

## ***EE/CprE/SE 491 WEEKLY REPORT XY***

***3/1/20-3/15/20***

***Group number: 26***

***Project title: From Bodily Sensors to Cloud and Back***

***Client &/Advisor: Goce Trajcevski***

### ***Team Members/Role:***

Justin Worley: Cloud Engineer

John Kivley: Electrical Engineer

Richa Patel: Database Engineer

Isaac Zahau: Front-end/UI

Michael Lauderback: Embedded Systems Engineer

### **○ Weekly Summary**

We found a small but very vital detail that was miscommunicated between our team and the client. Due to this we spend a large portion of the week reassessing our project and creating new use cases. We talked much more deeply about the limitations and needs of our use cases/client market. We continued to test ESP 32 bluetooth connections.

### **○ Past week accomplishments**

- Justin Worley: Looked into AWS and the best ways to setup a server in that environment. Worked with Richa to help get a firmer understanding of AWS DynamoDB. Crated up-to-date use case diagrams. Setup the AWS environment.

- John Kivley: Continued testing and research BLE mesh connections between sensors, the MCU and a smartphone. We have managed to send a serial message via bluetooth from the ESP 32 to a smartphone. Ordered two additional ESP 32 development boards to further test the mesh network and soon begin transmitting data from the pulse sensor to the MCU then to a smartphone. Continued to research battery tech for sensors and ESP 32 boards, and will order batteries soon to test a fully mobile network of sensors.
  
  - Richa Patel: Started testing with DynamoDB and read some documentation on it.
  
  - Isaac Zahau: Still in the process of testing Bluetooth functionality. Created a repo for the Android app and pushed the project.
  
  - Michael Lauderback: Continued research and testing regarding creating interrupts and implementing a plugin/driver architecture on the MCU.
- **Pending issues** *(If applicable: Were there any unexpected complications? Please elaborate.)*
- Justin Worley: Finding the best/low cost way to set up a server.
  - John Kivley: How to implement BLE mesh to create IoT sensor network.
  - Richa Patel: Need to look into way to connect java with DynamoDB
  - Isaac Zahau: There seems to be a different way of implementing classic bluetooth vs low-energy bluetooth. Need to look more into it.
  - Michael Lauderback: No complications.

- **Individual contributions**

<b>NAME</b>	<b>INDIVIDUAL CONTRIBUTIONS</b>	<b>HOURS THIS WEEK</b>	<b>HOURS Cumulative</b>
Justin Worley		6.5	13
John Kivley	Tested and researched BLE mesh networks and battery technology for a fully mobile sensor network. Ordered more development boards to conduct further testing.	6	12
Richa Patel	Started testing Amazon DynamoDB and read documentation.	6	12
Isaac Zahau	Did research on Bluetooth functionality and started a project in Android Studio	5	11
Michael Lauderback	Research architecture choices and interrupt handling.	5	10

- **Comments and extended discussion**

Regarding the BLE mesh network, we will weigh the pros and cons for potentially using bluetooth classic. Bluetooth classic may be able to send the data more effectively to the phone, however it will consume more power than BLE.

- **Plans for the upcoming week**

- Justin Worley: Work on how backend and frontend will communicate. Setup and run basic web server. Start working on linking the frontend and backend. Provide support where it's needed with software.
- John Kivley: Continue researching and testing BLE mesh networks using the ESP 32 development boards. Continue to research battery tech and eventually order proper batteries to test a fully mobile sensor network.
- Richa Patel: I will continue doing research on AWS and DynamoDB, and I will work with Justin and Issac if needed.
- Isaac Zahau: I will continue working on the test app, testing out various functionalities of the bluetooth adapter as well as looking into classic bluetooth and low-energy bluetooth implementations.
- Michael Lauderback: Design architecture for MCU.

- **Summary of weekly advisor meeting**

The first meeting we went over our progress and showed our client our overall system diagrams. We were able to identify that there was a miscommunication on one of the requirements for the project.

The second meeting had us focus more on creating a more solid selling point for our product. We went over how we needed to have multiple use cases and how we needed to make the main project diagram more scalable.