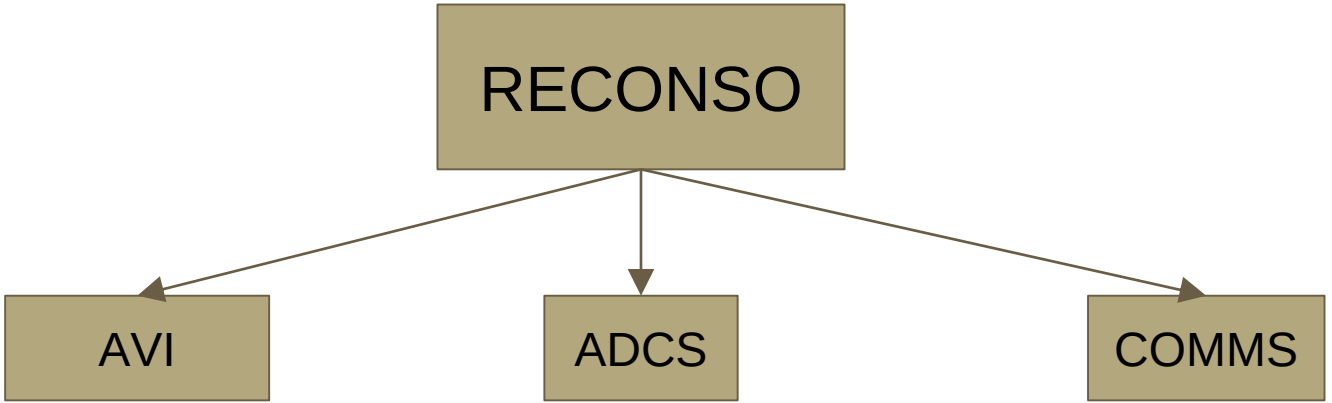
ECE Senior Design Presentation

September 7, 2017

Meet The Team



- Neha Nair

- Annu George
- Ganapathy Hari Narayan

- Anjali Shankar
- Joanne Pokrzywa

COMMUNICATIONS

- Create cFE application for Globalstar system

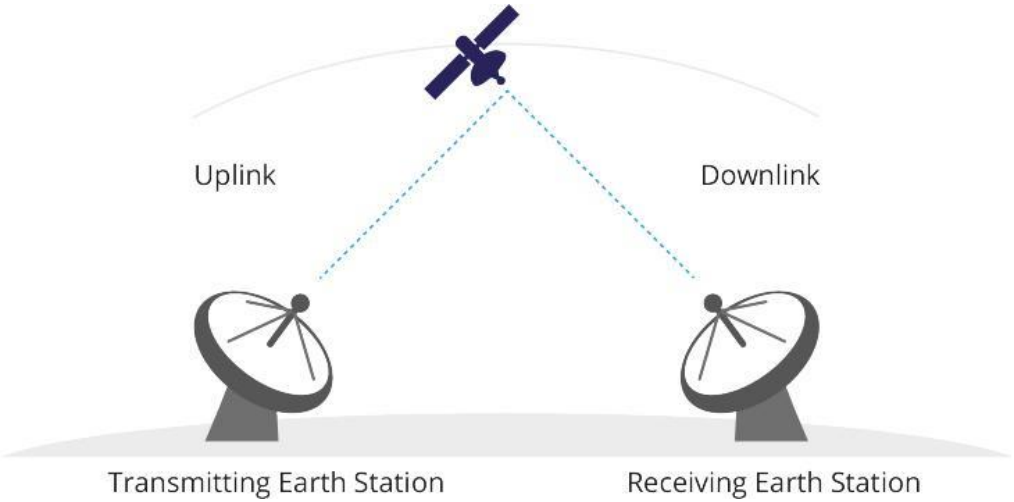
- Python to C code:
  - Implement and verify state of health
  - Number of uplinked commands waiting
  - Read uplinked command
  - Same things for uplinked files
  - Downlink images while in proper power constraints
  - Implement soft reset for globalstar

COMMUNICATIONS

Additional Goals:

- Look into antenna deployment through I2C.

- Work on ground station GUI for CET if work is still required.



ALTITUDE DETERMINATION & CONTROL SYSTEM

Goals : Ability to create and control a magnetic field for use in ADCS testing and validation

A helmholtz coil is a region with nearly uniform magnetic fields

Source: http://holzinger.gatech.edu/?q=node/47

Projected Plan (ADCS)

- September
  - Coding Arduino to interface with power supply
  - Integrate power supply with the cage
- October - November
  - Documentation
  - Testing
  - Further work will come once we are in this phase

AVIONICS

- Integrate the magnetometer readings into the cFE ADCS app
- Develop commands to send values to the ADCS microcontroller
    - Torque values
    - Controller gains
- Configure GPS and integrate with the ADCS microcontroller
- Testing the ADCS app
- Testing the UART serial protocol
- Testing values received from the ADCS microcontroller

Projected Plan (AVI)

- October - Documentation and debugging
- November (first week) - CET and DiTL
- Thanksgiving - PIR

QUESTIONS?