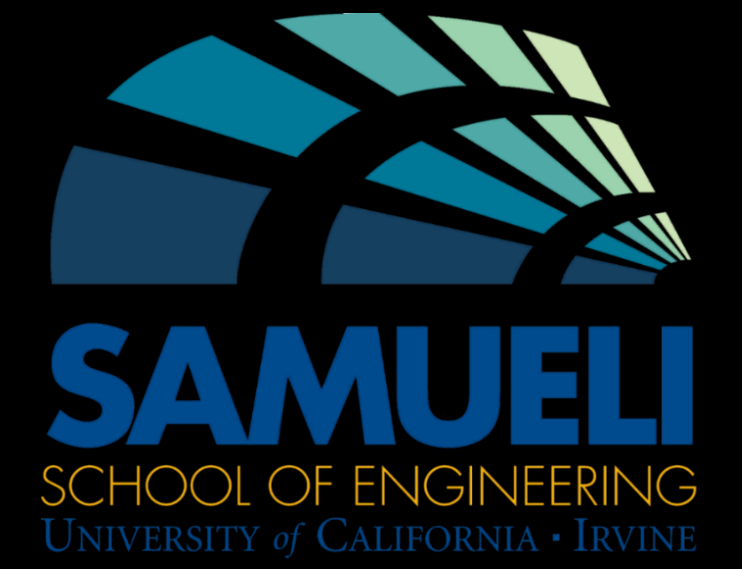




UCI Rocket Project 2015-2016

Advisors: Professor Kenneth D. Mease, Dave McCue



Background

Traditional CubeSat launch costs \$40,000/Cube to \$2,000,000/Cube and traditional upper mesosphere research launch costs \$25,000/kg to \$40,000/kg. Alternative ways are considered to bring down the costs.

Project Goal:

Design cost effective method (Rockoon) for mesosphere research & CubeSat launch by using balloons to hoist and launch an actively stabilized rocket with a highly efficient lightweight hybrid engine.

Objectives:

Avionics

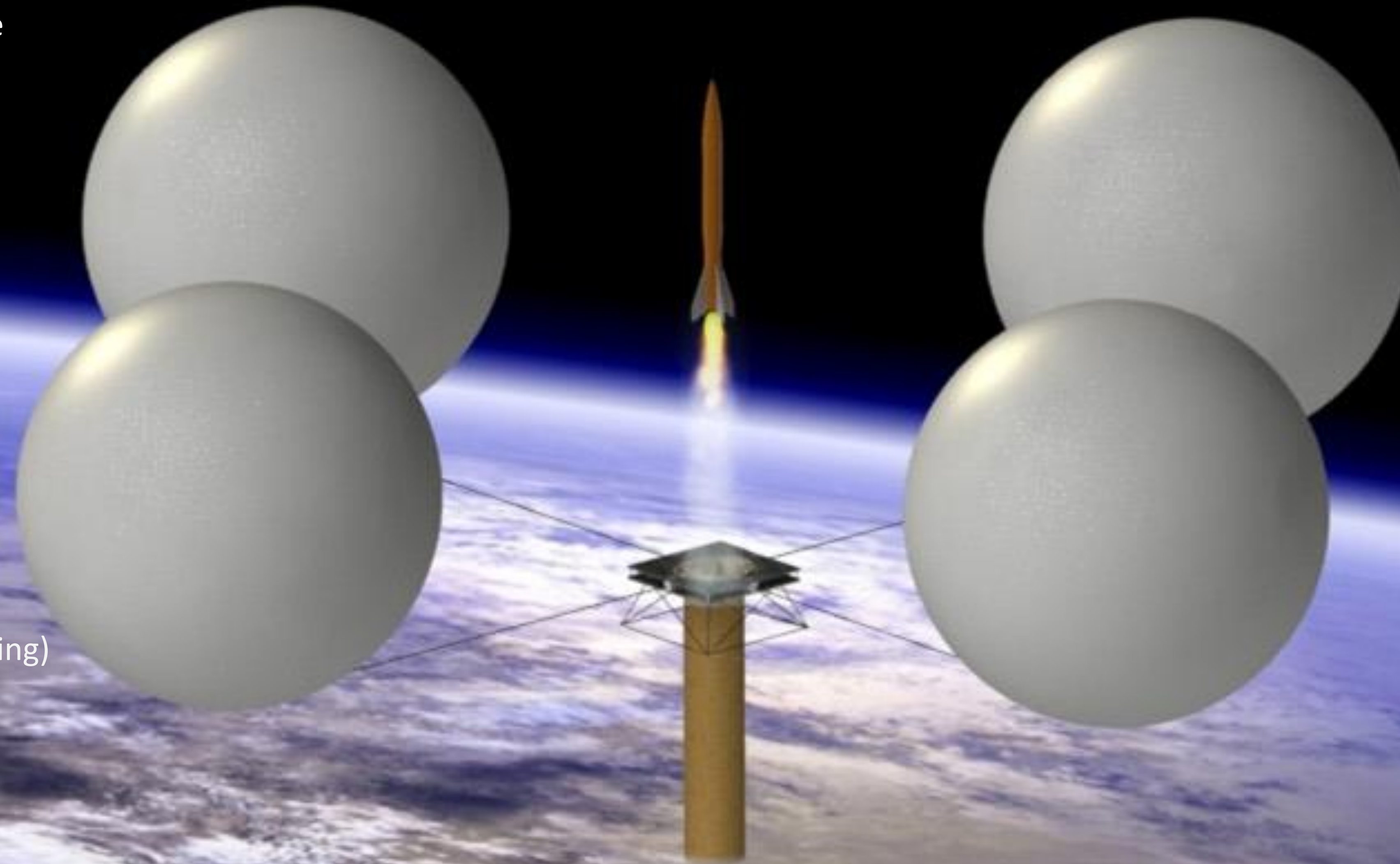
1. Precision landing system (Winter)
2. Ground station user interface (Fall)
3. Gimbale thrust active stabilization system (Spring)

