

During June, the main focus of the UMD team has been on testing the flight rig. As weather and the waiver we need to fly test rig, camera payload, command module of 12+ pound total string weight are still being processed, we have not been able to fly our rig. We were however able to do a drop test of the entire system and thermal testing.

1. Activities of Team Members

The team was able to do a thermal test of the mechanical systems and electronics. We tested at a range of -60°C to 60°C, making sure that everything worked properly at each temperature. Video footage and data results of the test will be posted soon.

The team also completed a tethered drop test with the flight rig, video payload, parachute, and drop device. During testing, the parachute seems to deploy smoothly and the payload drops straight on the current tether. The tether will be lengthened and more drop testing performed. We will be repeating the elevated flight rig drop test and recording the video until we are able to fly the rig.

The mechanical systems team is currently making a second set of components for the mechanical detach mechanism and minor adjustments to the original set based on observations during testing.

The software team has written final code for our test flight and is working on preliminary code for the power and communications PCB's. The electronics team is working on final PCBs.

2. Issues Encountered During Design

During drop testing, we observed that due to the force of the payload catching on the tether, the supports for the servo over multiple tests had actually broken the servo horn and driven it into the servo casing. This issue was fixed by adding a small Delrin brace around the outside of the servo horn to absorb the impact for multiple test sessions.

3. Milestones Achieved

- Thermal Testing of mechanical systems and electronics
- Completion of final flight test rig
- Drop testing for parachute deployment and payload detachment
- Testing of servo board hardware and software
- Preliminary elevated drop testing of full flight rig
- First revision of servo board flight software complete

July Milestone Goals

- First test flight of entire system
- population of final electronics
- Flight test with electronics, mechanical, and software systems completed

4. Current Team Members and Leaders

Dr. Mary Bowden
Faculty Advisor
bowden@umd.edu

Connie Ciarleglio
Student Lead/Software Lead
cciarleg@umd.edu

Dru Ellsberry
Graduate Advisor/Electronics Lead
dru@nearspace.net

Jason Hagler
Undergraduate
llewod@gmail.com

Chris
Mechanical Systems/Testing
rentacop.intern@gmail.com

Clare McGlory
Mechanical Systems
cmcglor@gmail.com

Kevin Davis
kevpdavis@gmail.com
Software/Electronics