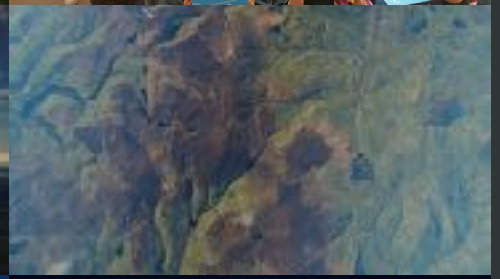
The Plane Space Project

Director of Rocket Science: Tim Squires

Director of Space Operations: Nick Porthouse

EESA

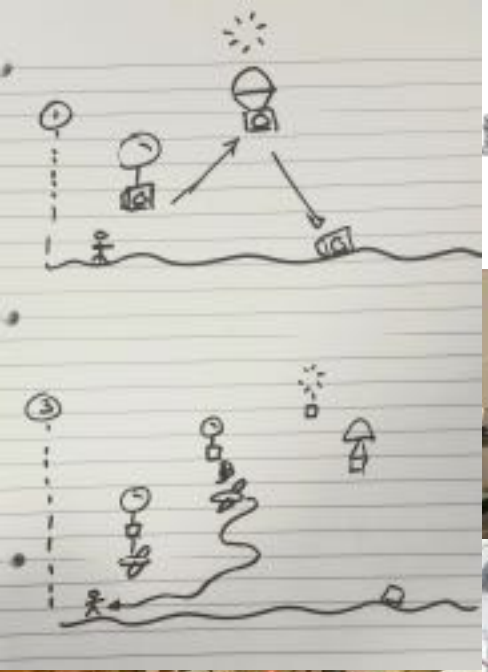
EQUAL EXPERTS COLLEAGUES
TIM SQUIRES & NICK PORTHOUSE
AND TWENTY-FIVE SCOUTS

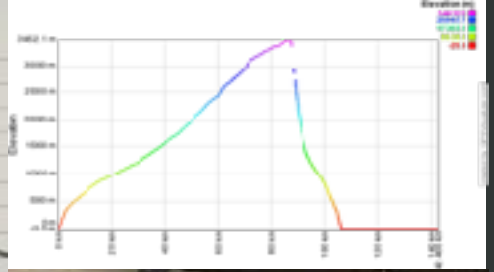


Why?

- Scouts Project to Break a World Record
- STEM
- Encourage *More* Girls into Engineering
- Because we can
- Because it's fun!

EQUAL EXPERTS
SPACE AGENCY
SCOUTS





What's this got to do with PyData?

- High Level Mapping Surveys
  - 4 hours of 100 MPixel Images
  - Accurate GPS
  - Camera Attitude
- Python Flight Script
  - We need your help

- Initial Balloon Launch
- **Scaled Prototype Test Flights**
- Release Mechanism Tests
- Safety Case
- Emergency Procedures
- Record Attempt

