



STEVENS
INSTITUTE of TECHNOLOGY
THE INNOVATION UNIVERSITY®



Castle Point Rocketry

*President's Leadership Council
Meeting*

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Suborbital Launch Climate

The Issue: Smaller payloads take a back seat on traditional launch vehicles. This prohibits universities and small companies from innovating in space.

The Solution: Low-cost Low Earth Orbit (LEO) capable, reusable rockets. Companies advancing in this field include:

- Copenhagen Suborbital
- Rocket Lab
- Vector Space Systems



Castle Point Rocketry: Our Goal

By leveraging available technologies to drive down the cost of production and simplify construction, we want to demonstrate that space is attainable to universities.

Our current launch vehicle will serve as proof that our design is viable, while also shattering records.

- 8-person interdisciplinary Senior Design team (4 ME, 2 ChE, 1 CpE, 1 CS)
- 1 year
 - Formation: April 2018
 - Launch: June 2019
- \$100,000 final design

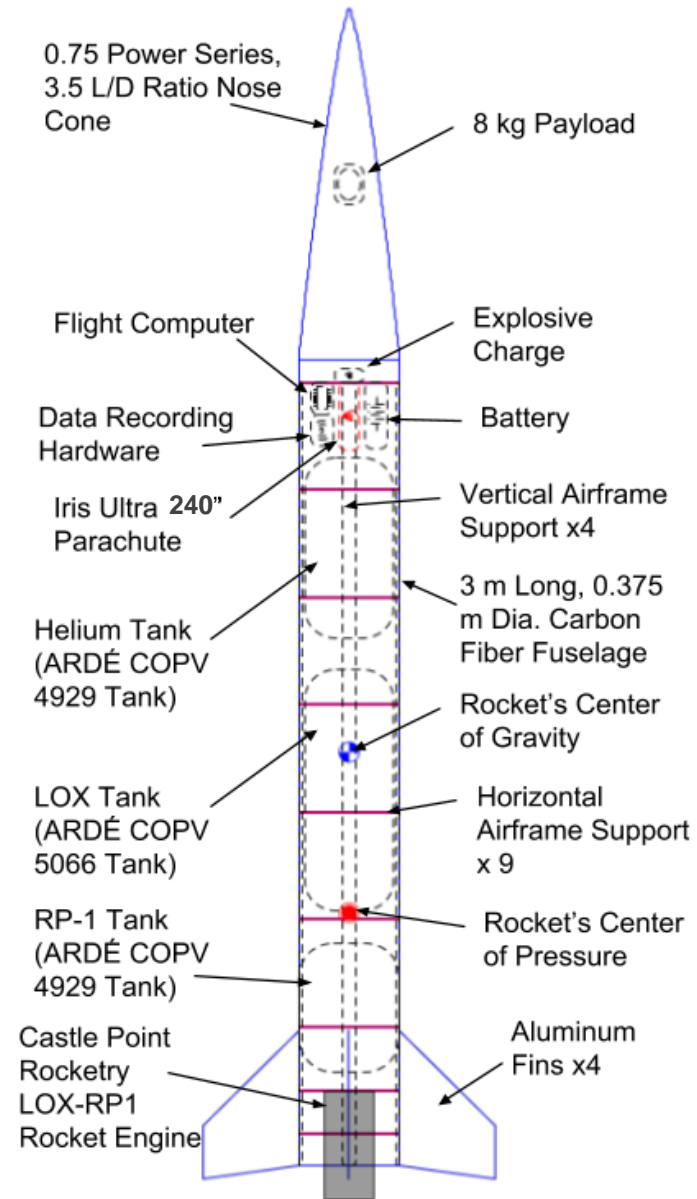


Design Overview

- Single stage rocket
- Carbon Fiber fuselage
- Aluminum (6061-T5) airframe
- Conical aluminum nose cone
- Aluminum tapered fins

