

# Fast, Compact, High Strength Magnetic Pulse Generator

EE 491 Weekly Report

May 15-30

Week 7 (10/13/14-10/20/14)

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>

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## Weekly Summary

Many of our members were coming back this week from a conference that lasted the majority of the week before. A portion of our time as a team was to get everyone caught up with the latest and greatest delegations to specific roles and having the chance to really dig into those responsibilities. Another part of our time was meeting with Lee Harker to get lab safety and Protomat training. We will be using this lab to create a prototype PCB. This week as a team, we realized we needed to increase the time spent in this project. We look forward to making large advances next week.

## Meeting Notes

### 10/213 Group meeting with core members

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

#### **Purpose and Goals:**

Our goals during this meeting were to discuss delegations more in depth for overall project.

#### **Achievements:**

During this meeting, all purposes and goals were met. Team members updated Brittany, Meiyong, and Megan on progress during their absence. Every member of our team received instructions on what step they need to take next to make advancements. All members split off to work on their respective roles for the remaining time of the meeting.

### 10/17 Group safety and prototype meeting with core members

**Duration:** 1.75 hours      **Members Present:** Adam, Alain, Brittany, Megan, Greg, Meiyong

#### **Purpose and Goals:**

Our goal during this meeting was to answer any questions members have about their section of the project plan.

#### **Achievements:**

Most of the team members received training from Lee Harker, the parts specialist in Coover. Lee covered important safety aspects in order for all team members to understand how to correctly use the tools provided in the workshop. We provided Lee with sample files to create a test PCB. We watched and learned as he walked us through the steps on how to generate a PCB using their Protomat machine.

## Pending Issues

N/A

## Plans for Next Week

**Adam:** Finish PCB design layout for our circuit to provide to Meiyong/Alain. Run tests on circuit in the lab. Research the challenges associated with our project by using John and his papers as resources.

**Greg:** Complete several simulations with various MOSFET devices and inductance.

**Meiyong:** Play with Eagle, play with the prototype that we made during the workshop training.

**Brittany:** Work with Greg to produce many simulations using different MOSFETs and inductances in the design, work with Megan to understand her coil findings, delegate design documentation tasks and complete the document.

**Megan:** Finish single coil plot MATLAB, MEET WITH JOHN!!!!, discuss what I find with Greg and Brittany

**Brandon:** Refine PCB design layout, run tests on our circuit, download component libraries and compare and contrast parts on both Eagle and Digikey.

**Alain:** Work on our new circuit obtained in the workshop and see, with John, what he intends for us to do next.

### **Individual Contributions This Week**

**Adam:** Weekly core team meeting (1hr), Meeting with John, Brandon, and Alain (1 hr), Work with Eagle to understand copper pours (.5 hr), Weekly communication (emails, writing agenda) (.5 hr), Lab Safety Training/Protomat Training (1.75 hr), Modify layout for Protomat printing with the SOT-23 MOSFET package/Set up Eagle on home PC (.5 hr)

**Greg:** Weekly core team meeting (1hr), set up cadence on windows environment (1.5 h), Lab safety and Protomat training (1.75hr), worked with Megan on matlab codes(1.5 hr)

**Meiyong:** Attended core team meeting (1hr), Played with the team website (1hr), Attended Lab Safety Training/Protomat Training (1.75hr)

**Brittany:** Attended core team meeting (1hr), Attended Lab Safety Training/Protomat Training (1.75hr), wrote weekly report (.5hr)

**Megan:** Attended core team meeting (1hr), MATLAB coil code calculations/plot (1hr), Attended Lab Safety Training/Protomat Training (1.75hr)

**Brandon:** Attended core team meeting (1hr), meeting with John, Adam, and Alain (1hr), altered PCB layout design and converted to a GERBER file (1hr), researched different components and packaging on Eagle and Digikey (2hr)

**Alain:** Attended Monday and Wednesday team meeting, made the circuit schematic and layout on Eagle for personal knowledge while waiting for our meeting with Leland Harker on Friday. Asked Brandon and John few questions on Eagle manipulation.(2hr) Attended our Friday meeting with Leland Harker, received training in the workshop, prototyped the circuit and received training on how to use the Protomat S62 machine.(2hr)

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

**Adam:** 5.25 hrs/25.65 hrs

**Greg:** 5.75 hrs/24.25 hrs

**Meiyong:** 3.75 hrs/26.25 hrs

**Brittany:** 3.25 hrs/ 28.50 hrs

**Megan:** 4 hrs/24.25 hrs

**Brandon:** 5 hrs/ 29.75 hs

**Alain:** 4 hrs/ 24.25 hrs