

Multi-channel Brain Tissue Stimulator

Week: December 1 – December 7

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Team Members: Ashley Phillips – Team Leader
Nina Lewis – Communications
Steve Noel – BWIG
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Problem Statement:

Our objective is to develop a multi-channel brain stimulator. This device must generate stimulation current of 1 mA on 16 separate channels, filter out external electrical noise, and allow each channel to be independently gated on and off as well as adjust the current amplitude on each channel. Such devices are available but exist as a hardware/software packages and are expensive. These packages include many elements that are not necessary for our client's research.

Accomplishments:

- Tested circuit at 20 V with 5 V pulses (rectifier and switch), received an output signal with large pulse width
- Met with Burke O'Neal to design an additional (capacitive bypass) circuit to decrease pulse width
- Constructed additional circuit and tested, pulse width decreased to within 200 μ s
- Met with advisor to discuss project and upcoming presentations
- Constructed and printed poster
- Practiced presentation
- Met with client to figure out how to test circuit with his equipment, added BNC plugs to circuit and changed wire lengths to fit new equipment set-up
- Tested circuit at 120V with client, testing failed (there were sparks but the circuit was not affected)
- Began final report

Difficulties:

- Testing at higher voltages, circuit was not affected so we need look into what caused sparks

This Week's Goals:

- Poster presentation
- Finish final report
- Finalize website
- Turn in notebooks
- Continue testing at higher voltages

Activities/Accomplishments

Group Member	Weekly Accomplishments	Time (hrs)	Total Time (hrs)
Ashley Phillips	Circuit building and testing, Client meeting, advisor meeting, progress report, final report, poster preparation	14	80.5
Nina Lewis	Circuit building and testing, Client meeting, advisor meeting, final report, poster preparation	16	76.5
Steve Noel	Circuit building and testing, updated website, poster preparation, advisor meeting	5	48.5
Steven Skroch	Circuit building and testing, Client meeting, advisor meeting, poster preparation, printed poster	20.5	92.5