

ARIES-GPS Payload

Inter-American University of Puerto Rico

March 2013 Monthly Report

Electrical System

During the month of March, we finish the PCB design of the POWER and GPS boards. We received some new components to build the prototype version of both boards. Our goal for the next month is to test the prototype version of both boards with the payload, and we also expect to order the PCBs fabrication of the boards once the prototypes are tested. We are taking every possible precaution with the electrical system because we do not want to risk this flight mission with another electrical issue.

The power board comes with multiple improvements. For example, a better connector for the main power line from HASP, DC/DC converters with the soft-start feature, LEDs indicators, fuses protection, etc. Definitely we're taking everything we learned in the last (not successful) HASP fly to use it in this design for good.

Mechanical System

The group start working on the mechanical improvements proposed during the last month, the biggest achievements is that the new changes reuse most of the work previously developed. The structural changes developed during the month include the holes for the power connector, the RS-232 for serial communication and a debugging port for last minutes changes. All this changes are because of experience of last flights and improve substantially the payload integration and use. The picture above give a better understanding of the changes in development.

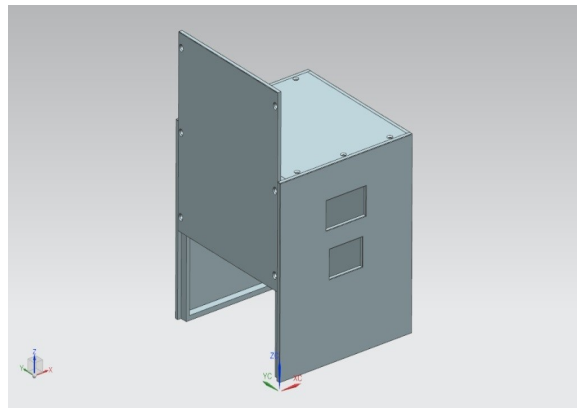


Figure 1 – External Structure

Thermal System

The team still is studying the possible solutions for the thermal environment on the payload, even though several proposals are being considered the team is preparing the payload for the newly added structural changes.

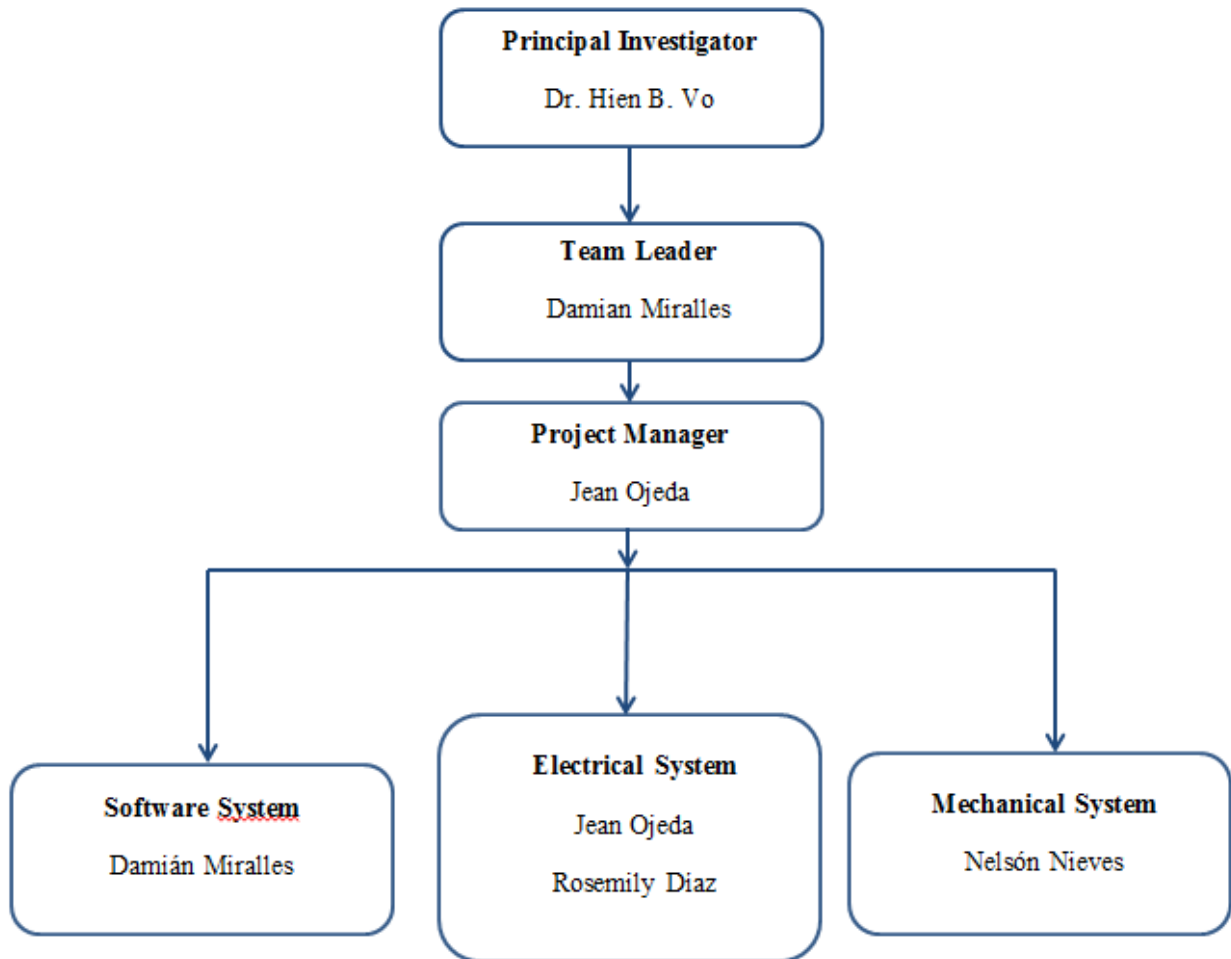
Software System

During the month our team finished dealing with the bugs reported in the serial interface, which were successfully improved. The mission does not require the GPS string from HASP platform however we developed the software to block those strings if they are not in the same format as our command interface. In addition it is valid to point out that this project is reusing most of the software from the previous flight so the main activities of the group are directed to test and fix all incoming bugs and issues.

Important Observations

- The team have not received yet the payload plates , It is still a reasonable time for us to be waiting we just inform it a mechanism for the HASP team group of updates. Probably more on this during the monthly teleconference.
- The team started to work for the PSIP, For this team is indispensable that our documents meet the HASP requirements.
- The team request the email address of the current team leader, something that is affecting us during these months. Our previous team leader is not at the moment in the project so sometimes we get affected because of it as the HASP emails are sent to the student leader. Please use this email address instead of the previous one when sending email to the ARIES-GPS team: dmiralles2009@gmail.com .

Current Team Members and Leaders



GPS Payload Students and Tasks

Students	Task
Damian Miralles	Processor programming
Nelson Nieves	Thermal Analysis, Structure
Rosemily	Power Board
Jean Ojeda	Power Board

Table 1 - Team Names and Tasks