HASP Payload Specification and Integration Plan

Up Payload Title: Flying InfraRed Experiment for Lunar Investigation (FIREFLI)

Payload Class: Small

Payload ID: 04

Institution: **Virginia Polytechnic Institute & State University**

Contact Name: Kevin Shinpaugh

Contact Phone: 540-231-1246

Contact E-mail: kashin@vt.edu

Submit Date: June 1st 2009

I. Mechanical Specifications:

A. Measured weight of the payload: 2.930 kg

B. Provide a mechanical drawing detailing the major components of your payload and specifically how your payload is attached to the payload mounting plate: See Attached drawing at end of document.

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…) N/A

D. Other relevant mechanical information: N/A

II. Power Specifications:

A. Measured current draw at 30 VDC: The payload draws 0.4 amps during operation.

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: See attached drawings.

C. Other relevant power information. The camera is powered by two lithium ion batteries on a separate circuit all other sensors run of power provide by HASP.

III. Downlink Telemetry Specifications: N/A payload is autonomous.

IV. Uplink Commanding Specifications: N/A payload is autonomous.

A.

V. Integration and Logistics

A. Date and Time of your arrival for integration: Arrival for integration will be Monday 8/3 at 10:00 am the team will fly in the day before.

B. Approximate amount of time required for integration: 1.5 – 2 hours.

C. Name of the integration team leader: Kevin Connolly

D. Email address of the integration team leader: kbconnol@vt.edu

E. List **ALL** integration participants (first and last names) who will be present for integration with their email addresses: Kevin Connolly

F. Define a successful integration of your payload:

1. Payload is securely mounted on mounting plate.
2. Mounting plate is securely mounted to HASP infrastructure.
3. Power is connected between payload and hasp
4. Payload is fully functional.

G. List all expected integration steps: Reordered

1. Attach payload mounting plate to HASP infrastructure.
2. Connect and check all payload to HASP power connections.
3. Perform functional test on payload; payload should power on.

H. List all checks that will determine a successful integration:

1. Visual inspection of payload mounting plate and HASP infrastructure connections.
2. Visual inspection of the payload and HASP power connections.
3. All mechanical and all power connections should be checked and approved by the integration team leader.
4. Turn the power to the payload by flipping the on/off switch for the camera.
5. Verify that data is being collected and camera is shuttering.

