

TASK HISTORY	TASK TITLE Avionics Team	TASK NUMBER 1	PROJECT IREC
TASK HISTORY AUTHOR Destiny Fawley	TEAM LEAD Destiny Fawley		TASK DOCUMENTATION Avionics Team Beginning of School Year Review and Objects
DATE 10/8/2018	MILESTONE Hardware Purchase and Goals	REVIEWER'S INITIALS AKM	

Why We Did

When the rocket launches, it needs avionics to control it and collect data. The team will get points for achieving an altitude of exactly 10,000 ft, so the main goal of avionics team is to have an active altitude control system. The team will most likely implement a flap system that can vary drag based on projected apogee. Because this is also the largest rocket to date, a variety of data will be collected, including temperature, pressure, velocity, altitude, and video.

If the hybrid engine gets used on the flight, there may be problems with fuel movement if the rocket spins too much. This is known to be a problem in liquid fuel engines, so the team also plans to implement a roll control system. This may be the same as the flap system for drag, or it may be a separate system.

What We Did

The team spent the first few weeks drawing out a plan for what data to collect and how to do altitude control. The Arduino was selected as the primary computer that would control all electronics, so sensors compatible with the Arduino were ordered. In the following meeting, it was decided to do roll control as well because the liquid fuel of the engine cannot flow well if the rocket spins too much. The team plans to make a clear plan for what these system will look like in the next meeting and begin coding the sensors.

Sensors for pressure, temperature, angular velocity, acceleration, and velocity were ordered and should arrive for the next meeting.

Results

The circuitry tutorial made the members more comfortable with making circuits, so the team is ready to start working with hardware. The sensors should arrive by the next meeting, so the team can begin working with the sensors that will go on the test flight.

Lessons Learned

ISS has a lot of hardware left over from previous years, so it is not necessary to wait for parts to be ordered.

Impact Statement

The team will circuit and code the sensors so they are easy to hook up in the future. Once they are comfortable with Arduino, they will begin working on the drag system and putting a simulation on a computer.