

Fast, Compact, High Strength Magnetic Pulse Generator

EE 491 Weekly Report

May 15-30

Week 12 (11/17/14-11/24/14)

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
Website: <http://may1530.ece.iastate.edu>

Weekly Summary

Over the course of this week, our team focused on scheduling and time commitments. We have realized that the required deadline to have a “concept of knowledge” and our goal deadline of a prototype are both due within a couple of weeks. We have completed our parts list, schematic, and layout for the prototype circuit. Our team is well on its way to begin preparation for the final Senior Design I presentation.

Meeting Notes

11/17 Group meeting with core members

Duration: 1hr **Members Present:** All Members

Purpose and Goals:

Our team discussed how we could start making finalizations for the semester.

Achievements:

Assigned necessary tasks to appropriate team members. We made deadlines for each member. Greg and Brittany will research components and do circuit simulations. Once this is complete, Alain will discuss components with Lee and see what we have to order online. Brandon will start making the layout after Greg and Brittany finish the schematic.

11/17 Group meeting with circuit and coil teams

Duration: 2 hrs **Members Present:** Megan, Brittany, Meiyong, Greg, Alain, Brandon

Purpose and Goals:

Meet with coil and circuit team in order to get components.

Achievements:

Greg and Brittany researched circuit components. They were unable to find some components, so we will need to speak with our advisor to answer questions before moving forward. Megan was able to decide on Helmholtz and single coil sizes to create for the proof of concept circuit and can now focus on physical construction concerns.

11/19 Group meeting with Core team

Duration: 1 hr **Members Present:** All Members

Purpose and Goals:

Meet with all members to discuss scheduling and responsibilities over break.

Achievements:

Research and complete parts list. The following components will be needed in our design:

Quantity	Digi-Key Part Number	Item Description	Cost Per Unit	Total Cost
10	399-3677-1-ND	0.1uF Capacitor (Tantalum)	0.329	\$ 3.29
10	497-6085-1-ND	Diode	0.722	\$ 7.22
4	718-1945-1-ND	220uF Capacitor (Tantalum)	10.88	\$ 43.52
10	490-1312-1-ND	0.01uF Capacitor (Ceramic)	0.012	\$ 0.12
10	SM6227FT50R0CT-ND	50 Ohm Surface Mount Resistor	1.26	\$ 12.60
2	MP725-0.050-FCT-ND	0.05 Current Sense Resistor	9.13	\$ 18.26
2	ED2675-ND	Wire-to-Board Connector (30A/300V Rating)	1.04	\$ 2.08
4	J716-ND	Coaxial Connector	4.84	\$ 19.36
			Total Cost	\$ 106.45

Pending Issues

N/A

Plans for Next Week

Adam: Help create presentation and finalize design doc and project plan.

Greg: Help with presentation and gain full understanding of all project components in preparation for the presentation.

Meiyong: Be able to tell the story of our project. Help with completing the design document, project plan, and powerpoint. Once returning from break, get a new prototype board printed and populate the new board with the finalized components.

Brittany: Have a solid understanding of how each circuit component functions, the specs of each component, and why that component was chosen among the rest. Discuss with Megan questions that may arise during the staff presentation. Complete Design Document, Project Plan, and Powerpoint presentation. See to it that this first semester prototype completes.

Megan: Create both a physical Helmholtz and single coil for Meiyong and Alain to put into our circuit.

Brandon: Send the finished schematic and layout to the team for inspection, and create the gerber files. Work on the presentation and design document.

Alain: work on the implementation the new circuit on eagle, create the new printed circuit board, getting ready our presentation, finalize design document et project plan.

Individual Contributions This Week

Adam: Attended core team meeting on Monday (1hr), Attended circuit simulation and component meeting (1.5 hr), Attended meeting on Wednesday (1 hr), began looking at important documentation that needs to be finalized soon (Project Plan, Design Doc) (0.5 hr).

Greg: Attended core team meeting on Monday (1hr), Attended circuit simulation and component meeting (1.5 hr), Attended meeting on Wednesday (1 hr).

Meiyong: Attended core team meeting on Monday (1hr), Attended circuit simulation and component meeting (1.5 hr), Attended meeting on Wednesday/ helped research parts (1 hr).

Brittany: Attended core team meeting on Monday (1hr), Attended circuit simulation and component meeting (1.5 hr), Attended meeting on Wednesday (1 hr), began looking at important documentation that needs to be finalized soon (Project Plan, Design Doc, and PowerPoint presentation) (0.5 hr).

Megan: Attended core team meeting on Monday (1hr), Attended meeting on Wednesday (0.5 hr), worked with coil calculations (1 hr).

Brandon: Attended core team meeting on Monday (1hr), attended circuit simulation and component meeting (.5hr), met with John and Alain to discuss parts we were having trouble finding (.5hr), researched parts on Eagle to match the parts we ordered (1.5hr), built schematic and worked on layout (1hr).

Alain: Attended core team meeting on Monday (1hr), practiced implementation of the old circuit on eagle while for the new circuit(1hr)attended simulation meeting with team .members(1.5hr), attended Wednesday meeting to order parts(1hr), met with John to discussed missing parts (0.5hr) .

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

Adam: 4 hrs / 43.65 hrs

Greg: 3.5 hrs /47.75 hrs

Meiyong: 3.5 hrs/ 53.75 hrs

Brittany: 4 hrs/ 70.3 hrs

Megan: 2.5 hrs/ 48 hrs

Brandon: 4.5 hrs/ 50.75 hrs

Alain: 5 hrs / 47.25 hrs