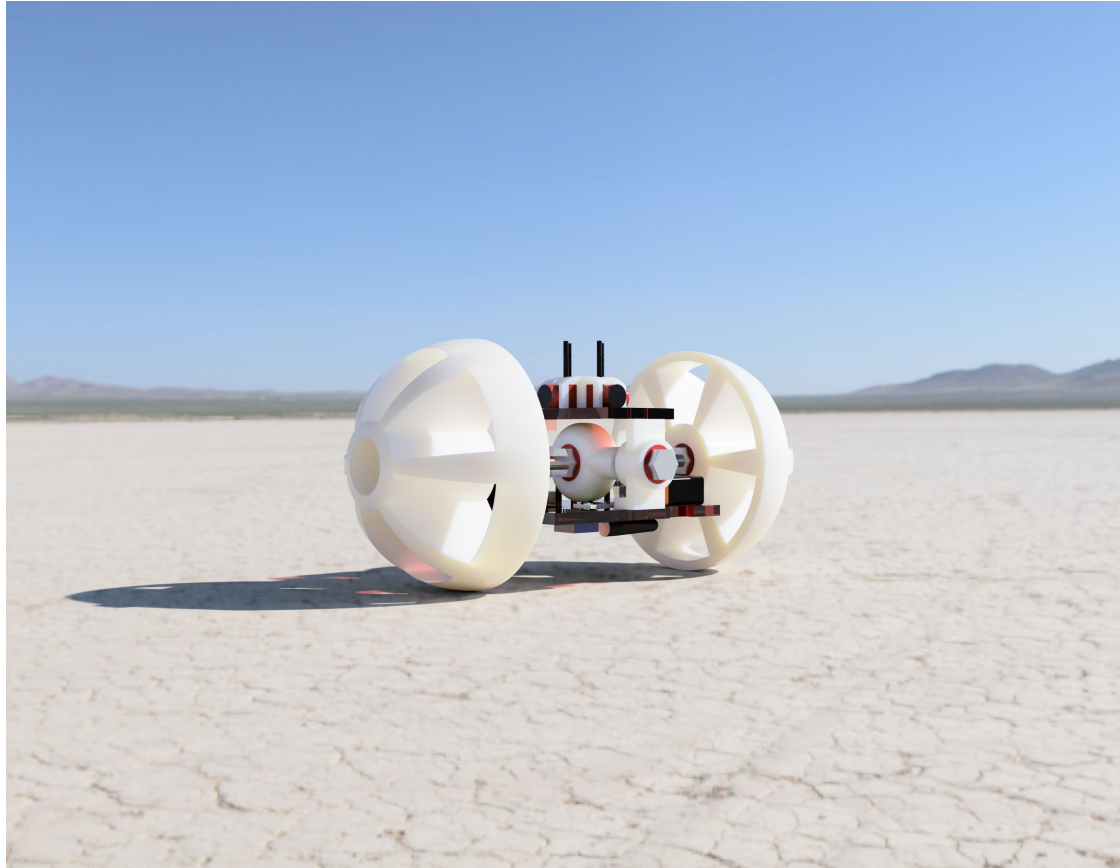
Testing And Procedures

Ground testing

Payload

Payload Dimensions

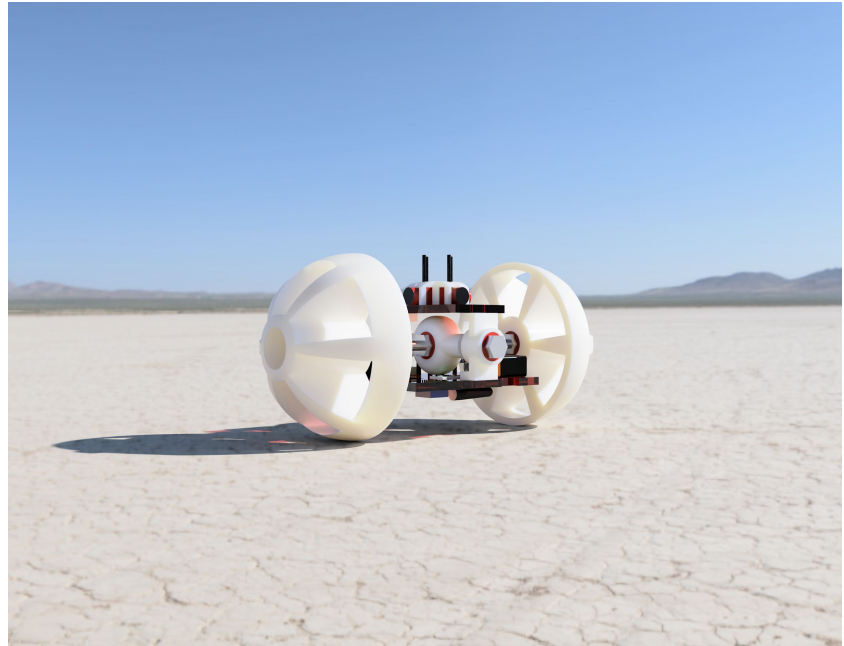
12"x5.5"x5.5"



Key Design Features

Cylindrical shape, rectangular main body which will hang from a central axle using ball bearings

Spoked endcap wheels



Final Design Overview

Integration

Payload basket (fixed bulkhead at one end, hinged bulkhead at other). U-bolts attach to basket, pull basket out during main deployment

Retention

Payload section shear-pinned to middle section

Interfaces

Testing And Procedures

Requirements Verification Status

Questions?