HASP Payload Specification and Integration Plan

Payload Title: UAH Thermal Radiation Isolation Balloon Experiment (TRIBE)___________

Payload Class: **Large**

Payload ID: Payload 09

Institution: University of Alabama in Huntsville

Contact Name: Bob Hawkins

Contact Phone: (256) 684-1513

Contact E-mail: hawkinr@email.uah.edu

Submit Date: 06/01/2008

I. Mechanical Specifications:

A. Measured weight of the payload (not including payload plate): **Approx. 10kg, components used from 2007 flight include only the aluminum mounting frame attached to mounting plate.**

B. Provide a mechanical drawing detailing the major components of your payload and specifically how your payload is attached to the payload mounting plate: **Appended**

C. If you are flying anything that is potentially hazardous to HASP or the ground crew before or after launch, please supply all documentation provided with the hazardous components (i.e. pressurized containers, radioactive material, projectiles, rockets…): **Not Applicable**

D. Other relevant mechanical information: **Payload to plate mounting can be seen in the attachments on the bottom view of the draft (subject to change).**

II. Power Specifications: ()

A. Measured current draw at 30 VDC: **Appended**

B. If HASP is providing power to your payload, provide a power system wiring diagram starting from pins on the student payload interface plate EDAC 516 connector through your power conversion to the voltages required by your subsystems. : **Appended**

C. Other relevant power information: **Appended**

III. Downlink Telemetry Specifications:

A. Serial data downlink format: **Stream**

B. Approximate serial downlink rate (in bits per second): **Approx. 1200 baud**

C. Specify your serial data record including record length and information contained in each record byte: **Example Data Readout** *counter***TAB***temp***TAB***temp***TAB***temp***TAB***temp***TAB***temp***TAB***temp***TAB***temp***TAB***temp* **/Carrige Return**
Temperature data readouts will be 2 bytes, all others will be 1 bytes.

D. Number of analog channels being used: **2**

E. If analog channels are being used, what are they being used for? **Power On/Off**

F. Number of discrete lines being used: **None**

G. If discrete lines are being used what are they being used for? **Not Applicable**

H. Are there any on-board transmitters? If so, list the frequencies being used and the transmitted power: **Not Applicable**

I. Other relevant downlink telemetry information: **Not Applicable**

IV. Uplink Commanding Specifications:

A. Command uplink capability required: **No**

B. If so, will commands be uplinked in regular intervals: **No**

C. How many commands do you expect to uplink during the flight (can be an absolute number or a rate, i.e. *n commands per hour*): **Not Applicable**

D. Provide a table of all of the commands that you will be uplinking to your payload: **Not Applicable**

E. Are there any on-board receivers? If so, list the frequencies being used: **Not Applicable**

F. Other relevant uplink commanding information: **None**

V. Integration and Logistics

A. Date and Time of your arrival for integration: **August 3, 2008**

B. Approximate amount of time required for integration: **An afternoon.**

C. Name of the integration team leader: **Bob Hawkins**

D. Email address of the integration team leader: **hawkinr@email.uah.edu**

E. List **ALL** integration participants (first and last names) who will be present for integration with their email addresses: **Bob Hawkins (hawkinr@email.uah.edu), James Mulroy (james.mulroy@uah.edu), Brian Decker (gennerik@gmail.com)**

F. Define a successful integration of your payload: **Plugs in, powers up, sends data, thermal controls respond accordingly (during thermal/vac test of course).**

G. List all expected integration steps: **Mount, plug in, power up.**

H. List all checks that will determine a successful integration: **Transmits reasonable data from all sensors, thermal controls respond accordingly**.