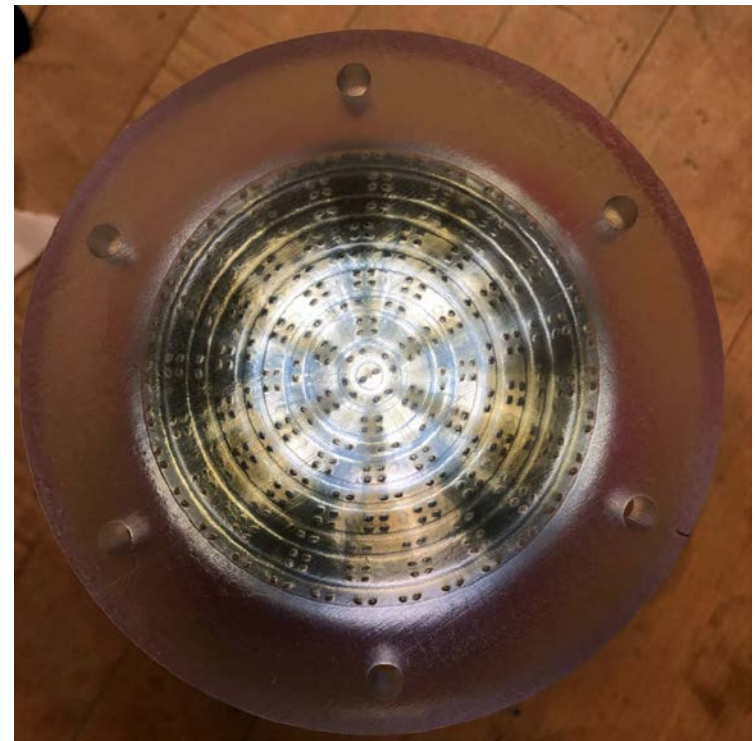
Tech Specs:

- Thrust - 10 kN
- Dimensions - 5.85 m tall, 0.403 m max diameter
- Burn time - 50 s
- Total Impulse: 504 kN-s
- Mass Flow Rate: 3.5 kg/s



Design Tasks In Progress

- Potential to test with JetA
- Full analysis of recovery system in-flight
- Studies into feasibility of using heated liquid helium
- Identifying engine printing partner





Excellence in All We Do

Safety is our team's first priority.

We understand the need to protect both our personal safety and the university's. Therefore:

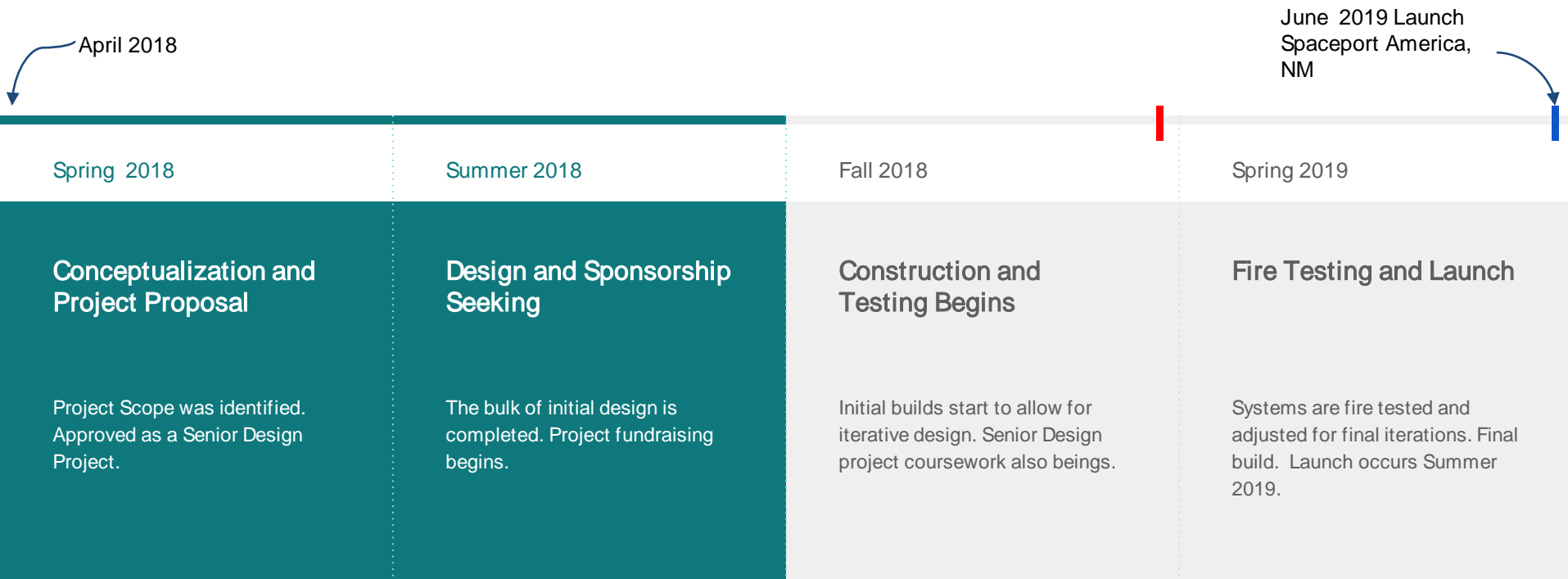
- No fire testing will occur on or near Stevens Property
- No unsanctioned chemicals will require storage on Stevens Property
- Launch will not occur on or near Stevens Property

