

HASP 2010
University of Maryland
February Status Update
2/26/10

The University of Maryland HASP team has spent February finalizing the design phase of the project and beginning fabrication. The team has also had recent funding approval and is proceeding into purchasing and electronics fabrication.

1. Activities of the Team Members

Team members have now been split by individual systems in the payload and are working on the detailed portions of their assigned system. Current activities for the mechanical system include detailed cad drawings, particularly of the dowel connecting the launcher and payload, and fabrication of the first detachment mechanism test rig. All calculations needed for the mechanical system have been completed. The electronics system is currently undergoing revision based on cost and changes to mechanical design.

Purchasing of major components is also currently in progress. Most of the components for the mechanical test rig have been purchased and assembly is currently in progress. Expensive components have also been ordered and/or requested or are in the process of being ordered.

2. Issues Encountered During Payload Design

The major issue encountered during design so far is the need for a more active thermal management system. While the payload has many components rated for extreme temperatures, some of these components can be very expensive and may not be suitable for a research payload on a limited budget. The major change made was the decision to design for commercially rated hard drives. Using commercially rated drives requires an active heating system capable of autonomous and manual control. While this adds complexity to the payload short term, as using extended temperature hard drives would not, it reduces expense of the payload and allows a more common, faster connection from the hard drives to the CPU board. A simpler heating system is also needed for the release servo.

The other major issue and change to the payload is the decision to use a different back up communication system. The service for the Orbcomm modules is both out of range of the team budget, and out of range of the budget for research teams only using 1-2 modules. A new backup system has not been decided, but ham radio is likely.

3. Milestones Achieved

Project milestones for February included completion of calculations, major progress on cad drawings, purchasing of major components and material, and a close to completion mechanical system test rig. The UMD team has also acquired a new team member to work on the payload.

Milestone goals for March consist mainly of completion of fabrication and preliminary testing. With the completed cad drawings, the team hopes to machine the most difficult part of the payload within the next few weeks. Once the test rig is complete, it will be tested on the ground. We hope to have a drop mechanism test flight within the next month. Once the PC104 components and hard drives arrive, we will be setting up the operating system and a network to test the data transfer system.

4. Current Team Members and Leaders

The UMD team has added one team member in February in addition to the team members listed in the previous update. Current team structure is as follows:

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