Memorandum

Michael Mellitt EE - 41440 Spring 2013

**To**: Dr. Schafer

**From**: Light Bike

**Date**: Monday, February 4, 2013

**Subject**: Progress Update 3

1. For the third design review, our team has completed its primary goal of the week; a 30V 10A power supply has been obtained, 4 of the batteries have been charged, a 100A current sensor is operational, Optima has been contacted for more information on the batteries and process has been made on how to configure the current source.

a) Clint Manning has rented out a 30V 10A DC power supply until 2/18/13 and it is now in our group's cart. This will be used to supply the current source for the single battery charger. Eventually a DC power supply at 85V will have to be built.

b) Four of the batteries have been charged and are maintaining charge. They have had some loss of voltage, most started at 13V and are now around 12.4V. They will have to be monitored over a longer period to ensure battery health and capacity.

c) A 100A current sensor has been attached to a car battery charger and can be read by the demo boards. The analog voltage readings need to be calibrated in order to get an accurate current reading. Additionally a 30A Allegro current sensor needs to be ordered for more precise reading.

d) Optima has been contacted for more information on battery specifications and how to best charge the batteries. We are waiting to hear back.

e) Research has been done on the best way to produce a constant current source using an array of power Mosfets. Now that the current sensor is operational we can attach the source and began experimenting with keeping the current constant at a desired level.

2. For next week, Mike Mellitt and Jake Thordahl will make progress on calibrating the current source to get accurate readings. Alex Toombs and Patrick Bowlds hope to have the current source operational and will begin working on feedback software to maintain a constant current. Ben Coffey expects to hear back from Optima and have a better idea about the health of the batteries. Ben will also begin researching the motor controller.