HASP Payload Specification and Integration Plan

Payload Title: HawkHASP2

Payload Class: (Small) Large (circle one)

Payload ID: 2008-01

Institution: **Hawk Institute for Space Sciences - UMES**

Contact Name: Jeff Jones

Contact Phone: 410-957-2180

Contact E-mail: jeffrey.jones@hawkspace.org

Submit Date: June 1, 2007

I. Mechanical Specifications:

A. Measured weight of the payload (not including payload plate)

Fully assembled payload has not been weighed yet, but is expected to be about 1725 grams. Will be less than 3000 gram requirement.

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

Attached.

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…)

No hazardous components.

D. Other relevant mechanical information

Fresnel lens will be attached to the outside of the payload and will be protruding out from wall 2 at a maximum distance of 4.5 cm. Foam board will be covered with a thermal blanket and the corners will be secured with aluminum tape.

II. Power Specifications:

A. Measured current draw at 30 VDC

Current draw has not been finalized, but is estimated at .490012

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.

Draft attached.

C. Other relevant power information

The HOBO data loggers are self-powered with "coin" cell batteries. The data loggers will continue to log data until manually turned off.

Downlink Telemetry Specifications:

D. Serial data downlink format: Stream Packetized (circle one)

No serial downlink. Data is stored on-board.

E. Approximate serial downlink rate (in bits per second)

F. Specify your serial data record including record length and information contained in each record byte.

G. Number of analog channels being used:

H. If analog channels are being used, what are they being used for?

I. Number of discrete lines being used:

J. If discrete lines are being used what are they being used for?

K. Are there any on-board transmitters? If so, list the frequencies being used and the transmitted power.

No on-board transmitter.

L. Other relevant downlink telemetry information.

III. Uplink Commanding Specifications:

A. Command uplink capability required: Yes (No) (circle one)

B. If so, will commands be uplinked in regular intervals: Yes (No) (circle one)

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*)

D. Provide a table of all of the commands that you will be uplinking to your payload

E. Are there any on-board receivers? If so, list the frequencies being used.

No on-board receivers.

F. Other relevant uplink commanding information.

IV. Integration and Logistics

A. Date and Time of your arrival for integration:

August 4. 10 AM.

B. Approximate amount of time required for integration:

1 day.

C. Name of the integration team leader:

Mike Dunn.

D. Email address of the integration team leader:

mhdunn@umes.edu

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

Mike Dunn, mhdunn@umes.edu

John Windsor, jrwindsor@umes.edu

Other integration participants are being considered at this time.

F. Define a successful integration of your payload:

Demonstrating camera operation using LSU power.

G. List all expected integration steps:

i. Unpack
ii. Install payload (with Mounting Plate installed but without Side 4) to LSU structure.
iii. Mate connector
iv. Functional test (see item H,iv below)
v. Post Functional Data Recovery (see item H,v below)
vi. Install Side 4 and corresponding foam (using hook and loop fasteners)
vii. * wait for launch prep*
viii. Flight Ready Status
    1. Remove Side 4 and corresponding foam
    2. Turn on HOBO #1
    3. Turn on HOBO #2
    4. Install Side 4 and corresponding foam (using hook and loop fasteners)
    5. Turn external switch to “on”
    6. Apply power (LSU) to payload TBD minutes prior to balloon release

