EE 491 Weekly Report

Week 5: 9/23-9/29

Group: *May14-03* **Advisors:** *Dr. Sumit Chaudhary, John Carr* **Client:** *ISU NanoLab*

Members: *Andersen, Martin; Diallo, Mouhamadou; Rodriguez, Nicholas; Straquadine, Joshua (Leader)*

Project Title: *"Design and implementation of cryogenic current measurements on organic photovoltaic cells"*

Weekly Summary

This week we had our first in-lab experience, in which we successfully made some measurements of the temperature inside the cryogenic chamber. We also ordered the new parts we would need (as researched in the previous weeks) and decided who would write which parts of the project plan.

Meetings

9/23 Lab work session

Duration: *2 hr* **Members Present:** *All*

Purpose and Goals:
Get the system up and running in its original state, see how things work and how we can take our first few steps, and determine even more exactly what parts we need order.

Achievements:

- Successfully got the probes hooked up in the cryogenic chamber
- Learned how to use the temperature controller and got the system to cool the temperature probe
- Collected some temperature vs. resistance data for the thermistor using the source measurement unit, allowing us to characterize the probe's temperature response.

9/26 Group planning meeting

Duration: *1 hour* **Members Present:** *All*

Purpose and Goals:
Discuss our individual tasks for how we will complete the Project Plan document, talk about the standards homework assignment, and formulate a plan for the next week

Achievements:

- Established a plan of attack for completing our documentation requirements for the class by delegating different sections to different members
- Determined that the only two standards which apply are the ITS-90 temperature scale and the GPIB communication protocol
- Determined when we will meet and what we will do at each meeting depending on when we get our parts in.

Pending issues

Right now we're doing fairly well. Our first order of materials has already been placed, so right now we're waiting on those parts. Our advisor gave us another company to contact, so we gave them a call, but still have not heard back from them. We're in good shape to continue moving forward, though. Also, we have distributed tasks for the writing of the formal Project Plan.

Plans for next week

Next week we will spend more time in lab, with the goals of building a prototype cold trap, measuring heating and cooling rates of the system, and hopefully making some more accurate low temperature measurements if the new resistive temperature probes come in.

Individual Contributions

- Andersen, Martin: Attended the meetings, filled in concept sketch, functional requirements, and risks sections on project plan document. (5 hr)
- Diallo, Mouhamadou: Attended the meetings filled in project schedule, operating environment, and system description sections for project plan (5 hr)
- Rodriguez, Nicholas: Attended the meetings, filled in problem statement, deliverables, and work breakdown structure sections for project plan (5 hr)
- Straquadine, Joshua (Leader): Attended the meetings, called supplier companies, filled in system block diagram, user interface description, non-functional requirements and resource requirements sections for project plan (7 hr)