In contact with:

- Dave Fernandez on all safety and insurance concerns
- Steve Behring on Export Control concerns
- FAA and launch site for permissions



Timeline



Testing



12.10.18 - Avionics Systems

12.18.18 - Telemetry Systems

01.20.19 - Recovery Systems

01.30.19 - Engine Cold Flow

02.05.19 - Systems Integration

02.15.19 - Dry Abort Sequences

02.15.19 - Dry Startup Sequence

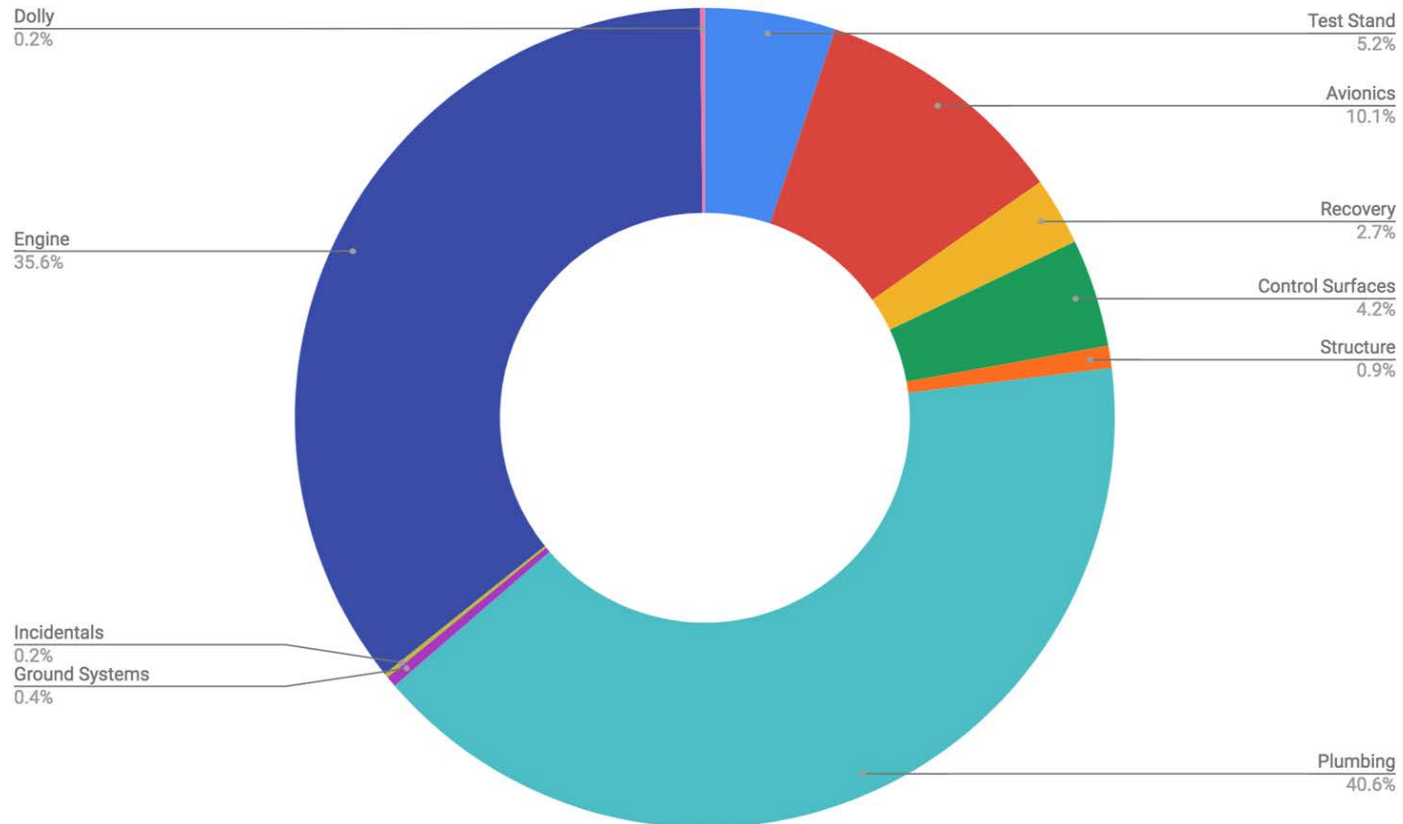
02.25.19 - Hot Startup Sequence

02.25.19 - Hot Abort Sequences

02.25.19 - Hot Fire



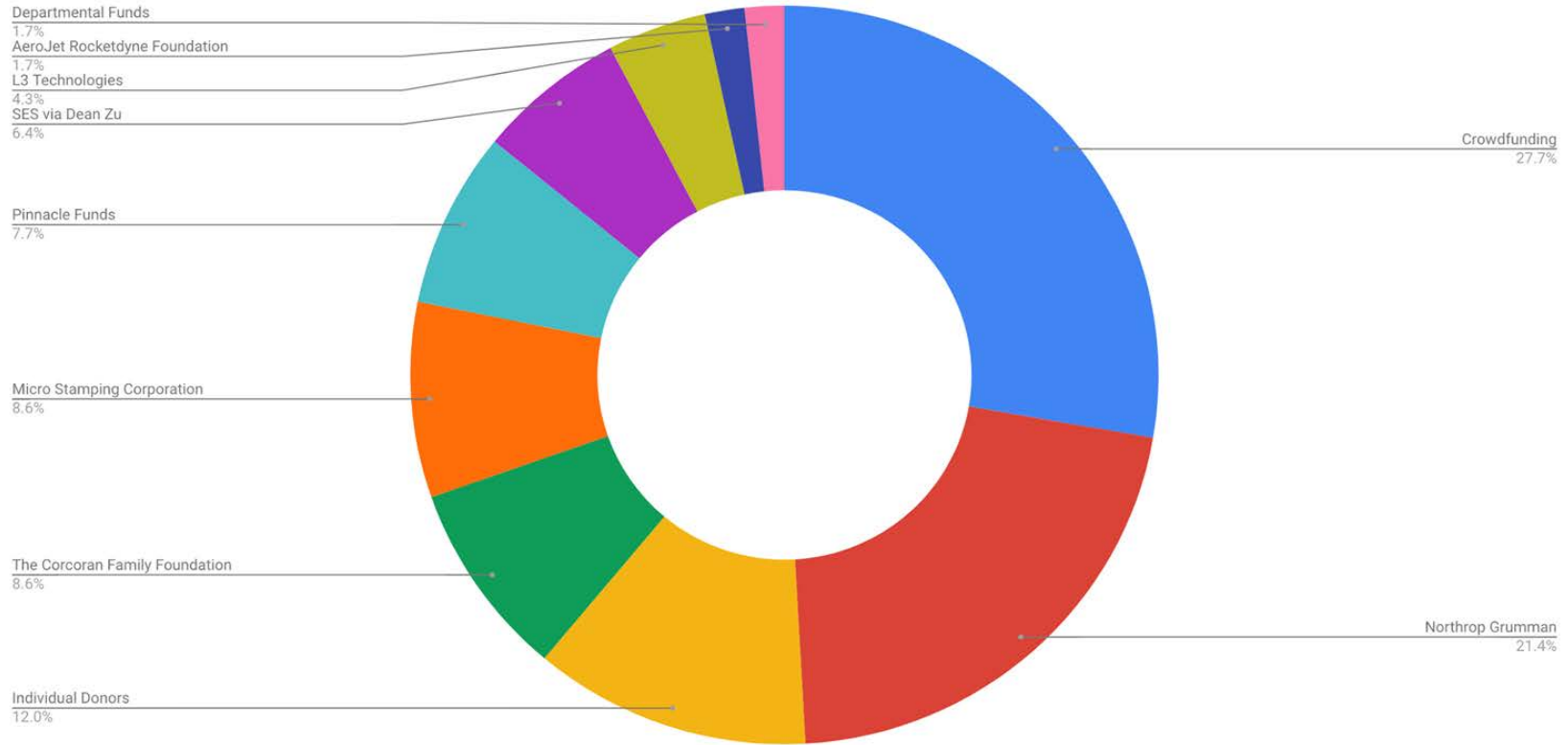
Our Budget



Cost of Vehicle: ~\$100,000
R & D: \$100,000



Fundraising Progress



Total funds raised: \$116,911.59
Crowdfunding Campaign: \$32,412 • 406 Donations



Sponsoring Companies

NORTHROP GRUMMAN





Thank You

CastlePointRocketry.space