Introduction
Work Groups
MI Conferance
CDR Conference
Integration
Launch
Outreach
Media
Members
Links
Contact
Home

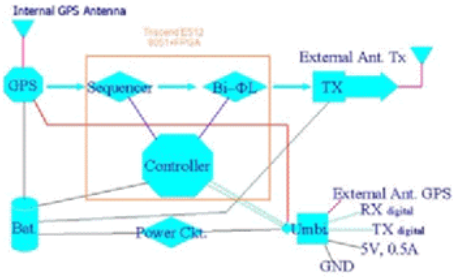
SPIRIT II's Inflatable Sphere Experiment

The Inflatable Falling Sphere is an experiment that has unique engineering challenges. To solve these problems, several subgroups from Telemetry, Experiments, Power and Wirirng and Structures are working on different parts of this experiment.

From the telemetry team, the Inflatable Sphere group is developing a telemetry package that will be deployed within a Robin's Sphere near apogee. The telemetry package will transmit the position and velocity of the sphere using a commercial grade GPS receiver. This information will be used to help determine atmospheric density and wind direction of the mesosphere. Group members are developing both the hardware and software for the entire telemetry package. All the RF and digital systems with the exception of the GPS receiver are being custom designed by the students.

Due to the weight restrictions of the GPS Sphere all of the support circuitry for the GPS Sphere is located on the rocket. It includes a battery charger and electronics used to communicate with the Sphere during ground testing. Before the Sphere's deployment at apogee a command signal is sent to the GPS Sphere to switch from the external GPS satellite receiving antenna to the internal.

The Structures subgroup is responsible for creating the support structure for the experiment. Since this particular configuration for the Inflatable Falling Sphere has never been flown before, the designing and testing is an ongoing process. The structure should be completed and tested by the end of summer.



Students currently working on this project from the telemetry group are Brendan Surrusco, the electronics package group leader, Jorge Carvajal, the antenna engineer, and Scott Hesh, the power supply/PCB engineer.

From the structures group: Pete Cipollo with the advisment of Dennis Haeberle.

From the experiments group Kate Boland, the Experiments team Leader is working on thermodynamic modeling of sphere's inflation gas. The Power and Wiring team leader, Steve Orosz worked on the support circuitry.

Back to Experiments, Power and Wiring, Structures or Telemetry