

Client Interview - Dr. Hess

Mariana Burdelis, Keith Leitner and Robert Prew

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1 What is the focus of the project and what would you like to see happen to it?

The focus is that some person travels frequently and wants to fully charge their phone but doesn't have much time. So they would like a device that charges quickly but can charge their phone on the plane. It would be great to see a full prototype for this idea.

2 What did the previous group get working and what wasn't working?

The previous team pretty much got their prototype working. They were able to get the capacitor bank to charge and they were also able to get the phone to charge. They had trouble transferring the energy from AC to DC and their mode change (from charging the bank to charging the phone) was still manual. I would like it to be automatic.

3 How much can we change from the previous group progress?

You are free to change whatever you want. You could even start a completely new project. However you should think if you want your group to start a new and end up with a prototype in the end of the year, or if you want to work with the previous group's prototype and end up with a functional project in the end of the year. If you think you make something better than the previous group you are also welcome to do so.

4 Have there been any similar products to what you want us to create?

Not that I know of. However there have been some lithium batteries that can be charged up to 80% in fifteen minutes. You could possibly use it as a case study.

5 What is the maximum charge you would allow us for this device?

Two minutes. The time the device takes to charge the phone doesn't matter.

6 What are the differences between a cellphone battery and a laptop battery?

Basically voltage rate and size. A laptop battery is 18V and a cellphone battery is 3.7V.

7 What would you suggest be our first steps for this project?

The first step is to figure out what your group wants to create. Then you should create three different plans: one with a time frame point of view, one with technical point of view and one with a financial point of view.

8 What would you like the durability or the lifetime of this device to be?

There are three different factors that determine the lifetime of a battery: discharge, charge and heat. Discharge should be at most 50% and charge should be up to 90%. Try to make your device as durable as possible paying attention to those parameters. The super capacitors that are in the power lab have not been around long enough to estimate their lifetime. Your group can research about monitoring chips from Maxim or TI. This can help you keep track of the charge in them and make sure they are not overheating.

9 Would this device potentially harm the phone it is charging?

It is very doubtful that it could do that.

10 Would you want this device to be able to plug into a wall outlet and charge a phone at the same time?

If your group could achieve that it would be fantastic. It actually should be able to do that just fine.

11 Are there any constraints as for the size of this device?

Since this project is being design to be in the market you have to make it sure the device fits easily in a carry on. I would prefer it if you could make it the size of an iPad.

12 Would we be able to get a patent for this device?

Sure, why not? Your group would have to figure out how to do patent. The university can help you with that, however they would be able to keep most of the patent profit. You could pay for it yourselves, but it would probably cost in between two to three thousand dollars.