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

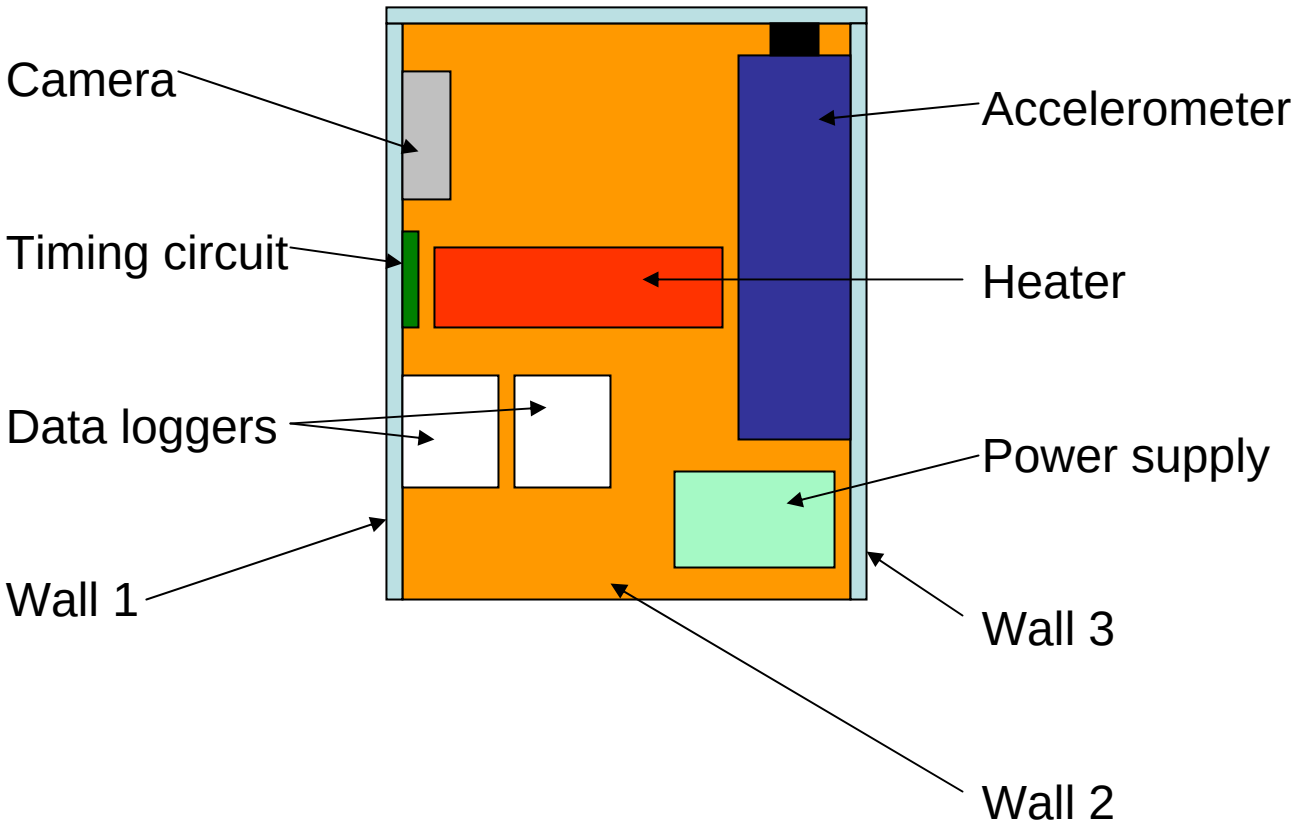
i. Fit check of HawkHASP on Mounting Plate to LSU bracket.
ii. Check for clear field of view of digital camera. Document variances.
iii. Check for clear field of view of solar cells. Document variances.

iv. Functional Test
    1. Turn on HOBO #1
    2. Turn on HOBO #2
    3. Turn payload external switch to “on”
    4. Apply LSU power
    5. Allow TBD minutes for timers to begin nominal operations
    6. Remove LSU power
    7. Turn payload external switch to “off”
v. Post Functional Data Recovery
    1. Remove SD card from digital camera
    2. Cut and paste SD card images in directory as “Functional Test” and date.
    3. Replace emptied SD card to digital camera
    4. Download HOBO #1 data in a directory as “Functional Test” and date
    5. Remove stored data from HOBO #1
    6. Turn off HOBO #1
    7. Download HOBO #2 data in a directory as “Functional Test” and date
    8. Remove stored data from HOBO #2
    9. Turn off HOBO #2

