Stratospheric Conditions: A Near-Space Balloon Project

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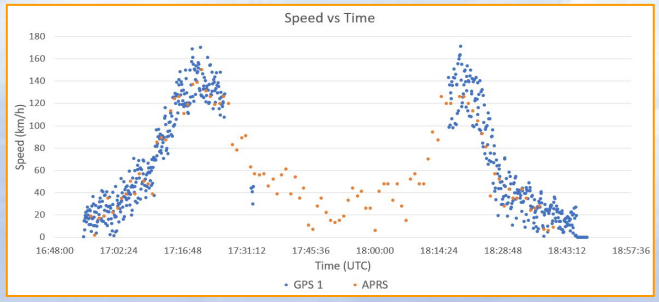
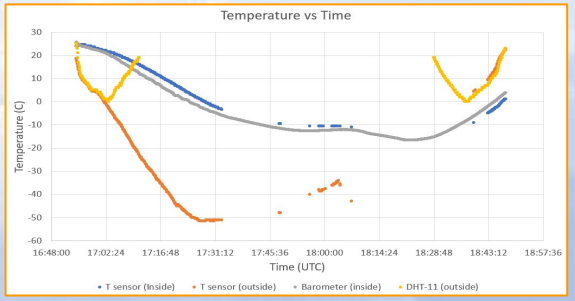
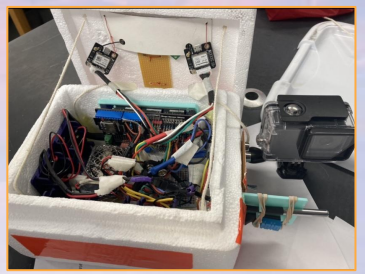
Filling balloon with Helium



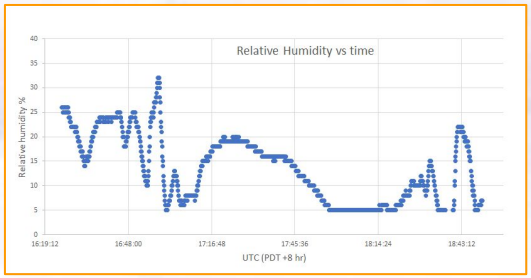


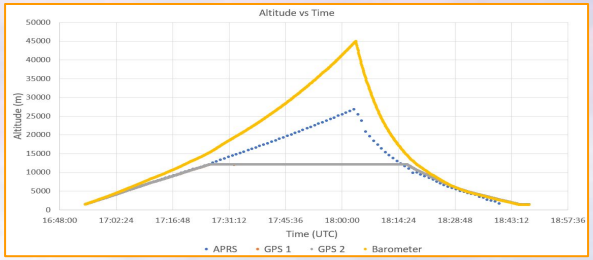
Soldering sensors to Arduino board

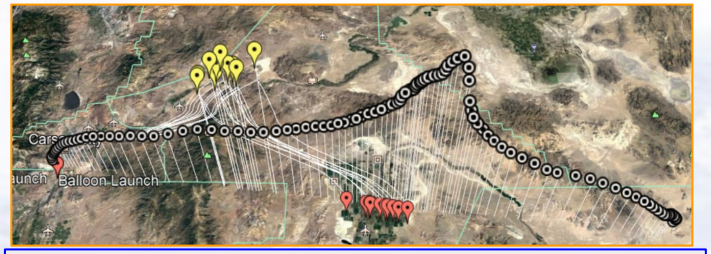


The Payload

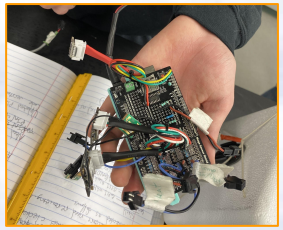
Group photo just before launching







Black/white dots = APRS actual data. Yellow (balloon burst) and red (landing) dots = simulation data. Total flight = 104km.



The Arduino board (brain of the payload). All sensors connect to this.

In response to past issues with the GPS system, we included a second GPS chip for redundancy. Despite this, both GPS chips failed at ~12,000m due to a firmware issue (see above graph). The temperature sensors also stopped working due to an unknown issue, causing the heater to not function correctly.

Internal Systems:
- GPS (x2)
- Heater
- Temperature Sensor
- Arduino Board
- Lithium Ion Batteries (x5)

External Systems:
- GoPro
- Temperature Sensor
- Barometer
- Relative Humidity Sensor
- APRS (Ham Radio tracker)