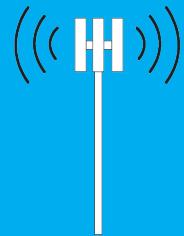
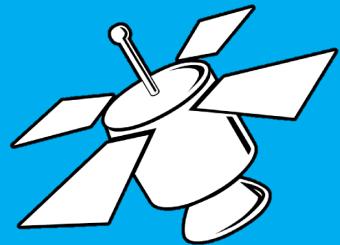


HighSkeye

Altitude Control of a Balloon at 80,000 ft

The Problem:

Current Telecomm Infrastructure



Satellites

Terrestrial Towers

Propagation Delay

Low

High

Low - Medium

Cell Diameter

.1 – 1 km

50 km LEO

~5 km

Elevation Angle

Low (causes
problems)

High

High

Cost

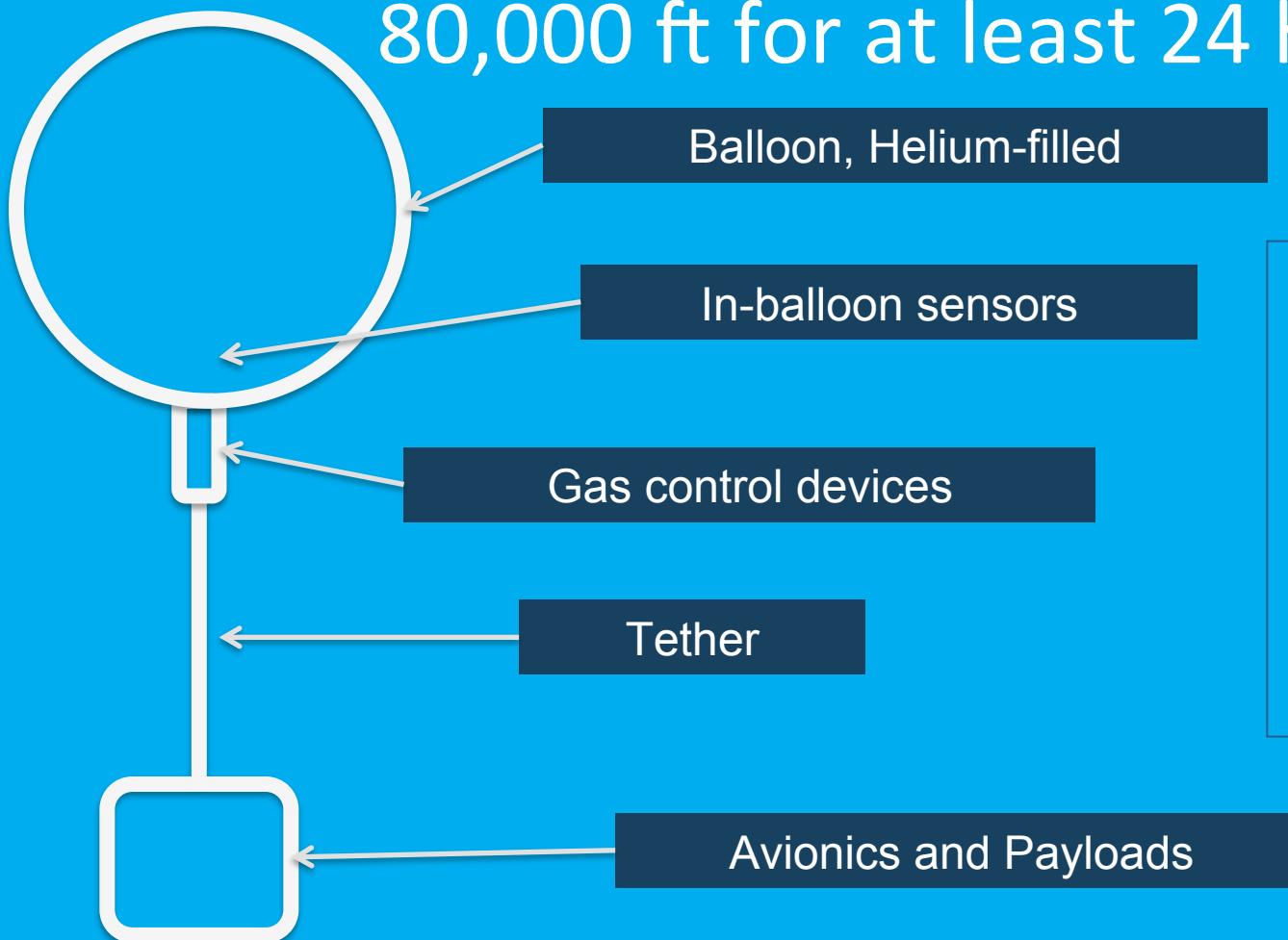
Relatively Low
(varies by location)

High (eg. \$5 BB
Iridium)

Relatively Low

**High
Skeye**

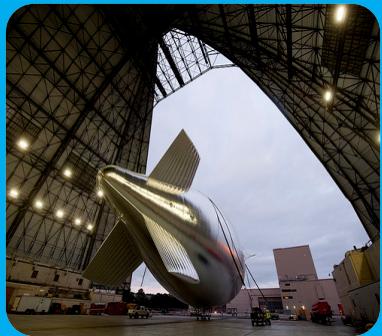
Team HighSkeye proposes to design a High Altitude Platform (HAP) that is capable of maintaining a 2 kg nanosat at above 80,000 ft for at least 24 hours.