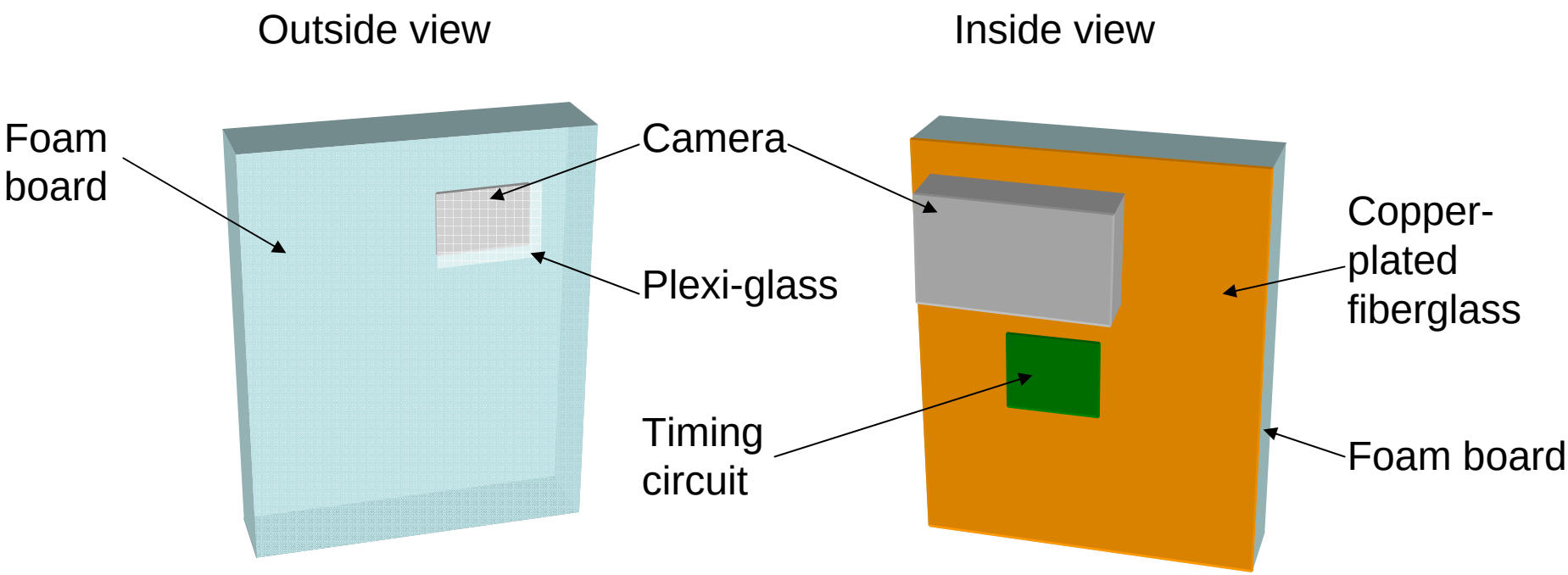
I. List any additional LSU personnel support needed for a successful integration other than directly related to the HASP integration (i.e. lifting, moving equipment, hotel information/arrangements, any special delivery needs…):
    i. None

