sdmay22-39: Fast, Compact, High Strength Magnetic Pulse Generator
Weekly Report 3
Oct 11 - Oct 18

Team Members

Ben Newell
James Camp
Mohd Harith Arsyad
Abdulraheem Alquinas
Tom Zaborowski
Tyler Bolton

Weekly Summary

After our weekly meetings on Monday, we agreed to focus on playing around and running tests on different components of the circuit to better understand their role. One of the main focuses was the inductor and understanding changing it's values will affect the results. Since everyone has figured out how to import components into Multisim, we can start to experiment with changing parts of the circuit and iterating it to see if we further our understanding and start improving upon previous circuits.

Pending Issues

The main issue going forward is making sure every team member is knowledgeable about the circuit. Even though the team is individually submitting reports on their findings from playing around the circuit, we should make sure everyone is on the same page in terms of what we are trying to improve on the circuit. From this point forward, each team member should try to improve the circuit on their own and bring their findings to the group when it comes time to have a group meeting. The team will pick the best improvements and hopefully have a circuit that meets the requirements set out by the client.

Weekly Accomplishments

Ben Newell - Ran some more meaningful tests on the previous groups circuits to try and understand how each component individually affects the circuit.

James Camp - Attempted to run some Multisim simulations with the MOSFET from the 2020 senior design project. Met with error as TI doesn't provide an unencrypted SPICE model.

Mohd Harith Arsyad - I focused on running tests on the inductor and feedback loop for the May 2017 circuit in order to understand it more. I've also started reading more about capacitors in order to further understand the capacitor bank's role in the circuit.

Abdulraheem Alquinas - I have modified the circuit of the previous group and changed its components to observe the change in the current across the inductor, and continued reading the research papers.

Tom Zaborowski - Experimented with every component of the 2020-2021 circuit. Every component was changed to see how the component changed the transient of the inductor. This helped me gain knowledge of each portion of the circuit.

Tyler Bolton - Ran more simulations of the sdmay20 circuit while experimenting with each component. Learned about how each component affected the simulation.

Plans for Next Week

Ben Newell - Continue to test and play around with changes in the circuit via multisim simulations. Possibly set up a circuit in ADS.

James Camp - Look into importing the transistor model and diode models into ADS and begin simulation in ADS.

Mohd Harith Arsyad - I want to start finding ways to replicate non-ideal components in my circuits so that I can replicate the noise this circuit should have and look for ways to filter it out.

Abdulraheem Alquinas - Try to add new components to the circuit and observe how each section of the circuit enhances the result.

Tom Zaborowski - Start designing a new circuit based off the new understanding of each component in the magnetic pulse generator.

Tyler Bolton - Edit the previous circuit or create a new circuit from the information gathered from experimenting with each component.

Individual Contributions

Name	Individual Contribution	Hours
Ben Newell	Multisim Simulations, Documentation, team meetings	5
James Camp	Multisim SImulations	4
Mohd Harith Arsyad	Multisim Simulations, documentation, and meetings	8
Abdulraheem Alquinas	Simulations using Multisim, team meeting, and documentation	10
Tom Zaborowski	Multisim simulations, documentation, and team meetings	8
Tyler Bolton	Simulations, Documentation	11