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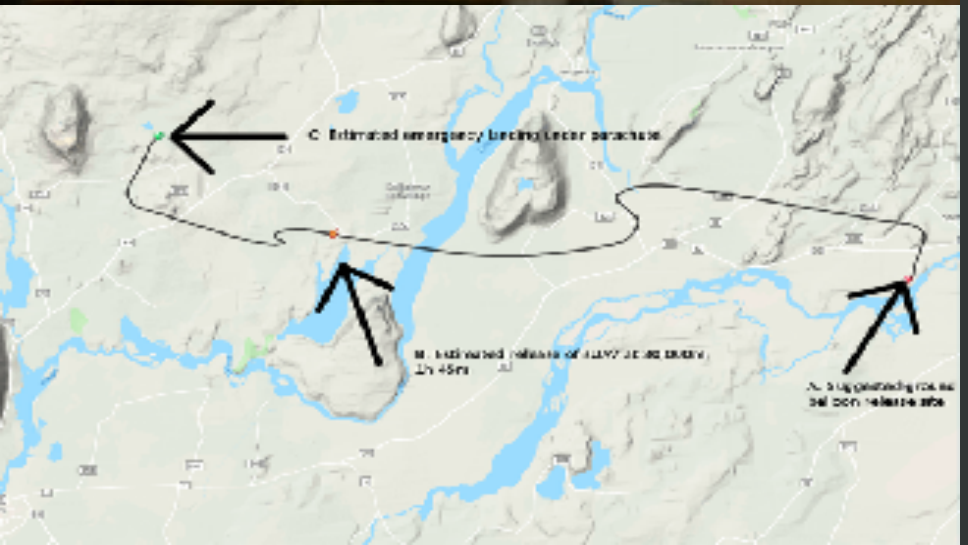
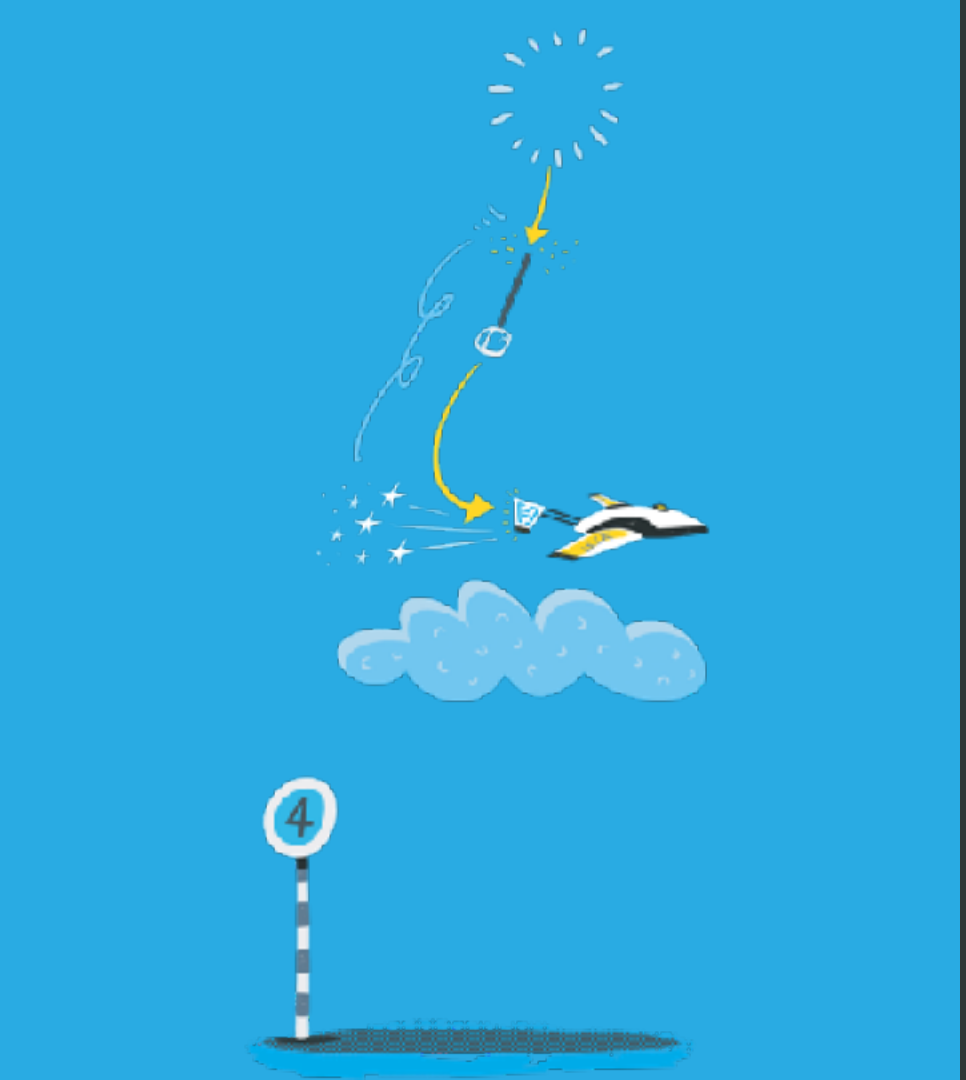


- Initial Balloon Launch
- Scaled Prototype Test Flights
- Release Mechanism Tests
- Safety Case
- **Emergency Procedures**
- Record Attempt

