Spaceport America Cougs In Space Structures Preliminary Report:

The structures team will be focusing on the frame for the payload, the payload casing which interfaces with the rocket, and finally the parachute mechanism, and how it deploys. This is to be accomplished in a timeframe of less than 3 months in order to have it all ordered and done before the start of the competition in June.

Frame:

The frame of the payload must meet the parameters of 8.8 pounds, and measure exact to 10 by 10 by 30 centimeters for consideration of scoring. The payload Frame will have a series of wheels equidistantly spaced across the length of 30 centimeters in each outward corner direction to be made of machined Teflon or nylon material. These will provide ease of deployment. 2/3rds of the frame will be machined 6061ti aluminum stock, this will provide the bulk of the structural and weight aspects of the satellite, from this point there are two avenues of design that we need to make a choice between a core that goes through the center of the entire payload for the parachute. Or we have to design the structure around not having that central-post option should the Electrical team need us too for the sake of the electrical boards.

Needs:

Budget

inflight conditional parameters

Deployment conditions – or do we have to take it on ourselves and design said system

Payload casing:

The Payload casing, IE the equivalent of the P-Pod is the next facet of the structures team task. The casing not only has to securely hold the payload for the duration of the flight, be strong enough to withstand the deployment force of the black powder charge and allow the easy deployment for the payload. Right now, this is a 5.875” tube with tracks for the wheels on the inside. There is some debate for the deployment mechanism, pending a final decision on the **experiment** and **budgeting**.

Parachute:

The parachute has no plan currently but will most likely be a standard drogue deployment and main chute system, we will need to figure out where to manufacture it, should we go down the deployable route, should we not we would need to work with aerospace to ensure their plans are not foiled by our payload system.

Parachute needs:

Budget

Deployment parameters – when are we far enough away, what serves our experiment etc

Design – talks of gliders etc.