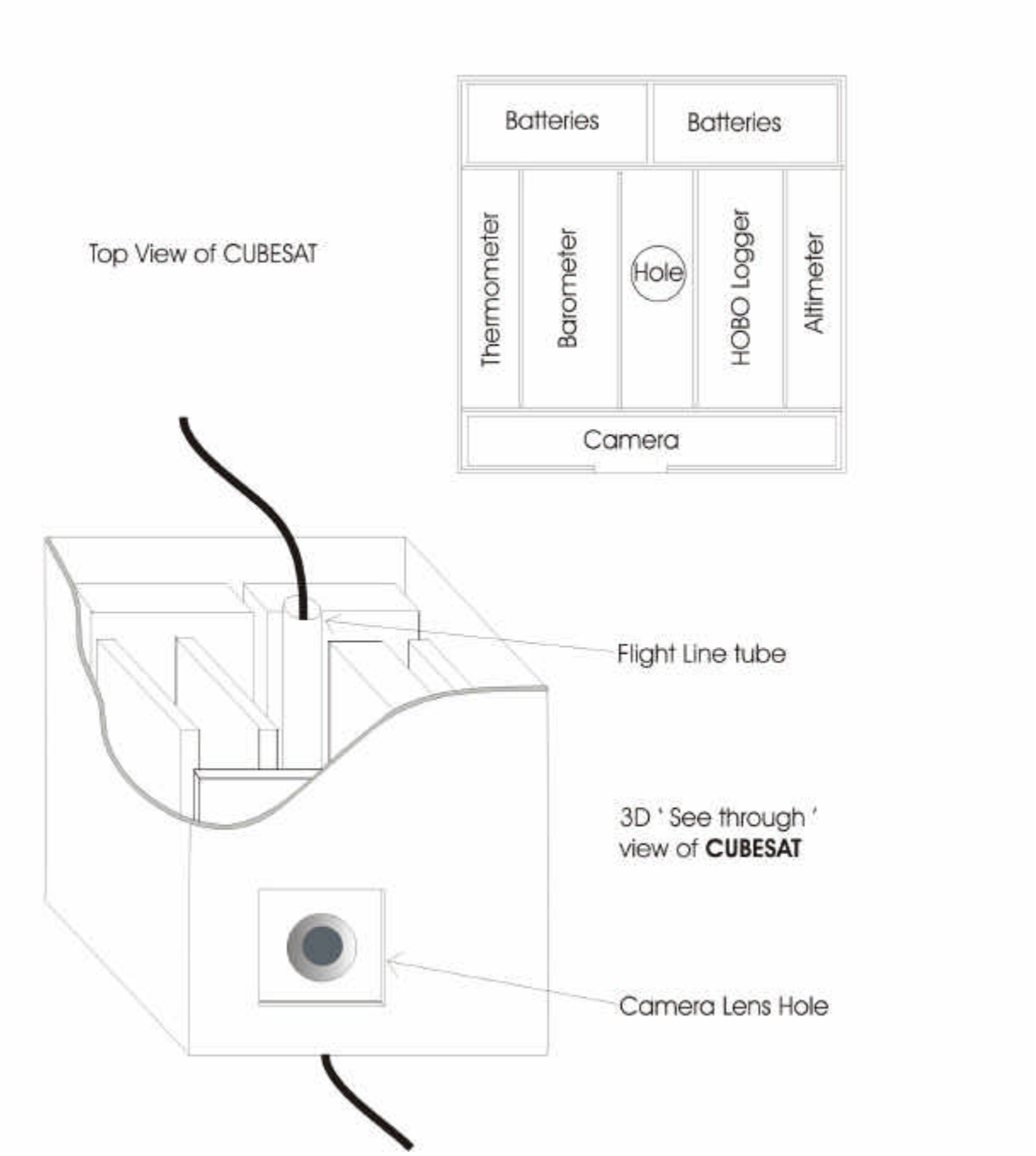
# PYGMIES

B to F, L to R:  Michael, Leah, Tye, Anthony, Jeremy, Daynna, Steve

Project Name:  BEAT (Barometric testing of Earth's Atmosphere and Temperature)