J. List any LSU supplied equipment that may be needed for a successful integration:
    i. None

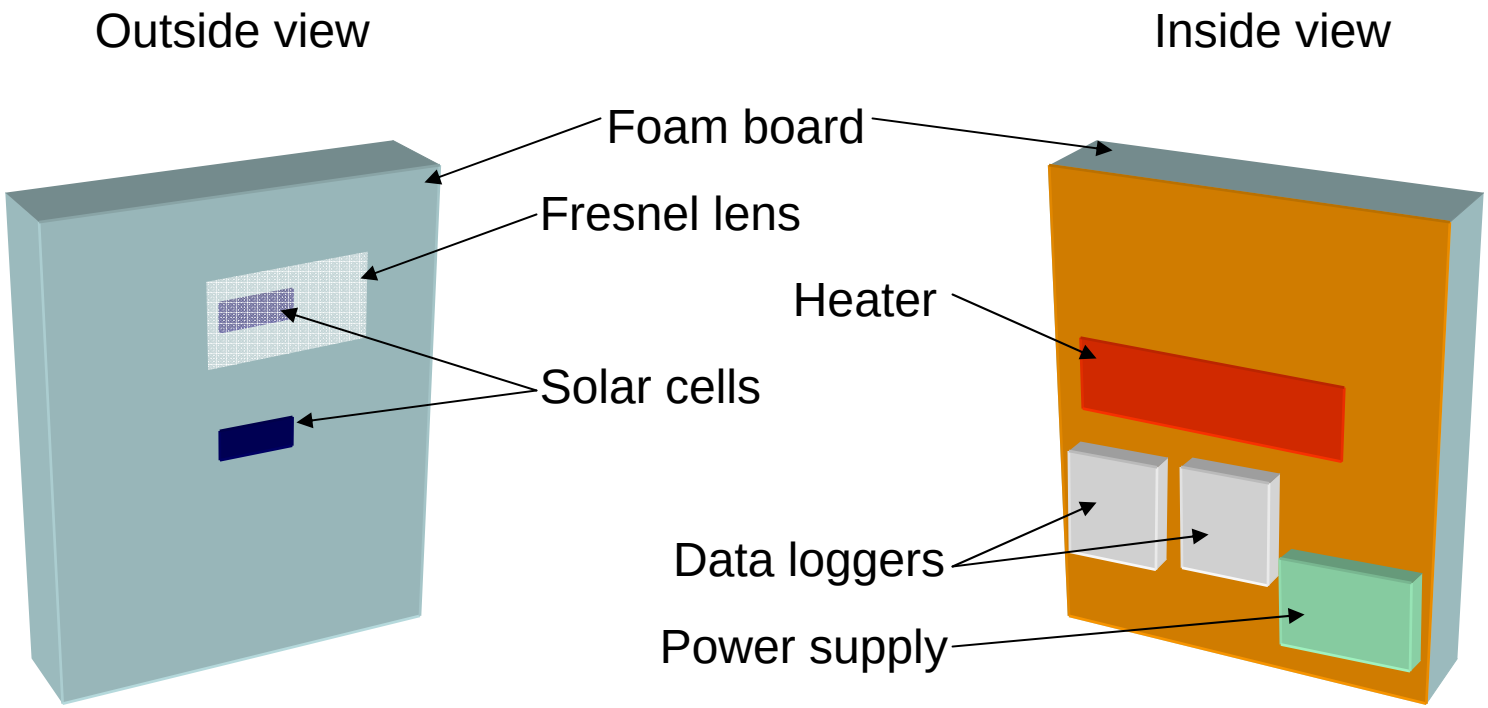
Inside of HASP



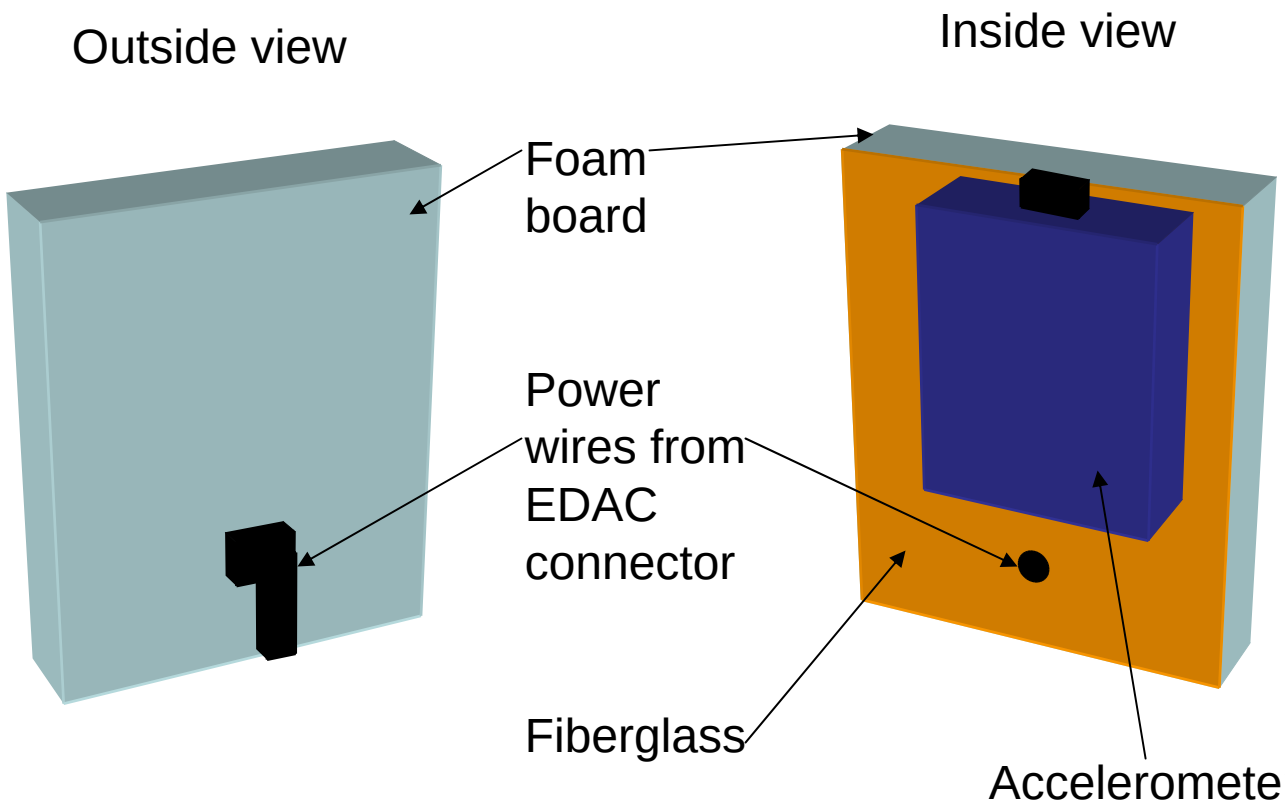
Wall 1


Outside view
Inside view
Foam board
Camera
Plexi-glass
Timing circuit
Copper-plated fiberglass
Foam board

Wall 2

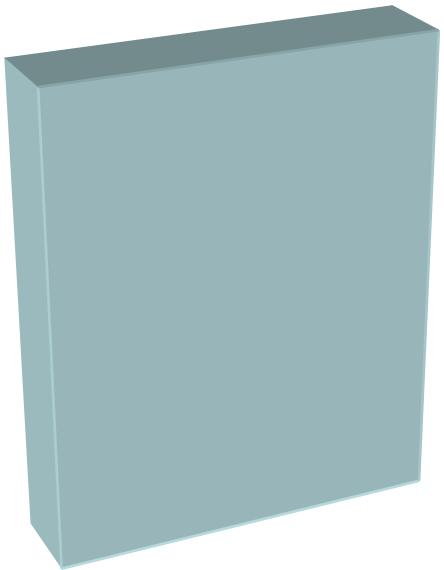

Outside view
Inside view
Foam board
Fresnel lens
Heater
Solar cells
Data loggers
Power supply

Wall 3


Outside view
Inside view
Foam board
Power wires from EDAC connector
Fiberglass
Accelerometer

