Gannon University HARD payload
Status Report #6
6/28/2013

1. Achievements/Work in Progress

- Finalized and delivered the final PSIP to the program office by 6/21/13
- Completed integration test with all subsystems
  - The major issue of getting high event rates (thousands per minute), observed from the last year's payload during flight, was replicated in the lab and was resolved by modifying the microprocessor codes for the servo. The primary cause was a strange interaction between the microprocessor and servo. In the previous implementation, the microprocessor collects orientation info from the e-compass and sends a pulse of a width corresponding to the orientation every 20 ms to constantly adjust the orientation of the servo and the payload. This 20 ms- interval pulse seems to have caused an unexplainable operation leading to the high event rate. Now, the microprocessor sends a pulse every minute and this results in an expected event rate (a few per minute).
  - Another issue of not getting HASP GPS string through the RS232 serial was observed and resolved. In the previous implementation, for unknown reasons, the microprocessor incorrectly recognizes the incoming hexadecimal string if the hexadecimal command of 4 bits starts with "bit 1" (e.g., 0x1011), and it reads it as 0xFFFF. The fix was to change "signed character" to "unsigned character" for serial operation-related variables, i.e., characters the microprocessor reads in.
  - As of now, all payload subsystems operate as expected.

- Construction of HASP 2013 payload is in progress: the bottom half (i.e., detector module, e-compass, rotator module, and the mechanical frame to support them) has been completed. The remaining portions are to affix and connect GPS, microcontroller, temperature sensor, SD card, power modules, comparator module, and serial) and will be completed within a week.

2. Issues

- None.

3. Next Steps

- Finish construction of HASP 2013 payload.

4. Current team members and leader

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