

Week of 11/12/2012 (Also available on Website)

Charging Station Progress Group Number: 22A

Group Advisor: Pr. Bigelow

Group Client: Pr. Bigelow / Paragon

Group Members: Hamzah Abeer, Aziz Almarzouqi, Nick Riesberg, Derek Schmitz, Matt Stobb, Brandon Umscheid

We successfully met with the 492 group and saw their presentation. This gave us some insight of future problems that we will probably face with our project.

Derek received a sample buck converter and does not think that it will work for our process. He is going to look more into building a buck converter or finding another IC. Professor Bigelow said its up to the group which direction to go. Finding an IC would be more reliable but building our own buck converter would be a better learner experience for us. Derek will be looking further into the buck converter.

Brandon did some more research on a shut off system for the circuit. A solid state relay seems to be a more reliable and a safer way to control the system and be controlled by the micro controller. He found one for around \$30. After talking with Professor Bigelow he said it would be a great idea but to make sure the micro controller can meet a current demand if the SSR requires a certain current to operate. Further investigation will be done.

We discussed more about how we are going to monitor the voltage and be able to output the estimated time to full charge and voltage level of multiple battery types. Professor Bigelow said we should probably look into buying some electronic sensors. He also recommended consulting with Professor Fayad on the best way to monitor since we are using lead-acid and lithium ion. We will have to schedule an appointment for after break.

We also need to further investigate how we are going to physically layout our design. This is a concern because we will need to be able to handle high currents and temperatures. After conferring with Professor Bigelow he said we can design one on the Linux software on campus and order a layer 2 board through the electronics shop for about \$50.

We decided on functional requirements that we want from the micro controller to give us via the LCD. We are going to install three to four push buttons that will be connected to input pins on the micro-controller. The pins will be able to turn on the charging circuit, change the voltage we are charging at, and select the battery type we are charging. This will give the user immediate feedback at the charging station as well as the remote location. Hamzah and Azuz will be working on a baseline C program so we can have something we can alter later. We cannot test because we are still waiting on the micro controller to arrive.

We have been working on the power point for our presentation and are presenting the Tuesday after the thanksgiving break. Everyone is working on their portion of the presentation. Our next group meeting will be Sunday where we will finalize and practice our presentation as well as have our weekly meeting.