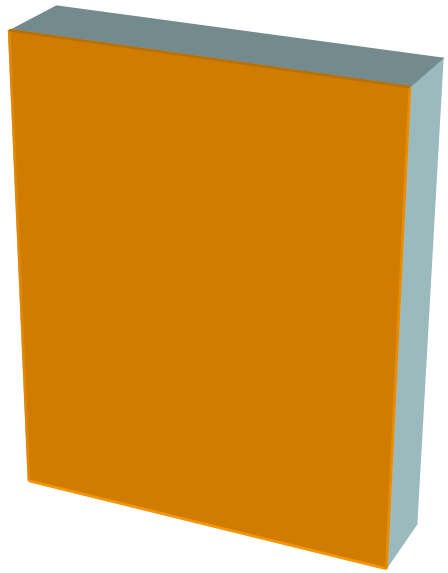
Wall 4

Outside view

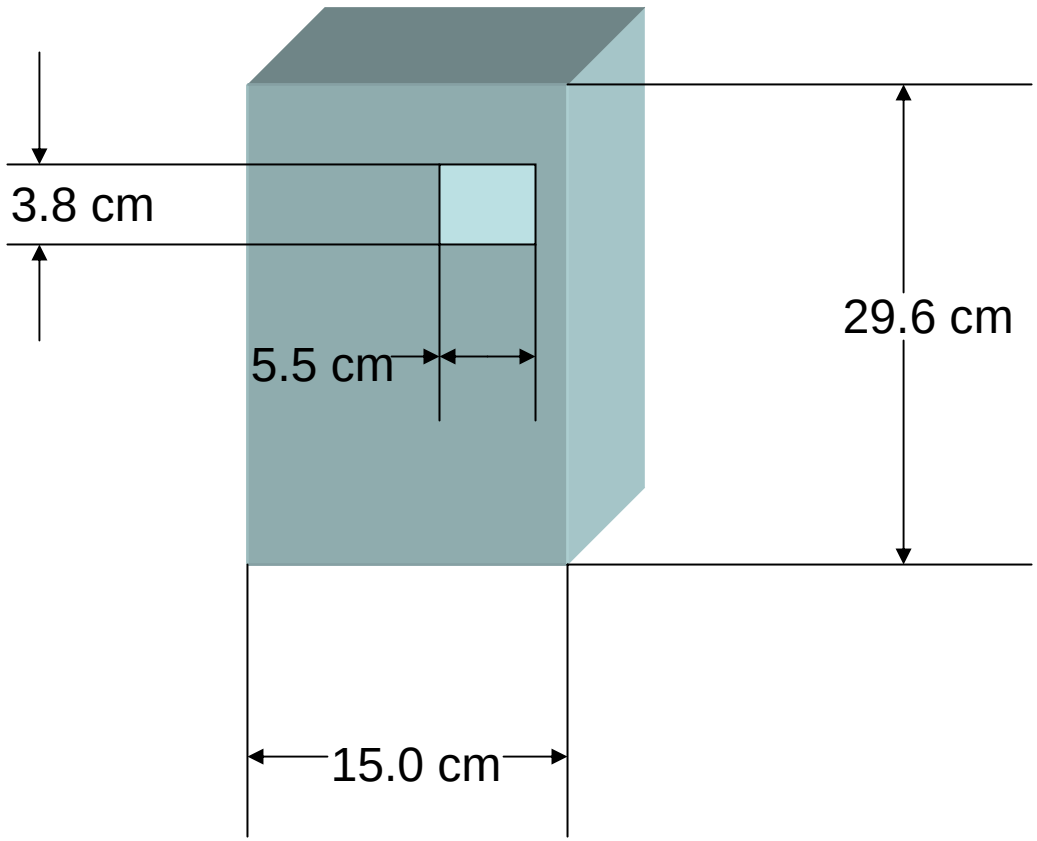


Wall 4 is the removable panel and it will not have components attached to it.

