

**EE / CprE / SE 491 – sddec19-03**

**GoMe**

**Week 3 Report**

2/15/19 – 3/1/19

Client: General Public

Faculty Advisor: Goce Trajcevski

### **Team Members**

Michael Arnold - Chief Engineer

Jacob Montgomery - Lead UI

Jaclyn Ralfs - Data Analytics/Scribe

Akaash Suresh - Engineer/AI Tech

Mark Marrano - Systems Engineer/Requirements Analysis

Bailey Jensen - Lead Back End/AI Tech

### **Past Week Accomplishments**

Continue implementation of data gathering resources- Michael

- Working on getting fitbit, google calendar, canvas and location tracking integrated into the app and structuring the data well so the A.I. team can work with it effectively.
- Look into literature on “vehicle routing problem with constraints”, could help with thinking about how to minimize travel costs from day-to-day

Began implementation of Task creation and view - Jake

Created deliverable schedule -Jake

Finish the project plan- Everyone

- Research literature and similar projects
- Focus on how we will handle the sensitive data
- Focus on the concrete part of our application right now and think about future ideas down the road

Define requirements - Everyone

- Solidify a concrete start of design requirements for the project
- Discuss requirements as a team
- Discuss and define concrete deliverables for the project going forward

## Pending Issues

*(From Weekly Report 2)*

Ideally, everyone on the team would be on the same page about everything. Our goal for the week will be get everyone aligned and set up to start working on their portions of the project. We expect the project plan will assist in our goal of having everyone's thoughts together.

**Update:** Everyone is now on the same page about the direction of GoMe. The Project Plan allowed us to all conjoin our ideas and future plans for the application. We are all on the same vision now. This issue has been resolved.

## Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Michael Arnold	Began research on whether or not google maps would be a good resource for our application to use as inspiration. Began researching good data analytics methods and how we plan on implementing them in our application.	6	21
Jacob Montgomery	Started work implementing Task Objects and the Tasks page, organized tasks for project into a schedule of iterations for the next year, research database and data streaming technologies.	9	18
Bailey Jensen	Finished project plan. Continued learning of TensorFlow and how it will fit into our project. Will be working with Akaash to implement a sample program using TensorFlow that we can demo	5	15
Jaclyn Ralfs	Research different APIs and data	4	14

	sources for our application to use.		
Akaash Suresh	Started on creating the template for what the data model will look like, and will be working with Bailey to implement a sample program that we can demo, the week after next.	4	16
Mark Marrano	Project Plan finalizations. Researched why Firebase is a solid choice for GoMe. Found better understanding on the topic of data streaming tech.	6	16

**Plans for Coming Week**

- Everyone- Begin Working on the design document
- Get into our groups and discuss our topics-- Akaash and Bailey:A.I., Jake and Mark: System Design, Mike and Jaclyn: Data Analysis. And then being working on understanding how we are going to bring these three things together to work in the most effective way possible.
- Work out any bugs in the location tracking process currently implemented- Michael
- Use Fitbit to determine what data can be imported from it - Michael & Jaclyn
- Do more research on google maps - Michael
  - Google maps seems like it would be a good application to draw inspiration from for GoMe. It will help us with our problem of continuously updating a users schedule because our AI will be checking for when the user goes off course and rerouting the users schedule, just like how google maps adjusts the users route when they take a wrong turn. We need to learn how they do this and if its applicable to our scheduling problem.
  - We will need to apply for a Google Maps API key. The process should be very simple and Mark has implemented Google Maps into an Android application before so we have some experience with it.
- Jake and Mark - answer questions about why Firebase? What will use to transfer large amounts of data quickly? How will we connect that to Firebase? We will create a Database/System Documentation document.
- Define our goals more specifically, make sure we are starting with deep knowledge of topics and features before we start moving too quickly. - everyone
- Update our 'Iteration Goals and Deliverable Schedule' document



## Data Model Write Up (Akaash):

One of the most important things that we needed to get done this week is to concrete the data we are collecting for training our ML model, and why we need this data. In the first couple of weeks, making sure that the model has all the information it needs in order to train itself is crucial, as the core functionality of our app comes from that,

First, the most important data we will need to be collecting is location. This will allow the app to monitor where a user is at any time, and from this, allow other aspects of the app to learn from this. It will allow our model to start learning the anticipated location of a person at specific times a day. This will also allow our other APIs, such as our facebook integration, to utilize this data. Secondly, gathering sleep data is important as this would be another core functionality of our app in adaptive scheduling. Our goal is to allow for the integration of the FitBit activity tracker to gather sleep data. As a backup, we will allow for manual user input of sleep times as well. Next, we need to keep track of a user's personal preferences when it comes to certain events and tastes. To give the most relevant events possible for a user, we will need to know the likes and dislikes. After that, We will need to be able to get and store pre-existing calendar events for a user. Doing so will give our model the events that have to be completed, so that it can accommodate and work around these events.

With all this data, the model should be able to understand these key points:

1. Understand where a person works, and their typical working hours for certain days.
2. Understand what the user needs to get done from pre-existing calendars, and what time is left free for other activities.
3. From free time calculated after all other events, find the most relevant event that lines up with the user's preferences, and then suggest a couple that would fit in their schedule. In addition, it should be able to prioritize certain tasks that are more important than others and update/remove existing low-priority events as well.
4. Understand the typical sleep schedule of the user, and from that, inform the user whether they are getting too little or just enough sleep.

After all this data is collected and showed to the user in a way that they can understand it, inform the user on how well they did in meeting their goals for the day, and any improvements they can do in order to improve their day-to-day living.