I. List any additional LSU personnel support needed for a successful integration other than directly related to the HASP integration (i.e. lifting, moving equipment, hotel information/arrangements, any special delivery needs…): **Hotel Info/arrangements**

J. List any LSU supplied equipment that may be needed for a successful integration: **Caloric sustenance for personnel.**

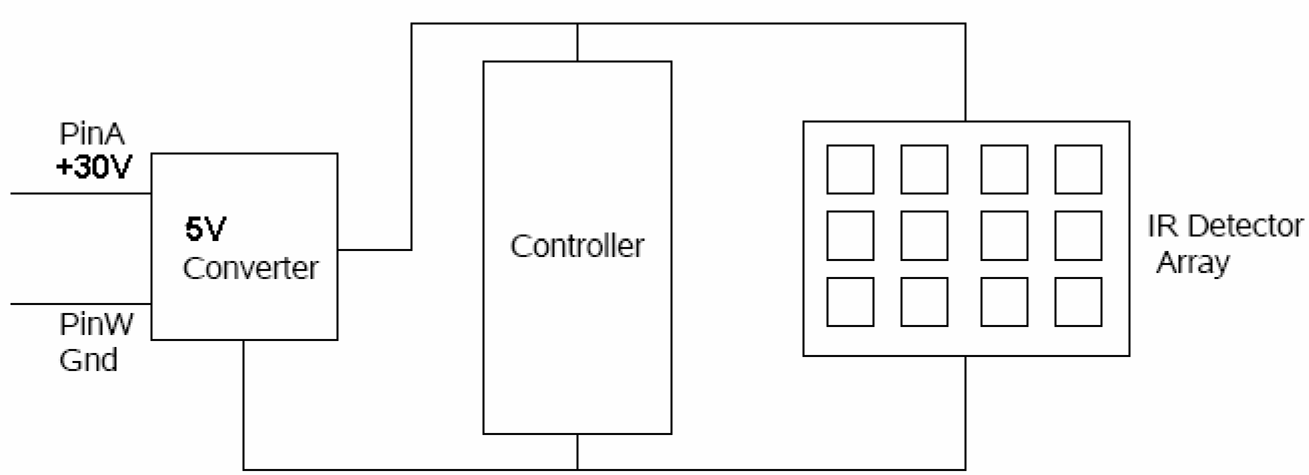
Appendix A: Power Specification

A. Measure current draw at 30VDC:

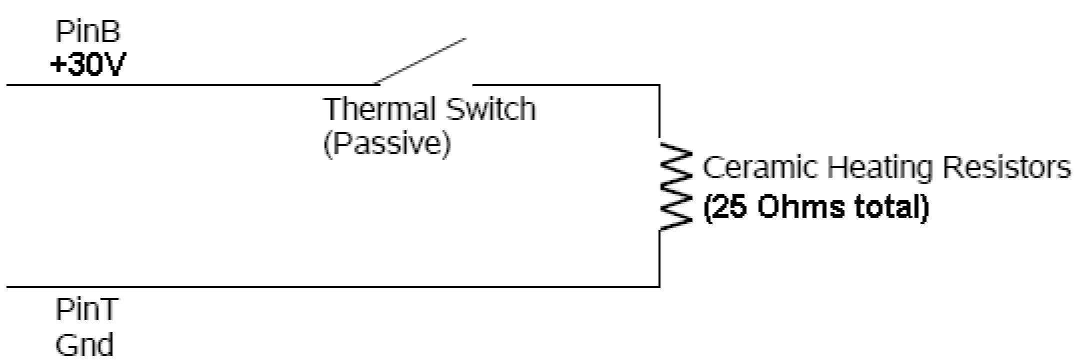
Current draw will be approximately 2.5A total. This will be divvied as ~1.3A for the instrument and a variable ~1.2A left over for the resistive heaters warming the electronics (this will fluctuate because of heating and cooling controls.)

B. Circuit Diagrams:

Instrument wiring diagram: Pins A (from EDAC 516 connector) (+30V) and W (Gnd), and the components for both the microcontroller and the IR instrumentation run from a 5V source.



Heater wiring diagram: Pins B (+30V) and T (Gnd) will use the remaining current of approx ~1.2A to power heating resistors totaling to be 25 Ohms.



Appendix A: Mechanical Drawings