EE/CprE 492 Bi-Weekly Report

03/11/18 - 03/23/18

Sdmay18-22: Adaptive Wireless Wearable Neuro-Stimulator

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Team Members

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

Weekly Summary

Website:

Split up the code for our login form from our login api method, in an effort to simplify the creation of REST endpoints. This simplified both parts of the code a lot and should make creating the data endpoint much easier. Along that line, a new create user endpoint was added so now the app should be able to have a way to create a new user instead of relying on direct database access to create one. A proof of concept graph was created using d3.js, which based on the test is what we will move forward using for the actual data graphing. This graph was able to take a json object and load it into a visual graph that we could display on the webpage.

Android App:

The Android app is moving along quicker with regards to the functionality requiring database connection now that we have figured out how to communicate between the two. The past two weeks were spent doing some code cleanup and updating, as well as adding a new feature. On the login screen, there is now a create account button that takes the user to a new screen where they can create a new account and have their credentials stored on the database. On the main screen, the icons have been updated to be cleaner and make more sense for each of the pages that they represent. In the about screen, the text is now scrollable so that the user may read the entire terms and conditions.

Wearable:

In the last two weeks for the wearable, we were able to get bluetooth communication both ways. Previously, we were able to send data from an android tablet to the wearable. This period, we got so we are able to send data (temperature data) to Android tablet through a proof of concept app. The wearable team will start working with the Android development team to form communication between our actual app and the device.

Additionally, we confirmed that we needed a transistor in the design in order to be able to control the motor. We figured out which transistor to use and gained the ability to send PWM pulses to the vibration motor.

Past Week Accomplishments

Website:

- New create user endpoint
- Simplified REST endpoint creation work
- Choose d3.js as our graphing library
- Created proof of concept graph

Android App:

- Updated navigation icons on the main screen
- Added a new layout for the create account screen
- Added functionality to create login credentials in the database
- Updated the about screen to allow scrolling
- Cleaned up the code

Wearable:

- Refreshed knowledge of transistors
- Looked into different power supplies for vibration motor
- Implemented a circuit for the vibration motor
- Built a circuit and basic driver for the vibration motor
- Enabled sending data from wearable

Pending Issues

- From our proof of concept graph, we now need to load that data from the database, into the page, and then into the graph, to complete that functionality
- Our data endpoints still need to be fleshed out, we need to find a way to POST the data in a format that makes it easy to into the database quickly

- We still need to create a register device endpoint, that will create a database entry that is associated with an actual wearable device, which the app will then report data about
- Work to integrate wearable with Android app
- Combine code bases for the different wearable functionality into one

Individual Contributions

Name	Contribution	Per Week Hours	Cumulative Hours
Kevin Wang	Communication between Arduino board and Android App via Bluetooth; only test data at the moment, will be adding gathering sensor data to send.	4.5	35
Kevin Simons	Updated the website code to split form POSTs from api requests, then used that new code to generate a create user endpoint. Finished research on javascript graphing library and chose d3.js, created a proof of concept graph with psuedo data.	5	40
Matthew Stephenson	Refreshed knowledge of transistors, found the correct transistors for our application, designed the circuit, implemented a basic driver.	3	46
Patrick Walsh	Set up meeting with client, updated navigation icons, added create account functionality and screen, added scrolling to about page, cleaned up code	4	48
Brian Weber	Now able to send information to a tablet via bluetooth	4	34

Plans for Upcoming Week

- Work on adding checks for the current user settings in the app to modify functionality (i.e. is cellular data use allowed, is there a connection to the internet, ect.)
- Add fields where data will be displayed
- Start working on background functionality to push device data to database

- Get a graph working with actual data from the database
- Work to integrate wearable with Android app
- Combine code bases for the different wearable functionality into one

Summary of Advisor Meeting

3/23/18

Mainly progress check again after spring break; with end of term coming soon, discussed goals and making sure things are on track. Advisor wanted a demonstration of wearable prototype->Android App->Website and Database communication for the next meeting.