Top View of CUBESAT
Batteries
Batteries
Thermometer
Barometer
Hole
HOBO Logger
Altimeter
Camera
Flight Line tube
3D ' See through '
view of CUBESAT
Camera Lens Hole

BEAT

Team Pygmies

| Week of Oct 22 | Week of Oct 29 | Week of Nov 5 | Week of Nov 12 |
|---|---|---|---|
| Design Proposal Due | | | |
| Gather information on sat components | | | |
| | Buy/order parts | | |
| | Start construction of individual components | | |
| | | | Final assembly |
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| Week of Nov 19 | Week of Nov 26 | Week of Dec 2 | Week of Dec 9 |
|---|---|---|---|
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| Final assembly | | | |
| Preliminary tests | | | |
| | Final testing and flight preperations | | |
| | | Review launch data | |
| | | Write final report | |

*-individual days may very week to week based upon group schecules

The goal of this project is to prove two things. For instance, we will confirm assumed values for atmospheric pressure by using a barometer to take samples of air pressure at certain time increments, and correlate those values with altitude data collected from a gps unit. We will also determine the temperature of the atmosphere at certain time increments, which will also be correlated with altitude data. We will also take a picture of the Earth from 100,000 feet, to visualize the data we collect, and to be able to prove that we have sent an object to 100,000 feet.

We will take steps to insure that our cubesat works correctly by simulating the extreme pressures and temperatures that our cubesat will experience by soaking it in water, and exposing it to a cooler filled with dry ice, which should reach temperatures of negative 80 degrees. We will also drop it down a flight of stairs. After both tests, we will fix any problems that have developed in our cubesat, and continue testing until our cubesat operates correctly, and little to no physical problems develop.

One possible problem with the design of our cubesat is the possibility of running over budget. Our budget is currently at $400, mostly due to the high cost of a gps unit. We do not forsee going over the weight limit, due to the limited weight of circuit boards, and the heaviest objects in the payload consisting of batteries and the lens of the digital camera.

The payload of our cubesat will consist of lithium batteries, thermisters, a barometer, digital camera, a gps unit to determine altitude, a Basic Stamp, and an aluminum case.

We will develop the skills to construct our design by taking a class to learn to use the machine shop, allowing every member of our group to aid in the physical construction of our cubesat, which will allow us to work around busy schedules, and allow us to stay on schedule. This will also allow us to prevent injuries, and keep members of our group safe.

Mission Statement:

To successfully launch, land, and recover a cubesat consisting of equipment to correlate atmospheric pressure to altitude, and to determine temperature at different altitudes, and take pictures of the Earth at different altitudes.

Purpose:

We want to verify the given pressure of the atmosphere at certain altitudes through experimental methods.

**Team Members: Role and Brief Description**

Jeremy Anderson- Made timeline of building and testing dates. Major- Open option.

Anthony DiGallionardo- Composed the Power point presentation, and budget. Major- Aerospace Engineering.

Michael King- Made the Itemized budget plan. He helped with overview, mission statement, technical portion of proposal, and budget.

Tye Olmsted- Helped Jeremy with timeline. Major- Aerospace Engineering.

Leah Romero- She composed the Mission statement, overview and technical portion of proposal with Michael. Major- Aerospace Engineering.

Daynna Rodosovich- She wrote what we want to prove. Major- Open option engineering.

Steve Whitfield- Made the detailed drawing. Major- Computer science engineering.

**Budget:**

Pressure sensor $60
Basic stamp -borrow if possible
Digital camera and card $100
Analog/digital converter $4
2 Thermistors $8
Lithium batteries $20
Aluminum casing $10
GPS (for altitude) $180
Various spare parts $18
Total: $400
If we closely follow this budget, we should not have any problems exceeding the $400 limit.