Fast, Compact, High Strength Magnetic Pulse Generator

EE 492 Weekly Report | May 15-30 | Week 5

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
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Weekly Summary

This week, our team is continuing our investigation of why our prototype is not having an appropriate output seen on the oscilloscope. We have discussed many testing strategies and they are being put into action.

Meeting Notes

2/12 Group meeting with core members

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

Purpose and Goals:

Discuss testing strategies and steps. Acquire IV curves and characteristics in order to confirm our MOSFET is working appropriately.

Achievements:

We have confirmed that our MOSFET is working correctly. The 1us pulse is difficult for our oscilloscope to read; however this is not the reason why we are not seeing an output of our prototype. We have decided that it would be strategic for testing our components on a breadboard and take testing one component at a time to see what component our board is having issues with. Another idea that has been discussed is to run a DC voltage source through the circuit and test the coil's magnetic field with a Gaussmeter. However, we may have issues in burning parts unfit to handle the high current.

Pending Issues

N/A

Plans for Next Week

Adam: Create a breadboard version of our circuit by soldering leads to components, obtain actual I-V characteristics of MOSFET to ensure that it is functioning as intended.

Greg: Test circuit with pins and not BNC connectors. Investigate as to why we are not getting a signal through the BNCs

Meiyong: Help populate new circuit board and testing of the components.

Brittany: Work with the team to help soldering if need be. Once components are soldered on boards and with leads, much testing will be in need to confirm all components are working

correctly together. Another goal is to get a better understanding of the current sense resistor and begin hands on testing with this component.
Megan: Create a breadboard version of our circuit in order to figure out why our circuit is not functioning as expected - even though our MOSFET and coil are.
Brandon: Create breakout board for the current sense resistor. Find better way to connect dc source (other than pin-headers) for future breakout boards.
Alain: Solder new circuit board, populate it and test it. Test circuit by using breadboard.

Individual Contributions This Week

Adam: Team Meeting/Soldering connections to breakout board (1 hr)
Greg: Team Meeting/Discussed testing methods and continued MOSFET testing (1.5 hrs)
Meiyong: Team Meeting/Solder connections to breakout board (1hr)
Brittany: Team Meeting/Discussed testing methods and continued MOSFET testing (1.5 hrs)
Megan: Team Meeting/Discussed testing methods and continued MOSFET testing (1.5 hrs)
Brandon: Team Meeting (1hr), began creating breakout board for current sense resistor (.5 hr)
Alain: Team meeting, tested the mosfet (1.5hrs)

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

Adam: 1 hr/3 hrs
Greg: 1.5 /4.5 hrs
Meiyong: 1 hr / 5 hrs
Brittany: 1.5 hrs/ 7.5 hrs
Megan: 1.5 hrs/ 4.5 hrs
Brandon: 1.5 hrs/ 4.5 hrs
Alain: 1.5hrs/4.hrs