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…): N/A

J. List any LSU supplied equipment that may be needed for a successful integration: N/A

Appendix

A. Mechanical Drawings of FIREFLI Payload

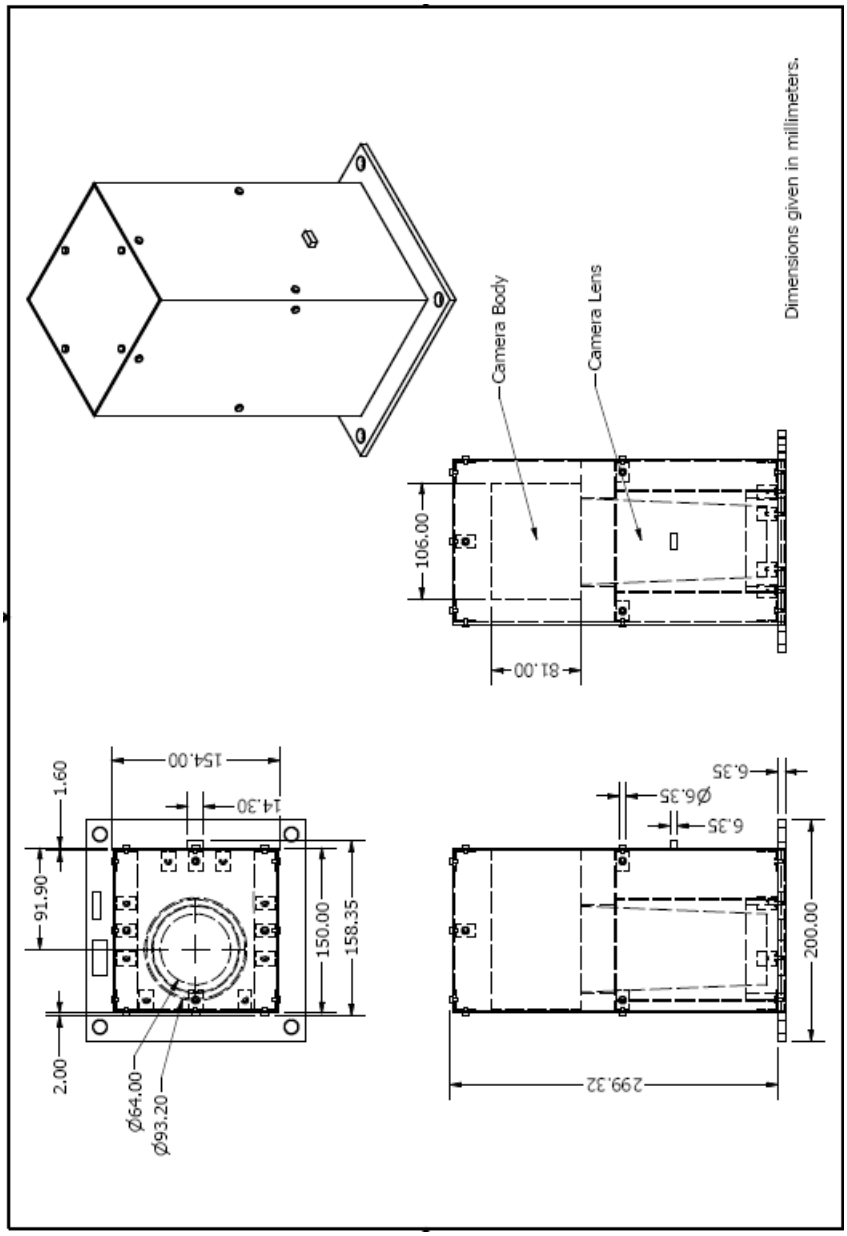

Figure 1. FIREFLI Payload with dimensions.

