

EE/CprE/SE 492 Weekly Report 1

Group 18

8/26/19 - 9/13/19

IoT Elderly Care Solution

Client: Andrew Guillemette **Advisor:** Daji Qiao

Team Members:

| | | | |
|------------------------|---|--------------------------|-------------------------------------|
| Jared Griffin: | Web App Engineer and GitLab Administrator | Siyuan Zeng: | Behavior Logic and Testing Engineer |
| Nidhi Dalvi: | Meeting Facilitator and Hardware Engineer | Robert Guetzlaff: | Hardware/Software Engineer |
| Tyler Borchert: | Hardware and Testing engineer | Tina Li | Hardware Engineer |

Bi-Weekly Summary:

This was our first meeting with our advisor and client in several months. Most of it was spent figuring out where we are and where we want to get to. We discovered an error that caused our previous solution to crash and are developing plans to mitigate the risk going forward. Time was also spent making sure campus infrastructure was still setup for our needs. Finally we met our new team member, Tina, a Computer Engineer, and got her up to speed on what our project is, our previous experience with the prior groups work and our expectations of where we are going. She has joined our hardware team and jumped right in analysing the sensor tags.

Past Week's Accomplishments:

- Tyler
 - Discussed what needs to be done on the hardware side.
 - Created a prototype python script to test the TI sensortag.
 - Able to pull gyroscope, accelerometer, and luxometer data over bluetooth.
 - Only tested on one device.
 - Got a few more sensors from our advisor to distribute across the hardware team.
- Jared
 - Updated dependencies for the web application

- Communicated with ETG about restarting a dependency of GitLab Pipelines so our CI would function
- Robert
 - Created plan for implementing local storage of data points
 - Planned for reconfiguring of sensor data transmission to server
- Nidhi
 - Discussed about the hardware side of the project and what needs to be done for the rest of the semester.
 - Researched on how TI sensor tag work.
- Siyuan:
 - Catch up what left last semester;
 - Implement the logic of recognizing meals more detailed. It now can recognize if the patient eats frozen food or cooks.
 - Start studying big data analysis and machine learning to see if we can use it on our logic algorithm.
- Tina
 - Got up to speed about team project
 - Asked questions about the hardware portion of the project
 - Gathered material needed to start work on hardware portion of project

Pending Issues:

Jared: Need to talk to Siyuan and Andrew about what data users of the web app are interested in having access to before building mockups.

Siyuan Zeng: Need to think about the data format that passed to web app.(i.e. What kind of data do users who use web app cares.) Factors used in logic is few and vague, need to talk to Andrew to find a solution or ask if he is good with the current situation.

Tyler: Need to develop some algorithms to make sense of the data coming from all sensors. Will likely be a group effort.

Individual Contributions:

| Member Name | Individual Contributions | Hours this Week | Cumulative Hours |
|---------------|---|-----------------|------------------|
| Jared Griffin | Updated web app dependencies, talked to ETG about restarting CI for the project | 5 | 47 |

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|------------------|---|---|---|
| Siyuan Zeng | Review the works left last semester; Keep implementing logic; Start learning big data and machine learning. | 5 | 5 |
| Nidhi Dalvi | Reviewed last semester hardware stuff. Discussed what is to be done next throughout this semester. | 6 | 6 |
| Robert Guetzlaff | Reviewed current shutdown and data transmission configuration. Started reworking data storage and transmission scripts. | 7 | 7 |
| Tyler Borchert | Reviewed current situation with hardware. Created a prototype python script. Got more hardware from advisor. | 7 | 7 |
| Tina Li | Reviewed project with team members, looked at repository to familiarize myself with the code, made preliminary plan for hardware testing, got sensor, datasheet, and raspberry pi | 6 | 6 |

Plans for the Upcoming Week:

- Jared
 - Talk to Andrew and Siyuan to figure out what data to display on the web app; begin creating mockups incorporating this data
- Tyler:
 - Discuss with hardware team about how to make sense of data.
 - Iterate over the prototype python script.
 - Do more testing with the sensor.
 - Testing what sensor works best in each environment.
- Robert:
 - Install SQLite on Raspberry Pi
 - Write script to read data from database and transmit to EC2 server over HTTP
- Nidhi:
 - Start working on implementing TI sensor tag.
- Siyuan:
 - Keep implementing the logic. Talk to Andrew about the factors used in logic. Keep studying machine learning and big data analysis. Determine what data should be displayed on the web app.
- Tina:

- Setup the sensor and raspberry pi, use Tyler's scripts to get measurements, try to get the current code working
- Get SQL lite on pi
- Read through repository code and sensor datasheet
- Do the sensor firmware exercise provided for us by our advisor
- Start work on characterizing the data gathered by the pi

Summary of Weekly Client Meeting and Bi-Weekly Advisor Meeting:

Client Meeting (9/8/19):

We talked about our summers before going into what our goals for the semester would be. Defined immediate and long term goals for the project, broken up by area.

Advisor Meeting:

We covered what we have been working on the last two weeks. We explained that we had not accomplished a lot of work because of fears that our client was going to move us off of our project. We talked a little about losing data from May. Daji is interested in meeting the week after we visit Bob so that we can go over what failed. Daji also thinks we are great and will have no trouble this semester.