

Fast, Compact, High Strength Magnetic Pulse Generator

EE 491 Weekly Report

May 15-30

Week 6 (10/06/14-10/13/14)

Advisors: Mani Mina, John Pritchard, Robert Bouda
Client: High Speed Systems Engineering Lab
Members: Team Leader – Adam Kaas
Team Webmaster – Gregory Fontana, Meiyong Himmtann
Team Communication Leader – Brittany Duffy
Team Key Concept Holder – Megan Sharp, Brandon Dixon
Team Commissioner – Alain Ndoutoume

Weekly Summary

This week, we focused on each of our specific roles in this project. We are getting up to speed on how to use our software, how to prototype the circuit, and how to calculate and construct the coil. Our advisor, John, was very helpful this week as well, leading us in the right direction.

Meeting Notes

10/6 Group meeting with core members

Duration: 2 hours **Members Present:** All members

Purpose and Goals:

Our goals during this meeting were to work on the tasks provided by John over the weekend.

Achievements:

During this meeting, all purposes and goals were met. Each of us was assigned a role by John to work with each other and make progress towards our project's development.

Brandon and Adam lead the schematic and layout efforts. They used their resources for Eagle PCB to create the blinking light activity from the previous week in order to set up a blinking light PCB.

Brittany and Greg lead the simulation efforts and will work with Brandon and Adam to choose the right parts based on their simulations.

Meiyong and Alain will lead efforts in prototyping the circuit. They contact Lee Harker to get safety training so they can use the workshop and training on the Protomat S62 in order to prototype our PCBs. Their training is currently scheduled for Friday, October 17th.

Megan will lead efforts in the coil calculations and construction. She will be working closely with Brittany and Greg to determine coil inductance so she can update her simulations. She will meet with John to discuss methods of creating the coil.

10/8 Group meeting with core members

Duration: 1 hour **Members Present:** Adam, Alain, Brandon, Greg

Purpose and Goals:

Our goal during this meeting was to rendezvous with John to review our progression on last week's tasks, ask questions we had, and discuss our goals moving forward.

Achievements:

Before this meeting, we discussed and identified the troubles we were having with the tasks John provided. Once everyone had arrived, we discussed the progress we had made on the tasks that were provided, and from this we figured out the following:

1. The Eagle schematic and layout for the blinking LED circuit we made are good. We are getting a solid understanding of the software and its capabilities.
2. We have a time and date set up for members to receive safety training and learn how to use machinery to prototype PCBs.

3. Our MATLAB codes are correct, and we will be able to use those moving forward with different PCB components.

After clearing any circuit design worries and simulation problems we were having, we concluded the meeting by discussing a few tasks that we should focus on in the coming days. Most of the tasks discussed were Eagle PCB based because most of the questions that arose were in regards to layout. The tasks that are to be completed are:

1. Go to training, and begin working on a blinking LED PCB
2. Make more layouts with different package sizes
3. Look into exporting layouts as GERBER files
4. Think about user interaction, and how simple we can make the circuit for people to use

Pending Issues

N/A

Plans for Next Week

Adam: Create new layouts in Eagle PCB and look into exporting them into GERBER files. Attend safety training if possible

Greg: Finish simulation

Meiyong: Attend safety training with Lee Harker to use the workshop, learn how to use the Protomat S62 machine to prototype PCB

Brittany: Hope to attend safety training with Lee Harker and learn more about PCB prototyping. Continue learning and doing hands-on work with the circuit design.

Megan: Finish MATLAB code involving coil # of turns vs. current graphs, catch up on what happened last week, and go to the training from Lee with Meiyong and Alain.

Brandon: Expand knowledge of Eagle PCB in the following ways: create layouts with different package sizes, understand what trace widths to use for different scenarios, learn how to use copper pour.

Alain: Attend safety training with Lee Harker to use the workshop. Learn how to use the Protomat S62 machine to prototype the PCBs.

Individual Contributions This Week

Adam: Attended core team meeting on Monday (2 hrs), discussed layout design and plans moving forward with John (.5 hrs), built LED circuit on breadboard (.5 hrs), work on weekly report (.2 hrs)

Greg: Attended Core team meeting on Monday (1 hr), worked simulating circuit (1.5 hrs), wrote matlab scripts(.5 hr)

Meiyong: Attended core team meeting on Monday and worked on MATLAB scripts (2hr)

Brittany: Attended core team meeting on Monday and worked on MATLAB scripts (1.5hr)

Megan: Attended core team meeting on Monday and worked on new # of turns vs. current graphs.(1hr)

Brandon: Attended core team meeting (2 hr), tested different functions and designed blinking LED circuit on Eagle PCB (1.5 hr), recreated blinking LED circuit on breadboard (.5 hr), discussed layout design and plans moving forward with John (.5 hr), work on weekly report (.5 hr)

Alain: Attended monday and wednesday meeting(2hr), switched roles and worked on matlab scripts requested by John(1hr), set up meeting with Lee Harker for next friday and tested our LED circuit with different Mosfet in the lab(0.5hr)

Total Contributions for Project (This Week / Total for Semester)

Adam: 3.2 hrs/ 20.4 hrs

Greg: 3 hrs/18.5 hrs

Meiyong: 2 hrs/ 22.5 hrs
Brittany: 1.5hrs/25.25 hrs
Megan: 1 hr/20.25 hrs
Brandon: 5 hrs/ 24.75 hrs
Alain: 3.5 hrs /20.25 hrs