

Fast, Compact, High Strength Magnetic Pulse Generator

EE 491 Weekly Report

May 15-30

Week 4 (9/22/14-9/29/14)

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, our team wanted to begin building circuits and start getting hands on experience with inductors, MOSFETs, and coils. As a team, we have decided on our design software and are getting closer and closer to be able to have a complete design plan.

Meeting Notes

9/22 Group meeting with members

Duration: 1 hour **Members Present:** All Members

Purpose and Goals:

Our goals during this meeting were to go over the questions provided by John and have a plan in mind what to do for the week.

Achievements:

During this meeting, we mostly talked about goals for the week. One of our goals for our following meeting was to create a circuit that outputs a magnetic field. We will meet with John on Wednesday. In the mean time, we researched on basic designs for magnetic coil circuits and PCBs. On Wednesday, we will bring our breadboards.

9/24 Group meeting with members + Advisor

Duration: 2 hours **Members Present:** All Members + John

Purpose and Goals:

Our goal during this meeting was to get hands-on experience in building a circuit that created a magnetic field. The purpose of this meeting was to go through trial in error in measurements and design with the circuits while get tips by John along the way.

Achievements:

We met in the senior design lab, brought our breadboards, created a coil, and began measuring the current passed through the inductor. John explained and cleared any confusion about the current and voltage being passed through the inductor. In addition, we re-familiarized ourselves with MOSFETs and where the drain, source, and gate are located. With John, we added voltage to the MOSFET and observed how the current value changes with varying voltages. During our next meeting, we will combine our design of MOSFET and the coil in a circuit.

Pending Issues

N/A

Plans for Next Week

Adam: Research Eagle PCB, learn more about how to analyze the magnetic field on our physical circuit using the lab equipment

Greg: Develop a greater understanding of our circuit model and coils in general

Meiyong: Play more with the simple circuit. Look more into MOSFETS. Take a look at Eagle. Help with creating Project Plan.

Brittany: Continue working hands-on with simple circuit. Research MOSFETS and become comfortable with OrCAD and Eagle PCB. Work with the team to complete the 1st version of our project plan.

Megan: Play more with the simple circuit in lab.

Brandon: Continue research of Eagle PCB. Research MOSFETS and related circuits.

Alain: Keep on working on making circuits with MOSFET and inductor in the senior design lab.

Individual Contributions This Week

Adam: Attended core team meeting (1hr), attended meeting with John/lab time (2hr)

Greg: Attended core team meeting (1hr), attended meeting with John/lab time (1hr), played with circuit (0.5hr)

Meiyong: Attended core team meeting (1hr), attended meeting with John (1.5hr), attended FAN Club on PCB presented by John (.5hr), read up on MOSFETs (.5hr)

Brittany: Attended core team meeting (1hr), attended meeting with John (1.5hr), watch John's video presentation over creating a PCB (0.5hr), create weekly report (0.5hr)

Megan: Attended core team meeting (1hr), attended meeting with John/lab time (1.5hr), attended FAN Club on PCB presented by John (.5hr), looked into circuit requirements for creating a magnetic field (.75hr)

Brandon: Research OrCAD layout (.75hr), research Eagle PCB and its compatibility with OrCAD simulation (1.5hr), attended group meeting (1hr), attended meeting with John in senior design lab (1hr), research MOSFET (.25hr)

Alain: Attended group meeting on Monday (1hr). Attended meeting with John in the Senior Design lab (1.5hr). Watch John's presentation how to create PCB and learned about eagle (0.5hr). Research on simple circuits with MOSFET and inductor that can create a magnetic field (0.5hr)

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

Adam: 3 hours/ 13.5 hours

Greg: 2.5 hours/ 12 hours

Meiyong: 3.5 hours/ 13.5 hours

Brittany: 3.5 hours/ 15.25 hours

Megan: 3.75 hours/ 13.25 hours

Brandon: 4.5 hours/ 14.25 hours

Alain: 3.5 hours/ 13.75 hours