

IOWA STATE UNIVERSITY

Senior Design Weekly Report

Weekly Report 21

Group: May-06

Group member: Chongli Cai, Qiaoya Cui, David Hoffman, Andrew Kom, Ailing Mei

Client: Garmin International

Advisor: Dr. Colin Christy

Period: 3/11/2013 - 3/17/2013

Date: 3/17/2013

Goals to Meet

Our main goal was to get the PCB design started, and close to completion. Given that we are closing in on the final due date, some of the topics we pushed off, to get the main systems done, became important to figure out.

Weekly Progress

We put in time this week developing the PCB design. Additionally, we had to discuss the method of us powering the device. Specifically, using linear regulators would prove to be a bad choice for producing the required 5V and 3.3V sources. They are particularly inefficient. Additionally, we needed to think more about putting the PCB inside a case.

Future Planning

We determined that a DC-DC converter would be the best option to keep a highly efficient conversion. Now the problem is determining what configuration of batteries we should use, whether it Lithium Ion cells, or another type, and whether they are a series pair or a single (or parallel) cell(s). This will depend on a number of things, including the power draw of the system when running all the components, and the choice to use a Buck, Boost, or Buck-Boost converter.

Individual Contributions

Andrew:

Wrote the Weekly Progress Report 21	1 hour
DC-DC converter Research for efficient power usage	3 hours

Chongli and Ailing:

PCB Schematic and Layout	10 hours
--------------------------	----------

Qiaoya:

David:

SPI coding of LCD screen	20 hours
--------------------------	----------