

Project Bi- Weekly Progress

Date: 1-21-14

Project Title: Solar Powered Arc Jet Thruster

**Students Names: Chris Brolin, Cory Gainus, Gerard Melanson, Tara Newton
Griffin Valentich, Shane Warner**

**Mentors/ Coordinator/ Sponsor: Dr. Guo, Dr. Kwan, Dr. Andrei, Kurt
Polzin, NASA**

1. Project Title: Solar Powered Arc Jet Thruster

2. Project Objectives/tasks Breakdown:

Design, build, and test a direct drive arc jet thruster for purposes of providing propulsion under vacuum.

Design and execute a test plan to systematically quantify the range of operating conditions over which gas ionization can be achieved.

Perform tests to see if a continuous discharge at these power/current levels can be sustained, and quantify if possible

3. What was accomplished the last two weeks on individual tasks- representative supporting data/ documents

During the last two weeks components were submitted to machine shop for fabrication, electrical components were received, ideation for testing has made progress.

4. Summary of problems encountered and actions taken (and by whom)

Problems encountered with the manufacturability of the original parts. The drawings were modified so that machining issues were alleviated while still ensuring internal dimensions were unaffected. – Griffin and Chris

It was determined that the bread boards in lab were not sufficient for amount of current that is expected. We need to order boards that have a higher rating. – Shane and Gerard

Switch on vacuum pump is broken, replacement is needed. – Cory

Need to determine best way to run tubes and wires through baseplate while maintaining vacuum. – All MEs

5. Attached Gantt chart modifications and analysis if project is behind schedule and summarize actions planned to overcome the problems)

Project is on schedule at this point

6. Work planned for the next period and the person(s) responsible:

Finalize test apparatus and test stand – Griffin

Finalize test matrix – Cory

Design baseplate – Chris and Tara

Test Circuit – Shane and Gerard

Troubleshoot manufacture – All

Get PCB made after circuit tests

7. Open comments/suggestions (Please feel free to include your private comments):

We just received notice that the team at NASA will be working on the project concurrently with us. Working in parallel will provide a good learning experience for both teams.

Budget is a concern, more to come on this topic in the next report.

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Coordinator/ Instructor assessment report and corrective action
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