

Week IV Report

Advisor(s): Gary Tuttle

Client: NASA Marshall Space Flight Center

Members (Roles): Isaac Johns, Ryan Bissett, Tom Henry, Luke Dahlman, Anh Ho, Dustin Pierce, Antjuan Buffett

Project Title: Remote Deployment Circuit and Mechanism for Lightweight CubeSat Solar Panels

Weekly Summary

Our main goals for this week were to research our responsibilities and be able to have a preliminary write-up for our design. By Sunday we want to have our final decisions made and a final write-up to be made. We are also to come up with more questions to ask Mr. Carr for our phone meeting with him on Monday at 11:15 A.M.

Meeting Notes

From our weekly meetings:

- We talked about our different responsibilities and what we've found. We also started discussing toward final decisions in parts, analog vs. digital, costs, reliability, and boom design.
- As of right now the boom may be a lattice structure similar to pull-away from the wall lamps due to simplicity of design. Further discussion is needed.
- We discussed sensors for the boom on how to make it interruptible. We want to know where/how to stop the boom. And we're working with about a 1'-2' boom.
- We're concerned with sending and receiving signals, so we discussed PLC vs. Analog circuits. PLC has many advantages over Analog in this case, however, having reliability as a major drawback as compared to an Analog circuit.
- We are getting ready for our second group meeting with Mr. John Carr.
- We will have a phone conference with him Monday(October 6) and discuss with him our progress and ideas so far.
- Created a game plan and formed a clearer idea of what exactly we have to do for the coming week. We need to have our preliminary decisions made by Thursday and final by Sunday in terms of our respective responsibilities.
- We are meeting Sunday in the Coover Atrium to do the final write-up with pending time that will be announced to group.

09/22/2014 Group Meeting to Decide Course of Action

Duration: 1hr **Members Present:** Isaac Johns, Ryan Bissett, Tom Henry, Luke Dahlman, Anh Ho, Dustin Pierce

09/29/2014 Group Meeting to Discuss Ideas

Duration: 1hr **Members Present:** Ryan Bissett, Tom Henry, Luke Dahlman, Anh Ho, Dustin Pierce

Purpose and Goals

- Come up with ideas for the project to pitch to each other and eventually to Mr. Tuttle and for Monday's meeting with Mr. Carr.

Achievements

- This week we continued to discuss a design and it seems that as of right now we would the solar panels to fold out in an accordion-style. This can be achieved through a mechanical design similar to pull-out lamps attached to walls using tethering to deploy and retract. We also discussed a garage door-like design to achieve a fail-safe circuit. We've found some good materials and companies, Atmel specifically, that make Rad-Hard circuits. Everyone is on-task and doing their part.

Pending Issues

- Anh is having difficulty getting in contact with a professor in the Mechanical Engineering Department.

Plans for Next Week

- Luke: Contact Professor Tuttle and John Carr
- Isaac and Ryan: Weekly Group Report
- Anh & Dustin: Keep group on Task
- Tom and Antjuan: Manage Google Docs and Weebly site
- In addition, everyone will create have their preliminary decisions from their responsibilities given to them from last meeting by Thursday and final decisions Sunday.

Individual Contributions This Week

- Luke: Organized meetings, attending meetings.
- Isaac: Edited weekly report and attended meetings.
- Ryan: Wrote weekly report and attended meetings.
- Tom: Updated online media, attended meetings.
- Dustin: Attended meetings, kept group on task.
- Anh: Attended meetings, kept group on task.
- Antjuan: Attended first meeting, pitched ideas.

- Each member also came up with an idea for the project and will be writing a short report on their ideas.

Total Contributions for this Project

- Luke: 7hrs
- Isaac: 7hrs
- Ryan: 7hrs
- Tom: 7hrs
- Dustin: 7hrs
- Anh: 7hrs
- Antjuan: 7hrs