sdmay18-22: Adaptive Wireless Wearable Neuro-Stimulator

Week 9 Report
November 5 - November 12

Team Members

Kevin Wang — *Meeting Facilitator*
Kevin Simons — *Test Engineer*
Matthew Stephenson — *Report Manager*
Patrick Walsh — *Communications Manager*
Brian Weber — *Chief Engineer*

Summary of Progress this Report

For Wearable:
Looked into compatibility of all components with possible evaluation board. The board we had selected (Raspberry Pi) may not be the best option. Although the pins do supply a decent amount of power for our project, it is not very easy (according to different internet sources) to do PWM (Pulse Width Modulation) which is required for the vibration motor. It is possible with the Raspberry Pi, but more research is needed to find out the work level for a Raspberry Pi versus other alternatives (Arduino).

For the Website:
Finalized the screen sketches and showed them to the client. Updated to include some more input options that were needed.

For Data Analysis:
Figured out how to graph the VLF data, and created a script that will automatically create graphs for any day/location combination that is required. Showed this to the client and he requested a sampling of the data, so those graphs were created and sent to the client to be used in a proposal document.

For Android Application:
This week, we met with our faculty adviser to learn new ways to make our layouts work with fragments instead of the basic android activity layouts. He gave us examples for us to work with, and we will be using it to change our app.

Pending Issues

For Wearable:
Find the best evaluation board for our implementation. Due to the lack of PWM support on a Raspberry Pi, it may not be the best option.

For the Website:
Need to add dummy data to the database and create a basic web interface to test it out.

For the Android App:
We need to add the implementation to use fragments paired with our layouts.

Plans for Upcoming Reporting Period

For Wearable:

Find the best evaluation board
Confirm parts conformance to requirements of new board

For the Website:
Fill in dummy data and create a basic web application so I can start testing to make sure I can query and visualize the data.

For Data Analysis:
Over the next couple weeks I'll create more graphs for different days and locations that are requested, after confirming with the client that the graphs I've sent have the correct calculations.

For the Android App:
In the next two weeks, we will be starting on the Bluetooth and getting the fragments working in the layouts.

Overall:
Work on final presentation of progress for 491

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Kevin Wang	Met with faculty advisor to discuss android layout issues and implementation for Bluetooth. Planning to work more on Bluetooth portion on Android app in coming weeks.	3	38
Kevin Simons	Worked a lot on finalizing the script for the matlab data, got it so I can create graphs of energy during any range of days in the year. Created a few graphs that the client requested and sent them to him. Had one question about the data where some of the data points look very strange, so I asked the client, and he and I are in contact with the source of the information and hopefully will figure out how to handle it.	6	48
Matthew Stephenson	Looked into using a Raspberry Pi as an evaluation board. Found some problems with using it with PWM. I additionally found a workaround for it, but I started looking into/am going to keep looking into the possibility of using an Arduino as an evaluation board due to more native support for different peripherals.	4	42.25
Patrick Walsh	Met with the faculty adviser to discuss new strategies to make the layouts work, did some research into how android fragments work	3	41.5

Brian Weber	Looked into the bluetooth features of a raspberry pi.	3	34.5