Multi-channel Brain Tissue Stimulator

Week: November 3 – November 9

Client: Mathew V. Jones, PhD
Department of Physiology
UW-Madison
Phone: (608) 263-4394
E-mail: jonesmat@physiology.wisc.edu

Advisor: Willis Tompkins, PhD
Professor, Department of Biomedical Engineering
Phone: (608) 263-1581
E-mail: tompkins@engr.wisc.edu

Team Members: Ashley Phillips – Team Leader
Nina Lewis – Communications
Steve Noel – BWIG
Steven Skroch – BSAC

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:

- Further tested transistors (11/3)
- Power supply- wasn't working, removed inductor and now is working (11/3 and 11/6)
- Set up switch circuit on breadboard to test characteristics of optical isolator (11/3)
- Continued testing transistors to see how they work (11/3 and 11/6)
- Rectifier circuit tested with outlet while hooked up to oscilloscope (had to add voltage divider), seems to be working (11/8)
- Met with advisor and discussed presentation (11/3)

Difficulties:

- Testing rectifier circuit with 120 V caused some solder to be burnt off, need to look into this more to see if a particular type of solder or wires need to be used

This Week's Goals:

- Complete circuit building for switch and test
- Look into why solder burnt off

Activities/Accomplishments

Group Member	Weekly Accomplishments	Time (hrs)	Total Time (hrs)
Ashley Phillips	Progress report, group meetings, circuit building, circuit testing, class time	7	41.5
Nina Lewis	Class time, group meetings, circuit building, circuit testing	7	38
Steve Noel	Voltage regulator research, group meeting 11/8, circuit testing	2.5	30
Steven Skroch	Group meetings, circuit building, circuit testing, class time	7.5	45