EE/CprE/SE 492 WEEKLY REPORT #5

10/12/2020-10/26/2020

Group Number: Group 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

o **Weekly Summary**

On the mobile app side, we were doing a bit of integration testing between the app and the cloud. So far, it's working great but we'll know if it is fully functional once we test it with our MCU. We need to be sure that if sensor data is constantly received from the MCU, our app is able to handle that and store every single data received on the database.

On the web app side, we connected to the database and pulled data from the revised DynamoDB table. However, there have been issues with using that data and passing it to the Render method with React.

For hardware, we have connected the sensors to the nucleo boards and are currently working towards establishing a BLE mesh network with a sensor, the MCU, and a smartphone.

o **Past week accomplishments**

• Justin Worley: Pulled from the revised database. Ran into a block with asynchronous calls and React.

• Isaac Zahau: Did some integration testing between the mobiel app and DynamoDB. Started doing some research on DynamoDB streams and started the basic setup.

 • Richa Patel: Tried to write some code for reading data from the tables. Yet, I need to test it. Researched on how to pull the trigger.

• Michael Lauderback: Continued to develop communication protocol flowcharts/logic so that the MCU and its extensions know if data has been successfully sent or received.

• John Kivley: Completed hardware testing for the mobility IoT network. Have connected the nucleo board to a smartphone. Writing code to establish a BLE mesh network between a smartphone, and two nucleo boards.

o **Pending issues**

Justin Worley: I ran into a block with how asynchronous functions are called and having to wait for the response. I have been unable to figure out how to handle this in the React framework.

o **Individual contributions**

NAME	INDIVIDUAL CONTRIBUTIONS	HOURS THIS WEEK	HOURS Cumulative
Isaac Zahau	Code written for the Bluetooth Low energy. Able to decode hex input.	4	8
John Kivley	Completed testing hardware circuitry for mobility sensor IoT network. Began developing code for BLE mesh communications.	7.5	15

Richa Patel	Did research on how to use javascript, and did the research on how to pull the trigger.	4	8
Justin Worley	Worked on getting data from the database and trying to parse it.	3	6
Mike Lauderback	Designing communication flowcharts and porting heart rate sensor libraries from arduino to the STM32 IDE.	4	7

- o **Comments and extended discussion**

  We are all currently still trying to come to grips with the different approaches to each class that we are taking.

- o **Plans for the upcoming week**

  • Justin Worley: Try to get around my block in React. Then work on filtering data and hopefully create a simple graph to display that data.

  • Isaac Zahau: Need to set up DynamoDB streams so that the mobile app can receive notifications when triggered.

  • Richa Patel: Hopeful trying to fix the data analytics part. I want to be able to pull the trigger on dynamodb.

  • Michael Lauderback: Continue to make communication flowcharts. Porting heart beat sensor libraries from arduino to STM32 so we can work

in the STM32 cube IDE.

• John Kivley: Continue developing software for BLE communications, and establish a data stream from the pulse sensor to a smartphone.

- o **Summary of weekly advisor meeting**

  We ran through all our Trello cards with our advisor. Our advisor reinforced the fact that the semester is coming to a close and that we need to plan accordingly. We talked about the final presentation and our upcoming deliverable dates. Went over the issues we had run into with delayed hardware and solutions to that issue.