Presentation to Students.
Overview

• What was the purpose of CubeSat program?
• What was the general aerospace industry response to the CubeSat concept?
• Survey of student participation in the CubeSat program?
• What is a possible help for the student space mission programs?
• Hardware/software that is available
• Proposed low cost launch opportunities
Purpose of CubeSat Program
- As originated in 1999 with Stanford & Cal Poly

- CubeSat Program was to provide engineering students a practical space project - go the full engineering cycle

- Cost of launch from Cal Poly was $30K/1U CubeSat
General aerospace industry response to the CubeSat concept

Dumbest idea we have seen!
General aerospace industry response to the CubeSat concept

Too small for any practical purposes!
General aerospace industry response to the CubeSat concept

Stupid naive educators
General aerospace industry response to the CubeSat concept

They don’t have a clue what it takes to make something work in space!
General aerospace industry response to the CubeSat concept

Ignore them, maybe they will go away!
General aerospace industry response to the CubeSat concept

There are no parts that can be used to make a satellite that small!
Survey - What now for your CubeSats?

- How many students here?
- How many working on CubeSat program?
- How many have worked on CubeSat program for less than six month/less?
  - Six months - one year/less?
  - One year - two years/less?
  - More than two years?
Survey - What now for your CubeSats?

• Expect to have launched a CubeSat before BS degree?

• How many have worked on CubeSat program that has launched?

• How many have definite launch schedule?
What are the answers to?

Takes too long.

Costs too much.

Don’t have a launch.
What are the answers?

Do something quickly – weeks

Get affordable hardware.

Use really cheap components.
Use cheap hardware
Hardware/software that is available

Arduino Processor & LoRa Radio

*LR-96-433Mhz* from
http://www.anarduino.com/minwireless/

SparkFun FTDI Basic Breakout - 5V
https://www.sparkfun.com/products/9716

$22.40

APC220 Radio
Communication Module

Brand: DFRobot  Reward Points: 40  SKU: TEL0005

$40.00
Hardware/software that is available

Jon Pattison

Jim McLaughlin
Hardware/software that is available
Get Space Experience

Use balloons

Use amateur rockets
Orbital Experience?

Go small – use PocketQubes

Future launches - inexpensive
Proposed low cost launch opportunities

Use 3U CubeSat and P-POD for PocketQube launches
Get Experience
Go small
But
Do it now!
Survey

https://magnitude.io/ss30
Thanks

Questions?
Low Cost Missions for the Unordinary Innovator