

During July, the UMD team successfully launched a flight test version of the StratoPigeon on a balloon, thermal tested the drop mechanism a number of times, and performed final assembly and checkout of the full payload. Overall the system is ready for final thermal-vacuum testing, though there are a few things that could be improved.

1. Activities of Team Members

The purpose of the flight test of StratoPigeon successfully showed that the payload separated and dropped from the support plate in flight. The release was commanded at approximately 47,000 ft. Two cameras were set up above the payload to record the drop (one directly above the payload and one to the side) but unfortunately only the side camera recorded successfully. Video footage and data results of the test will be posted soon.

The team also completed a couple thermal tests of the mechanical systems and corresponding electronics. Testing range was from -60°C to + 60°C, but some problems were encountered on the cold side – see below. Further drop testing was done after modifications and with the full system assembled, including the parachute.

The mechanical systems team is continuing construction of a second set of components for at least the mechanical detach mechanism, if not the full payload.

The software team has completed version 1.0 of the flight code including code for the power and communications PCB's. The electronics team has made some minor modifications of the PCBs and may produce a revised board to include these modifications for flight.

2. Issues Encountered During Testing

During thermal testing, the drop mechanism did not actually release at the coldest extreme because the servo probably did not develop enough torque perhaps because the internal lubricant may have become too viscous. We have since added two thin-film heaters, one internal to the payload and one on the servo.

3. Milestones Achieved

- Thermal Testing of mechanical systems and electronics
- Drop testing to demonstrate parachute deployment and payload release
- Flight Testing to demonstrate parachute deployment and payload release
- Video recording of flight drop
- Assembly and system testing of power and communications PCB's
- Flight software version 1.0 complete

August Milestone Goals

- Second test flight of entire system
- Fix any issues that come from the thermal vacuum testing
- Possible software systems improvements
- Possible manufacturing of new flight PCB's

4. Current Team Members and Leaders

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