Structures

1. Precision landing system test vehicle (Fall)
2. Rockoon large-scaled model for high altitude Testing (65,000 ft) (Winter)
3. Gimbale thrust test rocket (Winter)
4. Rocket airframe (Spring)

Propulsion

1. Liquid Engine (Winter)
2. Hybrid Engine (Spring)

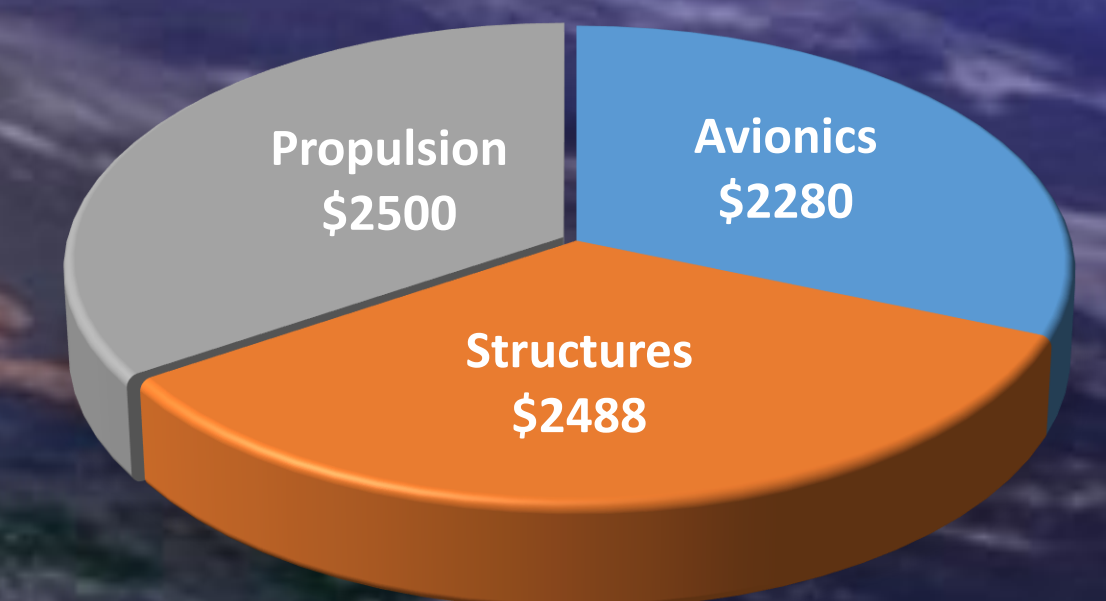


Traditional Launch:
\$25,000 / kg
 (Mesosphere)

Rockoon Launch:
\$800 / kg
 (Mesosphere)

Project Phase	Start	End
Research/UROP Proposal	09.24.2015	11.2.2015
Design	11.2.2015	12.11.2015
Purchase	12.11.2015	01.04.2016
1 st Major Test	12.11.2015	01.04.2016
Fabrication	01.04.2016	03.18.2016
2 nd Major Test	03.18.2016	03.23.2016
Report/Optimization	03.23.2016	06.10.2016
3 rd Major Test	06.10.2016	06.20.2016

TOTAL PROPOSED BUDGET \$7268



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