

Week of 10/29/2012

(Also available on [Website](#))

Charging Station Progress

Group Number: 22A

Group Advisor: Pr. Bigelow

Group Client: Pr. Bigelow

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

We discussed from last meeting about the use of a transformer or a buck converter. We decided on a buck converter. Derek found a buck converter that we believe can possibly change the output voltage of the buck converter with a pulse width modulation signal. This would be ideal because the microcontroller would essentially be a digital switch to control the output voltage.

We also found a lithium ion protection kit from T.I. that we can install in our charging station that would have monitoring systems of temperature, current, and voltage that would act as a safety feature to keep our circuit from operating dangerously. We are going to see if it will work for lead acid batteries.

We also asked Professor Bigelow if we are going to be under the control of paragon with the 466 or we are an independent group under Professor Bigelow. He said we are going to design our charger for their vehicles.

We are also going to try and look into what aspects we would have to change to be able to charge lithium ion as well as lead acid with the same circuit. This is something we'll have to further investigate to see if it is plausible both design wise and from a safety aspect. Its not a requirement but if we can figure it out it would be a great addition.

This week we are trying to meet with Professor Fayed as he was referenced to us by Professor Bigelow as a good resource for battery charging. Hopefully he can help us with some design aspects and answer some questions for us. We are waiting to confirm a meeting time with him.

We also met with Professor Bigelow to finalize exact details. He informed us he wants two charging stations; one that is portable and one that is vehicle mountable. He also said we should design the stations to charge lead acid batteries with a voltage range of 12 to 48 V output.

We are still waiting for the microcontroller to be delivered to start programming and testing it.