EE/CprE/SE 492 WEEKLY REPORT #3

9/13/2020-9/27/2020

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

- **Weekly Summary**

  On the mobile app side, we continued working on the BLE mobile app integration. The app is now able to decode simple inputs from our custom dataframe. The app can decode the weight, heart rate and respiration rate inputs and display the values on the UI. The app is also able to detect strings sent from a BLE device.

  On the web app side, we continued to work with user authentication. After getting that basics set up we focused on setting up connection to the DynamoDB. After we connected to the DB we started to work with different ways to query the DB.

  For hardware, we received the nucleo boards are working on getting communication between sensor and mcu working. We are also working on developing communication “protocols” for sending and receiving data so each side knows if the data was sent/received.

- **Past week accomplishments**

• Justin Worley:Integrated the firebase user login and limited access to users only. Connected to DynamoDB and was able to pull in data from multiple tables.

• Isaac Zahau: Continued working on the BLE mobile app integration. The app is now able to decode simple inputs from our custom dataframe. The app can decode the weight, heart rate and respiration rate and display the values onto the UI. The app is also able to detect Strings sent from a BLE device.

• Richa Patel: Continued with the research, and started with the AWS SDK with Python(Boto). Created the new keys in AWS. Trying to figure out how to do the code for the data analytics.

• Michael Lauderback: Continuing to write MCU code. Developed data transmission formatting standard to make frames small and easy to parse. Also developed communication protocol flowcharts/logic so that the MCU and its extensions know if data has been successfully sent or received.

• John Kivley: Began testing hardware connections for the sensor IoT network with the development boards. This includes the connection of the battery power supply and the sensor data wires to the STM32wb input pins. In addition, I began writing code to eventually establish bluetooth connections for the sensors.

- **Pending issues**

  • Justin Worley: I am running into errors when trying to keep a user logged in on a page refresh. When querying the database I was running into possible limitations that I need to look further into.

- **Individual contributions**

NAME	INDIVIDUAL CONTRIBUTIONS	HOURS THIS WEEK	HOURS Cumulative
Isaac Zahau	Code written for the Bluetooth Low energy. Able to	5	10

	decode hex input.		
John Kivley	Began testing hardware circuitry for the STM32wb development boards, and began coding the STM32wb for bluetooth communications.	5	10
Richa Patel	Started using SDK Boto, and was able to pull the tables from the database.	5	10
Justin Worley	Setup web auth and Database connection.	7	14
Mike Lauderback	Developed data transmission formatting standard. Also developed communication protocol flowcharts.	5	8

- **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.

- **Plans for the upcoming week**

  • Justin Worley: Pull select data from the DataBase and start working on finding a way to graph that data. Possible look into issues with saving users credentials in case of a page refresh.

  • Isaac Zahau: Now that the app is able to read the inputs from a BLE device, the next step is to allow the app to send data to the BLE device. I will also need to start working on being able to push the data received to the cloud.

  • Richa Patel: Figure out how to pull in specific columns and rows from the database.

  • Michael Lauderback: Continue designing schematics for different MCU components. Start developing BLE code with nucleo boards and implement data transmission standards. Try to follow architecture designs I created from last semester.

  • John Kivley: Continue testing the STM32wb for the sensor IoT network. I hope to have the sensor working with the board and able to relay data in a week or two.

- **Summary of weekly advisor meeting**

  We ran through all our Trello cards with our advisor and they commented on each card. They also advised us to focus on making sure that the database tables were set up to allow easier data analytics without complex processes. They also requested that we finish our PRIM slides and note a few days ahead of time so that they would have time to review them for us.