Mission Overview

We aim to determine the efficiency of various power sources at different altitudes.

Our mission objective is to send a balloon satellite into low space to measure the total power output of several sources as a function of the changing altitude.

One challenge of operating electronic instruments at altitude is powering them, and our experiment aims to find which options are best for this purpose.
We will write software in the Arduino programming language to collect the power outputs from our batteries/solar panels and compare that to the pressure, temperature and time.

Pressure/Thermometer/Humidity → Arduino → SD Card
Batteries/Solar Panels → Arduino (Voltmeter) → SD Card
Design: FBD

LED
Switch
9V Batteries
Lithium Ion Battery

Pressure Sensor

Humidity Sensor
Temp Sensor 1
For the outside.

2GB SD Card

Temp Sensor 2
for battery compartment.

Heater

Switch

Arduino

Camera

LED

9V Batteries

2GB SD

Switch

Arduino

LED

9V Batteries

2GB SD

LED

Alkaline AA

Lithium Ion AA

Solar Cell

Solar Cell

Solar Cell
Management

Co-leaders
Sam Felice
Baily Rice

Software
Joel Courtney
Sam Shaver
Pierce Costello

Design
Sam Felice
Sam Shaver
Jack Moran

Science
Josh Holiber
Baily Rice
Jack Moran

Structure & Construction
Pierce Costello
Sam Shaver
Joel Courtney
Objective:

- All Parts Ordered
- Finish Online-Design
- Testing and Analysis
- Software Completion
- Finished Construction of Satellite
- Final Tests and Adjustments
- Launch Day (Joel’s Birthday)

Date:

- Monday Feb 20th
- Tuesday Feb 28th
- Wednesday March 1st - 14th
- Tuesday March 14th
- Friday March 24th
- Sunday April 2nd - 8th
- Saturday April 8th
<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Flexible Solar Cells</td>
<td>$30</td>
</tr>
<tr>
<td>1 Pack Lithium Ion AA batteries</td>
<td>$14</td>
</tr>
<tr>
<td>1 Pack Alkaline AA batteries</td>
<td>$10</td>
</tr>
<tr>
<td>Various Sensors (Humidity, Temperature, Pressure)</td>
<td>$50</td>
</tr>
<tr>
<td>1 Roll PLA Plastic</td>
<td>$25</td>
</tr>
<tr>
<td><strong>Total Cost:</strong></td>
<td><strong>$150 - $180</strong></td>
</tr>
</tbody>
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“Coming together is a beginning. Keeping together is progress. Working together is success.”

Henry Ford
Conclusion

We will test various power sources and compare how they fare with altitude.

We are a coordinated team with a strict schedule and acceptable management.

We have an affordable budget, with potential for quite meaningful results.

We also have a strange affinity for unnecessary orphan lines in our presentations.