The team has conducted several tests that verify functionality of the system

Current HAP Solutions

Project Loon



Objective: Provide internet access to rural areas

Altitude: >100,000 ft

Cost per Balloon:
~\$50,000

Max Duration: 100 days

Amateur Launches



Objective: Hobby; balloons rise to burst altitude and pop

Altitude:
50,000-100,000 ft

Cost per Balloon:
~\$25

Max Duration: 1 day

HighSkeye aims to bridge the gap between these two markets, providing a cheap, but sophisticated, platform.

Market Size:

2013 Global Satellite Industry Revenues: \$195 billion
Launch Industry: 3%; \$5.85 billion

HAPS have not been implemented commercially, making it a challenge to estimate how much of the telecommunications industry they will occupy. Some industry reports make an argument for a market size of tens of billions.

By May 2015, we plan to reach our goal of maintaining a 2 kg load at above 80,000 ft. for at least 24 hours.

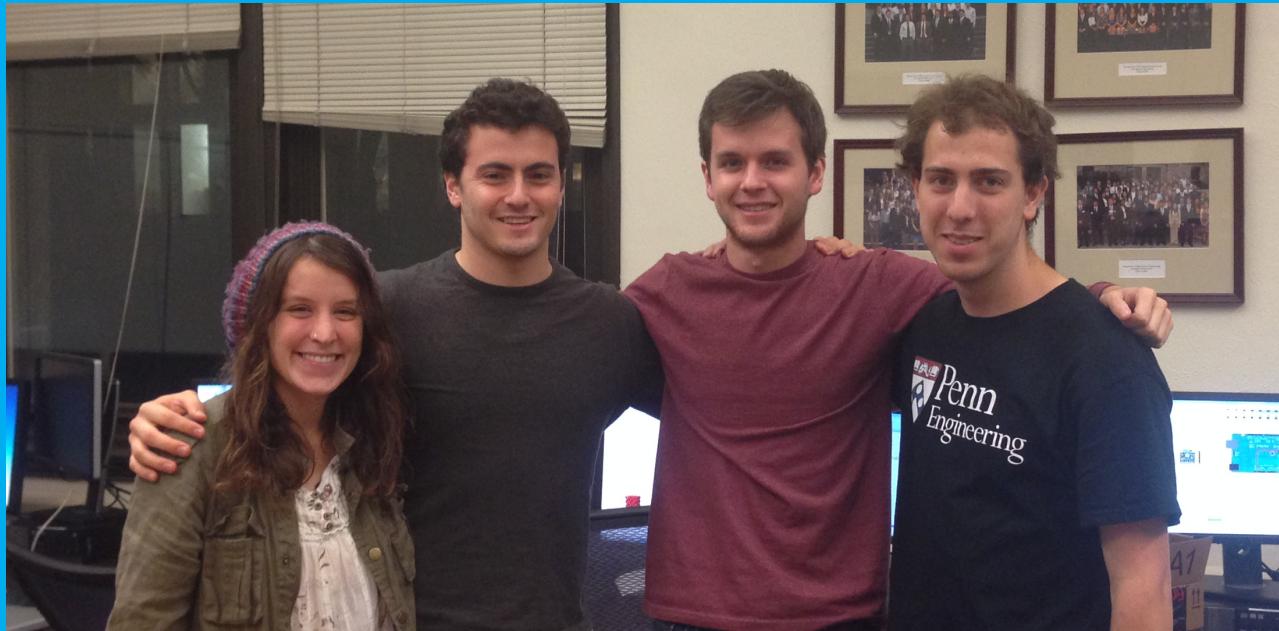
Companies such as Spire and NanoSatisfi are building satellite systems that reduce the weight and cost of satellites. Our belief is that as this new age of lightweight satellites is ushered in, it will be more feasible for individual satellites to be carried upon HAPS rather than launched into the Earth's orbit. This will allow for faster communication and better targeting of satellite positions.

Expected development costs over the next 6 months:
\$2,500

HighSkeye's High Altitude Platform Services will include the launch, maintenance, descent, and control of the satellite system for approximately on charging approximately **\$8,000/month** of usage. We believe that based on a two year lifetime of satellites, a construction cost of approximately \$500,000/ satellite, and the current revenue distribution between satellite and launch, this value is consistent with the current satellite industry.

Who Are We?

Seniors in Mechanical Engineering



Advised
By:
Bruce
Kothmann,
Senior
Lecturer in
MEAM

**Shoshana
Yaffee**

Experienced with rapid prototyping

Design and Mechanics

**Allan
Horn**

Double Major in Wharton and Engineering

Team Management and Controls

**Adam
Farabaugh**

Interned with SpaceX

Software

**Joel
Malissa**

Double Major in Physics and Engineering

Electronics and Communication