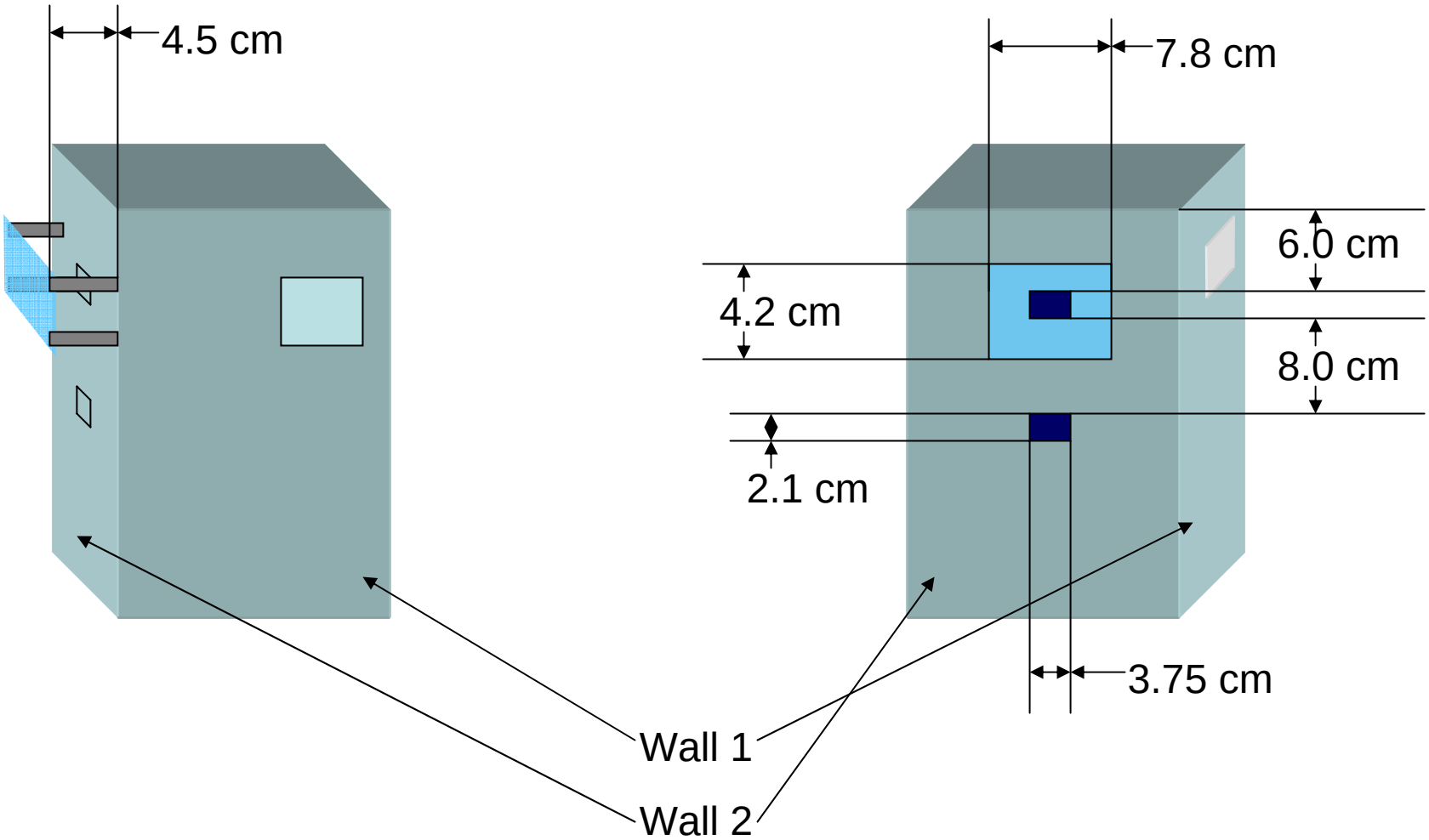
Inside view



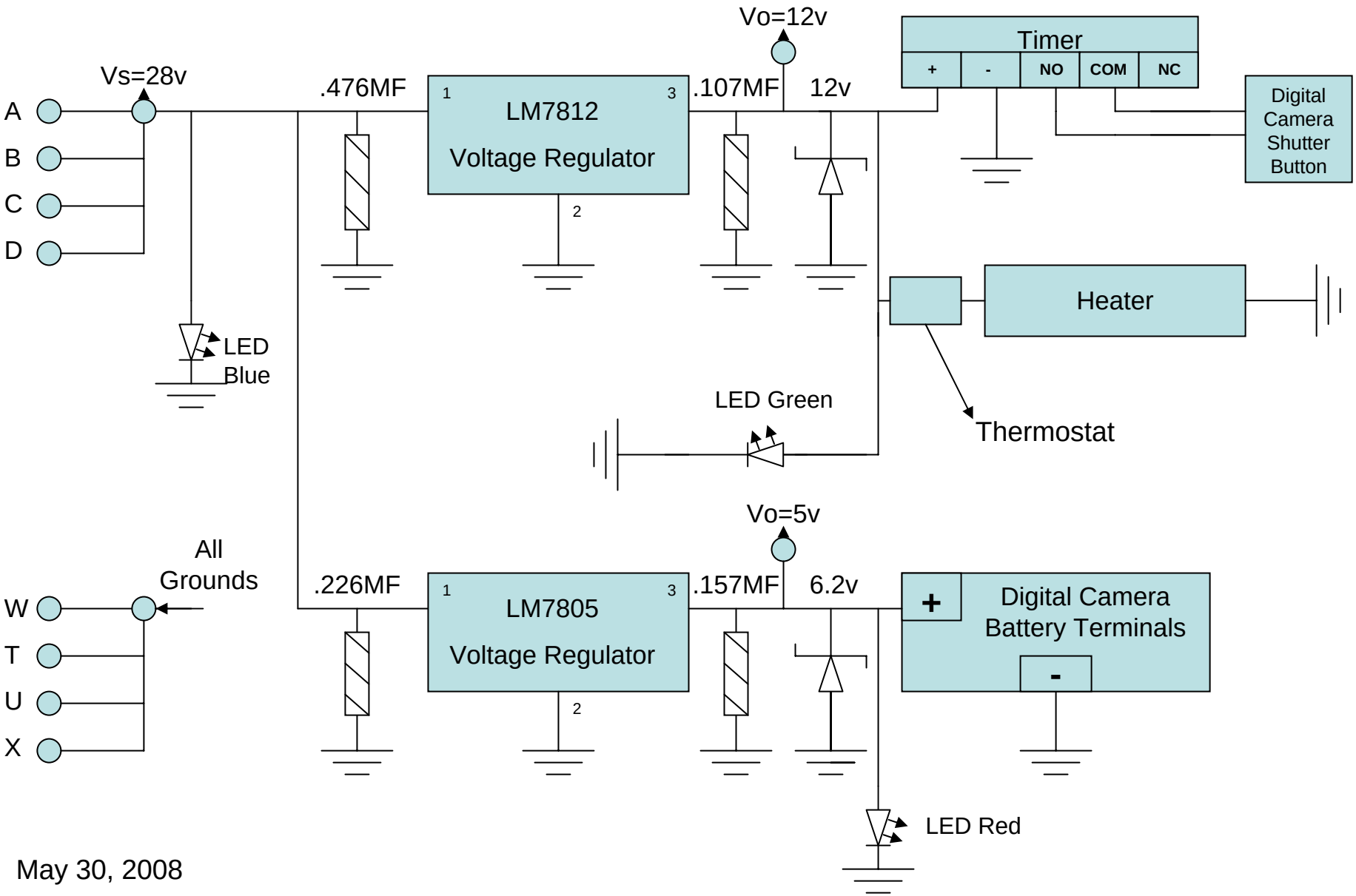
External view



External Components View



UMES Hawk HASP Payload Wiring Diagram 2008



May 30, 2008