SNAP Solutions: A Step For Small Satellites

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SSDL

AA236A Rovers

Solar Sail

Iris: Lunar X Rover
SSDL & SmallSats

Prof Twiggs and a CubeSat – 1999

OPAL – 2000

QuakeSat – 2003

GeneSat – 2006

www.californiaspaceauthority.org
The Next Step

A Standardized Bus:

SNAP
Stanford NanoSat
Affordable Payload Solutions
CubeSat Philosophy

Why?
– Cheaper

How?
– Small and Light
– Short Development Cycle
– Standardization
How SNAP Fits In

• Small and Light
  – SNAP is 1U
  – Compatible with 1U & 2U sized payload

• Short Development Cycle
  – LMRST took 9 months
  – Rovers take 10 weeks

• Standardization
  – Only constraints: power & mechanical fit
What is SNAP: COTS Components

Pumpkin Chassis, C&DH

AstroDev Helium Radio

Clyde Space EPS

www.cubesatkit.com

www.astrodev.com

www.clyde-space.com
What is SNAP: SSDL Components

SSDL Antennas and Solar Panels

SSDL Passive Magnetic Stabilization System
Ground Station & Mission Control

Vizon: SSDL Mission Control Center
Research Partner 1: JPL

JPL – LMRST

Low Mass Radio Science Transponder for SmallSats
Future Research Partners

• KatySat: Mission involving K-12 students

• Other flight qualification tests

• Earth science missions

• Satellite constellation missions, fractionated control

• You?
Questions?