EE/CprE/SE 491 Weekly Report 5   Group 18

3/9/19 - 3/15/19   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		

Weekly Summary:

Over the last week, Tyler and Nidhi did a lot of research on different sensors we can use for sensing when doors in the elderly resident's kitchen are opened. Below, they are discussed in further detail. Jared worked on a couple of mockups for the web app. Robert built a simple development tool for reviewing the data our system is collecting. Siyuan began to flesh out the logic server.

Past Week's Accomplishments:

Tyler:
- Conducted research on possible wireless solution.
    - Found three possible sensors to look into
        - Magnetic
        - Bump
        - Gyroscopic
    - Currently have two well research solutions for magnetic and gyroscopic.
        - They are off the shelf
        - Need to do further research to see if we can have them do what we want.
- Continuing work on fixing current solution.
    - Since we found issues with the magnetic sensors on the fridge I currently have one hooked up to mine.

- Experimenting with position and possible code delays to negate the issues that we are seeing in the test environment.
- Right now I have brought down some of the issues with the sensors, but there are some instances where there are still problems.
  - Such as the sensor side getting tripped and/or locked to the fridge door magnet.

Robert: Built a database analysis tool for looking at the data stored in our database. Tool currently shows breakfast activity and all activity for each sensor.

Siyuan Zeng: began setting up the logic server.
- Finished the POJOs for the sensor use. It now can handle things as they are sensor.
- Finished the repositories to check the desired and specific sensors at the database.
- Finished the services so that it can do return the specific services requests back to ftrontend.

Nidhi: Helping tyler in researching the wireless sensors. Currently have two well research solutions for magnetic and gyroscopic.

Jared:
- Designed web app mockups
  - I designed a couple of mockups for an overview page of the web app that would display the elderly resident's behavior during each meal.
  - I showed the final mockup at our advisor meeting, and after some discussion, I got the green light from our client to proceed with adding this page to the web app.
- Reviewed previous group's server
  - As a team we discussed wrapping the AWS database containing the data our system has been collecting in a new microservice to make it easier to modify the structure of the database in the future, leveraging database migrations.
  - Upon review, I discovered that the senior senior group prior to ours on this project had already accomplished much of this with a Spring Boot server.
  - We are in the process of deciding as a team if we would rather add database migrations to the Spring Boot server, or if we should roll our own microservice.
  - Regardless of the method we choose, we have decided to document the REST API used to communicate between all of the microservices in the project. I am currently working through what library we want to use to generate the documentation.
- Web App Changes
  - I've added browser-side routing to the web app in order to allow for multiple pages as we progress with the web app.

Pending Issues:
Still need to figure out how to negate effects of fridge magnets for our current solution.

Individual Contributions:

Member Name	Individual Contributions	Hours this Week	Cumulative Hours
Jared Griffin	Designed web app mockups, began discussions around the old Spring Boot server and if we want our own db wrapper, and added web app client side routing.	8	34
Siyuan Zeng	Continue to improve the logic server. The logic server now provides GET specific sensors and response to the frontend.	5	28
Nidhi Dalvi	Helping tyler with the research of possible wireless solutions.	4	20
Robert Guetzlaff	Built database tool	6	28
Tyler Borchert	Researching wireless solutions. Still working on a fix to current solution to get good fridge data.	5	33

Plans for the Upcoming Week:

Nidhi : Work on Design Plan.Contact the distributor on pricing regarding magnetic sensors which we have researched. Research on more possible wireless solutions.

Siyuan Zeng: Continue to improve the logic server. The next week plan will be getting more information analysis from database and predict which activities might be done by the user.

Robert: Continue to improve database tool and analyse current activity to determine what critical components of each meal are.

Tyler: Continue research on possible wireless solutions. Also get into contact with some of the distributors to ask for more information about the sensors. I will also be working on a fix for the current solution. Goal is to get the errors minimized so that we are able to get good predictive data from the fridge.

Jared: I will continue to implement the mockup that was discussed at the advisor meeting. This will consist of adding a css framework, then retrieving the elderly resident's behavior data for displaying. On top of that, I will also be working on deploying the web app to AWS S3, and I will be trying to find a good method of documenting REST APIs.

Summary of Weekly Advisor/Client Meeting:

Client Meeting:
- We met with our client and the other senior design group to give a rundown of what we accomplished in the prior week.
- The client shared with us a solution for monitoring doors opening using an accelerometer and gyrometer inside of a "tag".

Advisor Meeting:
- We gave our advisor and client an overview of tasks completed during the prior week.
- Tyler and Nidhi went over the research they completed on the different methods of sensing doors opening.
- Robert demoed a debug tool he wrote to be able to review the data our system is collecting from the elderly resident.
- Jared showed the advisor and client a mockup of the web app and received feedback on it.
- Siyuan discussed the status of the logic server.