Design & Manufacturing

Flight Systems

Balloon system, balloon/structure integration, recovery

Commercial Rocket

Tests with available motors, knowledge of regulations

Ground Station

Hardware and software for telecommunication

Launch Structure

Physical interface b/t balloon and rocket, structure stability

Avionics

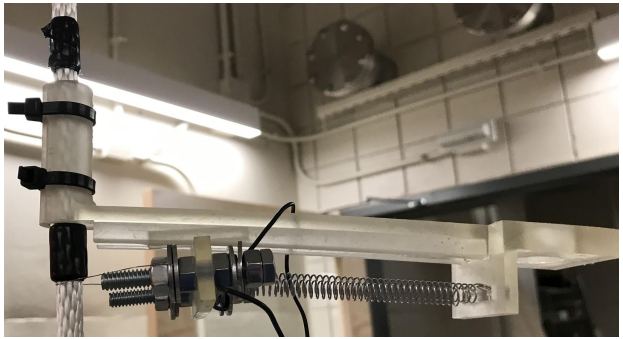
Onboard flight computer, sensor package, controls

Payload

Hardware carried by balloon or rocket launch vehicle

Flight Systems

- High altitude polyethylene balloon and recovery parachute
  - Raven Aerostar collaboration
  - Reach altitude of 25 km
- Quick detachment methods
- Balloon and launch structure integration



PURDUE ORBITAL

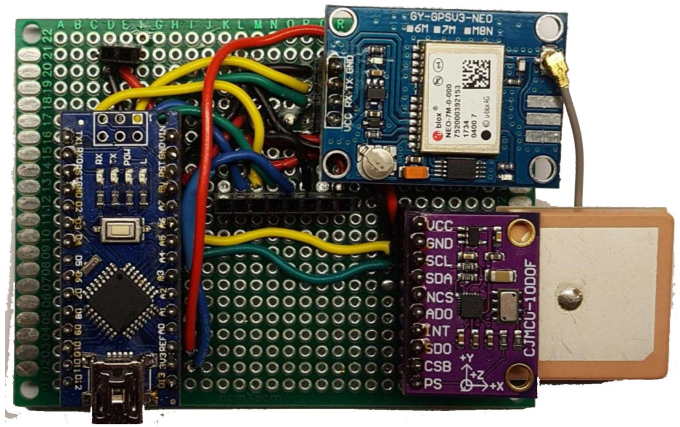
Launch Structure

- Secure rocket during ascent
  - Locking launch rail
- Contain flight electronics
- Stabilize prior to rocket launch
  - Cold gas release system
- Minimize descent damage
  - Foam landing legs

PURDUE ORBITAL

Avionics

- Flight Software
- Communications and Data Handling for:
  - Multiple flight computers
  - Sensors
  - Transceivers
- Platform stability control system
- Initiate launch



PURDUE ORBITAL

Commercial Rocket

- High-power rocketry certification
  - Rules and regulations
  - Launch procedures
- Testing with commercially-built motors
- Knowledge of construction techniques

PURDUE ORBITAL

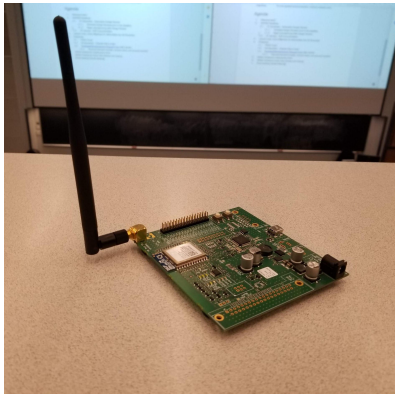
Payload

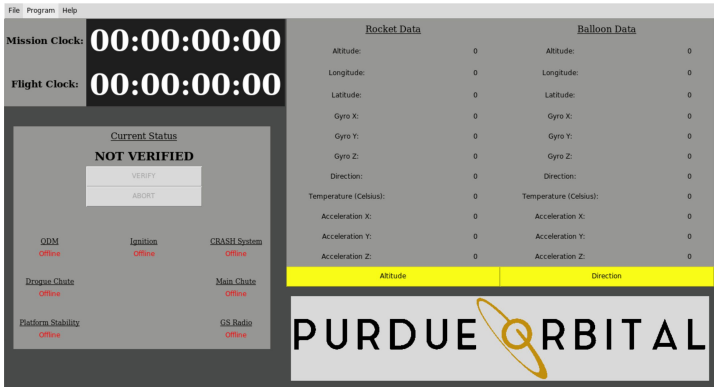
- Rocket payload
  - Avionics housing
- Balloon payload
  - Avionics and flight system housing
- Temperature controlled environment
  - Keep the temperature above 0C
- Structural integrity

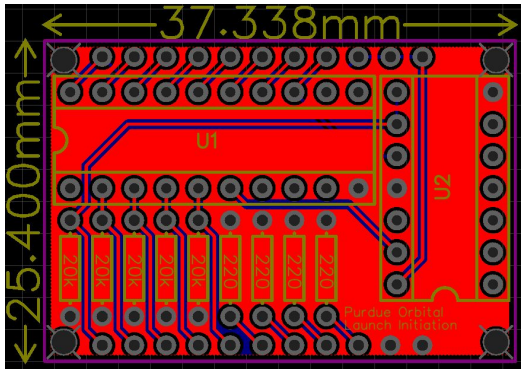
PURDUE ORBITAL

Ground Station

- Communicate with flight computers
- Real time GPS tracking
- Ground station GUI
- Go/No-Go system checks







PURDUE ORBITAL