ARIES-GPS Payload

Inter-American University of Puerto Rico Bayamon Campus

May 2012 monthly report

I. Activities of the team members

We will describe the activities that the members of the ARIES-GPS Payload are working at this point of the project.

- **Electrical system**

  o During the month (May), the prototype of the power board that will contain two DC/DC converters have been done. The two DC/DC converters are the 12Vout for the CASES GPS and the other one is for the rest of the components which requires 5V to operate. The layup design has been completed but we have not sent yet to a company for construction. Because we are handling expensive devices we want to be very careful and completely sure that all devices work properly. That's why we are testing our board prototype, and as soon all tests are finished the layup will be sent for construction.

- **Mechanical system**

  o In this past month I made a design of small piece that will hold the GPS antenna on top of the structure at 30 Degrees of inclination since that inclination is more precise on data acquisition. I am working on the manufacturing of the part and I'm making some small modifications to it because it is heavy and it needs to be a little bit lighter. We are working on several aspects of the structure:
  1) How everything will fit in the inside
  2) How is going to be attached to it.
  3) How are we going to do the cable management
  4) How the inside and outside temperature sensor it's going to be sticking out of the structure.

- **Software System**

  o During the present month the software team started to interface with the SBC running our applications. However several problems has been faced trying to interact the TS-7260 with our GPS board. The TS-7260 had installed in its flash memory a minimialistic Linux which eliminate most of the common Linux features. Due to that constraint the team has been working on changing the kernel

and installing a Technologic Systems -Debian Linux distro on it. The Debian Linux will be running from our current SD-card, relaying the USB modules as storage units.

Also, we are currently working on the creation of our own Linux drivers modules to interface and run the MBS-GPS board. They will be used for interfacing the PC-104 board in multiples platforms, offering a secure and permanent device in the root file-system for interfacing the GPS board.

II. Issues Encountered During Payload Design

- o The TS-7260 had installed in its flash memory a minimialistic Linux which eliminate most of the common Linux features

III. Milestones Achieved

At the time of the projects this are the milestone that we have achieved.

- **Objectives**
  - o Power board for the payload was completed.
  - o The ARIES GPS payload preliminary assembly was started.

IV. Current Team Members and Leaders

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