High Level Design

* 1. Flight computer
     1. Collect Tolemetry
        1. Analog
           1. Multiple Temperature

Types?

* + - * 1. 1 Pressure
        2. 1 Voltage read for each set of batteries

If the battery voltage dorps below a certain level for a possible certain of time, initiate cutdown. Possible altitude configured.

* + - 1. Digital
         1. Gyrochip

Orientation

Rate of orientation change

Acceleration

* + - * 1. GPS

Location

Altitue

* + - 1. Bi-levles
         1. Charge Flag (Power Regulation Module)
         2. Temperature Fautl Flag (Power Regulation Module)

* 1. Set Bi-levels
     1. Thermal
        1. Turn heating element on/off at certain temperature thresholdes
     2. Cut-off
        1. If the battery voltage dorps below a certain level for a possible certain of time, initiate cutdown. Possible altitude configured.

* 1. Ground commands
     1. Cord Snap
     2. Energy Feed From Solar (Electrical Shutdown)
     3. Hi/Low Temperature range?
     4. Set Software variables
        1. Sampling Rate
        2. Camera Rate
        3. Determining which information I want (Data Format)
  2. Camera Control GoPro
     1. On/Off
        1. Data is written to scan drive and stored on SD card
  3. Mode
     1. Standard Mode
        1. Normal operations
     2. Low Power (Load Shed) Mode
        1. If the batteries are low (~20%), we want to make sure we make it through the night. Turn off unnecessary items. Heaters. Lower frequency of sending messages.
     3. Decent Mode
        1. Set sampling rates of everything super high and ensure camera is on as we are going down

Thursday, June 19, 2014

6:03 PM

* 1. Hardware
     1. Arduino Due
        1. Native port --> Rock Block
        2. Programming port
     2. Arduino Shields (Proto Board)
        1. Shield #1
           1. Gyrochip
           2. Pressure Sensor
           3. Bi-Level (Out) Conditioning (Cord, Heater, Camera)
        2. Shield #2
           1. Temperature Conditioning Circuits (Sensors are external)
           2. Power Regulation Module (Shutdown command)

Two Flags Read

Charging (1/0)

Temperature Fault (1/0)

* + - 1. Shield #3
         1. SD Card
         2. GPS Chip
    1. RockBlock (Satellite Transceiver)

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* + Software Tests
    - Modules/Shields
      * Pressure
      * Gyro
      * GPS
    - Reading Bi-Levels
      * Charge Flag
      * Temperature Fault
    - Setting Bi-Levels
      * Thermal
    - Communications
      * Rock Block
        + Send/Receive
    - SD Card Write
    - Ground Commands
      * Cord Snap
        + Go into decent mode
      * Solar Panel Feed
      * Software Variables
        + Sampling Rate
        + Camera Rate
        + Data Format
    - Camera
      * On/Off