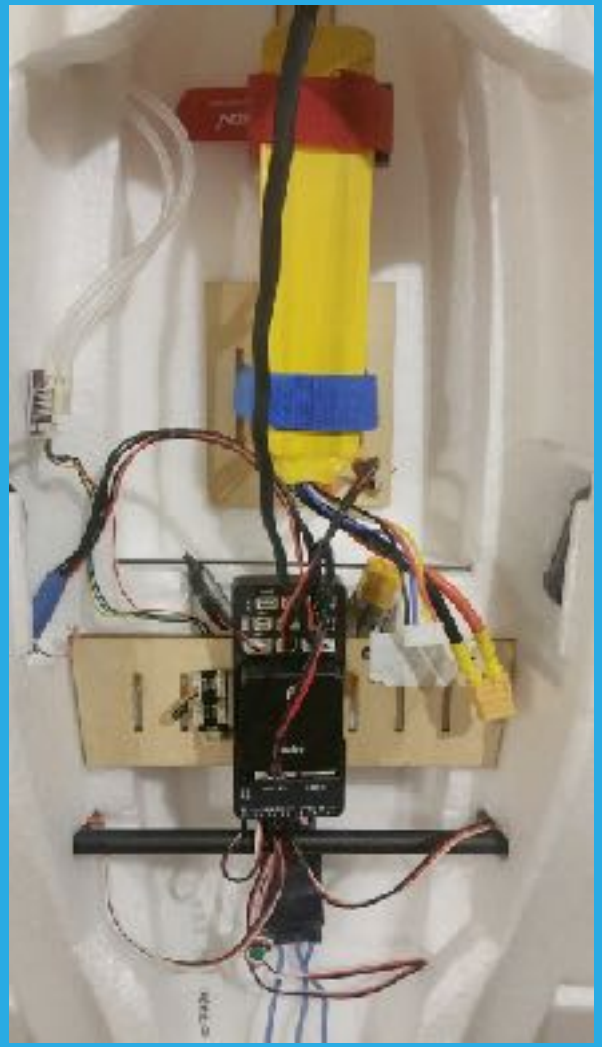


- Initial Balloon Launch
- Scaled Prototype Test Flights
- Release Mechanism Tests
- Auto Return
- Emergency Procedures
- **Record Attempt**

Iceland

- Best launch option
- Two launch sites
- Many landing sites
- 800km driven in a day and a half

The Plane



- Flight Computer
  - Pixhawk 2
  - Triple IMU + Compass
  - Dual Power Source
  - WiFi
  - Edison
- GPS 1 - Here+
  - Flight Mode
- ADS-B Ping 1090
  - Sense & Avoid
  - Radar
- 2 LiPo batteries
- Airspeed Sensor

The Camera Payload

- **GoPro HERO5 Session**
- **Samsung Gear 360**
- **Another GoPro**
  in the cube above the plane

On Board Script - Help Wanted!

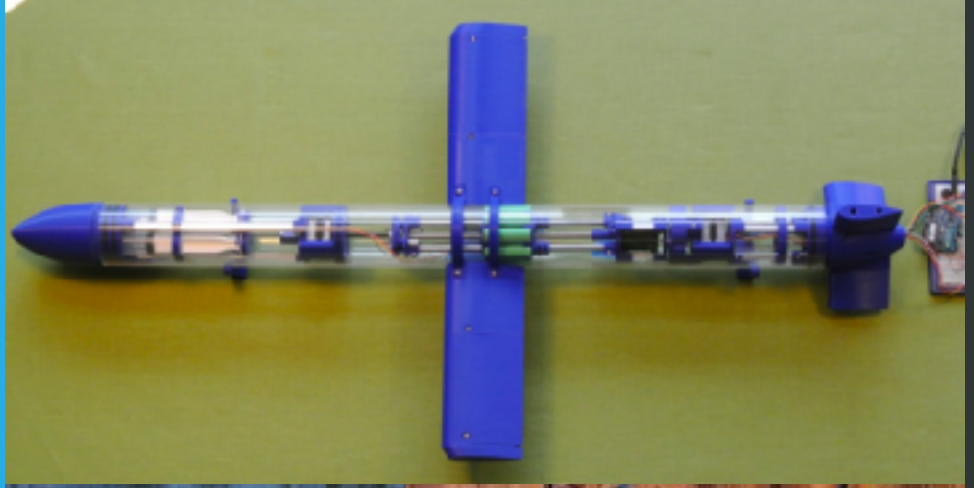
```
# Moves servo 9 (aux 1) to release payload
def release_payload(self):
    self.log("!!!!!RELEASING PAYLOAD!!!!!")
    start_new_thread(self.set_servo, (self.release_servo_number, self.
    self.released = True
    if not self.flight_mission_started:
        self.flight_mission_started = True
        start_new_thread(self.start_flight_mission, ())

# Moves servo 9 (aux 1) to closed to hold payload
def lock_payload(self):
    self.log("!!!!!LOCKING PAYLOAD!!!!!")
    start_new_thread(self.set_servo, (self.release_servo_number, self.
    self.released = False
```

https://github.com/EqualExperts/eesa

http://www.equalexperts.com/eesa

Other Projects?



- UAV Medical Challenge
- The Lake Victoria Challenge
- Auto Speedboat Races
- Underwater Exploration
- Fixed-wing swarms
- Anything else ***You*** can think off!

Equal Experts

Addingham Scout Group

Questions?