HASP 2015

UND-UNF Payload

Monthly Status Report for May 2015

UND Team

Faculty Advisors:

Dr. Ron Fevig
Email: rfevig@aero.und.edu,
Phone: 701-777-2480

UND Student:

Sean McCloat (UND Team Leader)
Cell#: 631-813-7819
Email: spmccloat@gmail.com

UNF Team

Faculty Advisor:

Dr. Nirmal Patel
Email: npatel@unf.edu
Office Phone: 904-620-1670
Cell: 904-200-2855

UNF Students

(1) Brittany Nassau (UNF Team Leader)
Cell: 904-495-1765
Email: Brittany.Nassau@gmail.com

(2) Joseph Silas (UNF)
Cell: 904-520-1605
Email: cruiser_9482@yahoo.com

(3) Matthew Linekin (UNF)
Cell: 904-631-8575
Email: n00601480@ospreys.unf.edu

(4) Bernardo Craveiro (UNF)
Cell: 904-553-1794
Email: n00868896@ospreys.unf.edu

Teams did the following work during May 2015:

UND:

(i) Sean may send his part later on.

UNF:

(i) Payload Body

The new aluminum body has been received by the team, and is set to be milled using the school's CNC machine early this coming week. The machine lab's instructor has been on vacation so we were unable to use any of the mechanical equipment before May 30th.

(ii) **CAD drawings of the payload body** are near completion.

Schematics for the payload body have been updated and improved to include more well-rounded measurements, and for easier readability.

(iii) Printed Circuit Board

We decided to make a new and improved printed circuit board for this year's payload as well. Though most components will remain the same (due to the robustness of last year's payload), the team has decided to include the following improvements:

New pressure sensor

New Photodiode

New GPS (since we had issues with this in the past)

(iv) **The PCB design schematic i**s near completion, and should be fully completed and ready to send off for printing this coming week as well.

(v) The team is contemplating the use of a new type of photodiode, the FDS010 from THORLABS, which will replace the photodiodes that were used in past flights. This Photodiode is ideal for measurements taken from light sources, and converts the highest percentage of optical power to electrical current at a wavelength of 730 nm. Since the wavelengths of sunlight during the daytime will vary from 320 to 630 nm, depending on altitude, we assume that the FDS010 will be the best choice as it has an average responsively of 0.23 A/W within these limits, and has a low current draw.

(vi) Software

The team is working to complete, and possibly improve the "real time" data plot program made in LABVIEW by Ken last year. This program pulls the data packets send by the payload during flight and sends them to a graphical, user friendly, interface. The interface consists of several graphs and LEDs that will show the team what is happening with the parts of the payload that will have variances in data over time and altitude. This includes graphs of GPS data, heater data, and LEDs that will become "lit" when certain heaters are turned on. This will allow the team to ensure that the payload is functioning correctly and to best estimate current draw. The team is also considering the use of the PYTHON computing language to develop a dashboard that can also be used on smaller tablets and phones, to show similar data.

(vii) Ozone sensors:

The team is working on fabrication and testing of new series of ozone sensors.