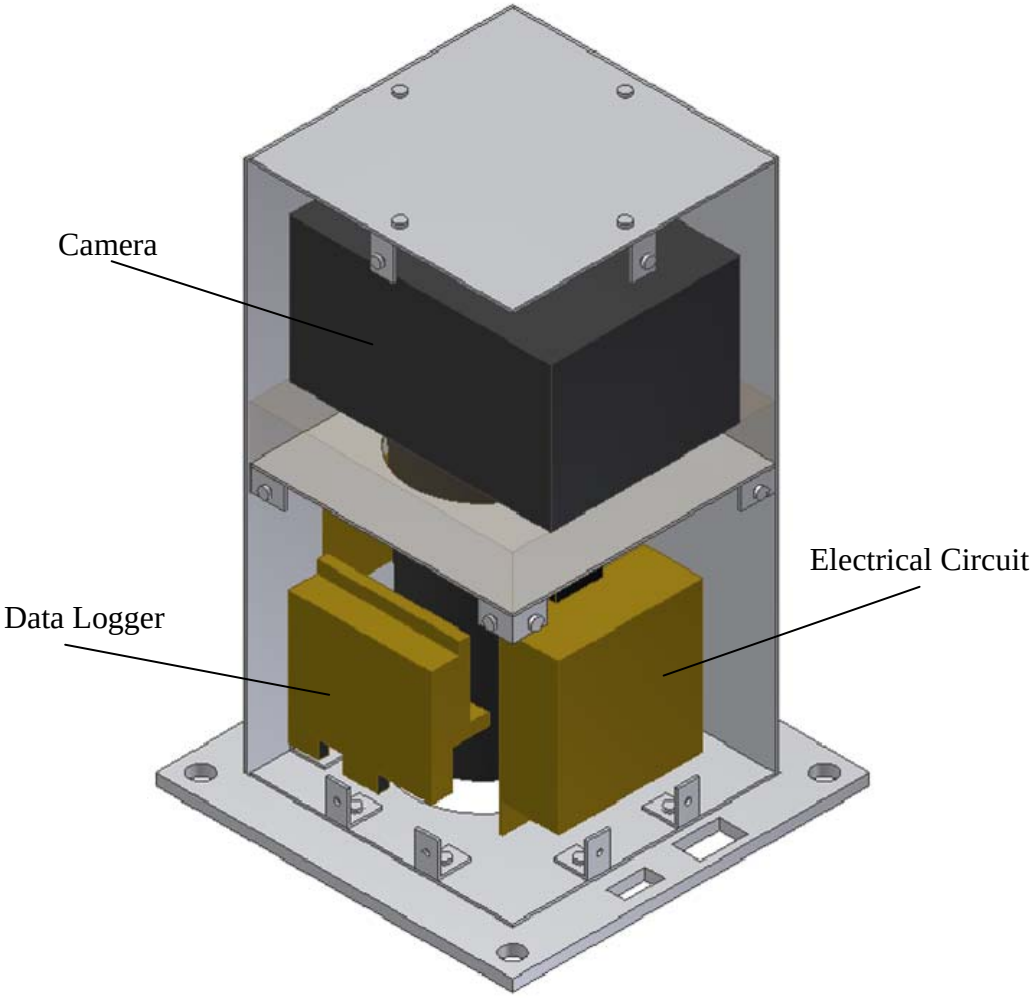

Figure 2. FIREFLI Payload detailing the main payload components. The payload is mounted to the payload mounting plate by eight screws, two for each side of the payload box.

B. Power System Wiring Diagram

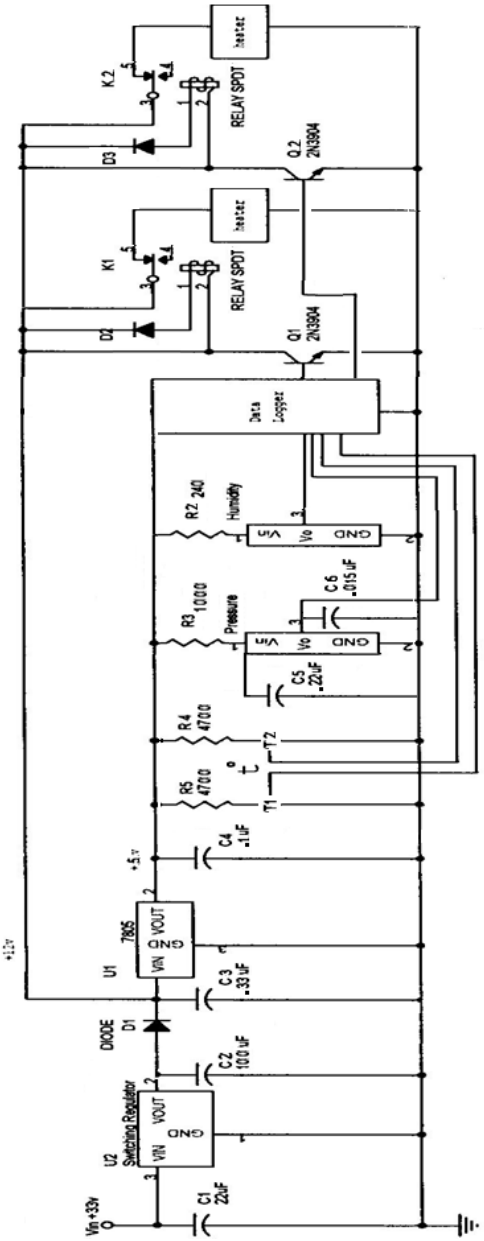

Figure 3. Payload Power circuit diagram. The pins of the EDAC 516-020 will be connected in the following manner: EDAC Pins A,B,C, and D are connected to the Vin +33v connection on shown in the upper left on the diagram above. The EDAC Pins W, T, U and X are connected to the ground shown in the lower left on the diagram above.