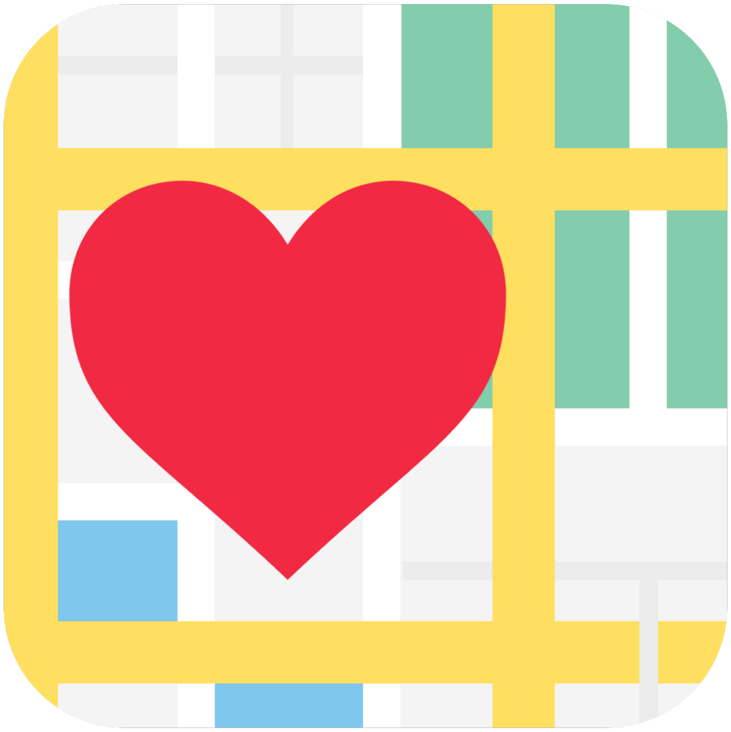

Figure 1: Safety Beacon Logo

QUALITY ASSURANCE PLAN

SAFETY BEACON - CMPT 275

Group 7

Nathan Tannar
Jason Tsang
Philip Leblanc
Josh Shercliffe
Youjung Kim

Website

github.com/nathantannar4/Safety-Beacon

Table of Contents

1. Revision History

Version	Status	Publish/Revision Date	Authors
1.0	Created	October 19, 2017	Nathan Tannar Jason Tsang Philip Leblanc Josh Shercliffe Youjung Kim

2. Automated Testing

XCode's XCTest framework will be utilized to create and execute test scripts, which can be used to automate the testing of basic functions and features such as data synchronization with the server. Unfortunately, location tracking and augmented reality components of the app cannot be tested using the same methodology, as they require the hardware of a physical device. However, by utilizing the Crashlytics framework from Fabric (owned by Google), if a crash or error occurs when testing those components, an automatic report can be generated and sent to Fabric's servers to be analyzed. This will help alleviate the need to carry both a computer and iPhone around in testing the location tracking and augmented reality, but instead just the iPhone itself.

As Git will be used for version controlling, it is important that new pushes to the master branch do not cause the master build to fail. By utilizing Travis CI, a build of the app will be automatically triggered when new changes are committed. The build results are then displayed and viewable on GitHub. This will prevent changes breaking a functional build.

3. Internal Testing

Version	Feature	Test Date Deadline
1	Login/Account Setup	October 22, 2017
1	Patient Menu	October 26, 2017
1	Settings Menu	October 26, 2017
1	Location Tracking	November 3, 2017
1	Bookmark Locations	November 3, 2017
1	"Take Me Home" button	November 3, 2017
2	Safe Zones	November 20, 2017
2	Location History	November 20, 2017
2	Analytics	November 20, 2017
2	Basic Navigation	November 20, 2017
3	Augmented Reality Navigation	November 25, 2017
3	Turn-by-Turn Navigation	December 1, 2017
3	UI Refinements	December 4, 2017
3	Video Tutorials	December 4, 2017

4. User Testing

Version 1 of the application will be tested on Thursday, November 2nd. Version 3 of the application will be tested on Saturday, November 26th, and Sunday, November 27th. This will give the develop team adequate time to transition from Version 2, and implement the final features. Test users will consist of a pair of family friends, and will be given iPhones with the application installed. These iPhones will serve as the test devices.

The first round of testing will focus on the account login, account setup, core location tracking, and "take me home" button. Users will be split up into patients and caregivers, given Version 1 of the application, and asked to execute the following:

Caregivers:

- Create an account for the patient and link it to themselves (the caregiver)
- Track the patient as they move around the city
- Access the settings menu

Patients:

- Bookmark locations
- Test the "take me home" button

The second round of testing will focus on features added in Version's 2 and 3. Users will be split up into Patients and Caregivers once more, and given Version 3 of the application. The patient will be asked to travel around the city, while the caregiver tracks the patient. The following features will be tested:

Caregivers:

- Create a Safe Zone for the patient
- Confirm a push notification is received when the patient leaves the Safe Zone
- View the patient's location history
- View the analytics section of the patient's history

Patients:

- View the patient's location history
- Use basic navigation to navigate around the city
- Use augmented reality navigation to navigate around the city
- Use turn by turn navigation to navigate around the city

Any discrepancies for the above features will be reported immediately to the development team, alongside a step by step description of what is causing the issue (if possible). Ample time is given between testing dates and due dates, in order to ensure the user tested discrepancies will be fixed.

5. Continuous Integration

By following incremental development, and utilizing Git and Travis CI, changes can be first tested to ensure that they do not break existing features before being integrated. As a general rule, each new feature or component will be developed and tested in a separate Git branch. When it is complete and tested, it will be integrated into the master branch. Once all the features for a given version are integrated, final tests can be ran to ensure all components work together seamlessly without any bugs. This sanity testing will avoid the "Big Bang" approach that makes debugging issues difficult.

6. Performance Metrics/ Testing

The team behind Safety Beacon will be using a range of software and tools to assist with the development. These include but are not limited to:

Software/ Tool	**Relevance**
XCode 9.0	To develop the source code in Swift 4
XCode Instruments	To test the performance of the app
iOS Simulator	To simulate the app and test general functionality
iPhone 6s Plus	To test the core features using a real device
CocoaPods	3rd party framework integration
Mapbox	A map view API
Sketch	To design views prior to implementation
Jazzy	To generate documents for the source code classes and functions
Git and GitHub	Version control and remote source code host
Microsoft Word/ Google Documents	To write documents and reports

6.1 Projected Complexity Metric – Lines of Code

Below is the expected projection for the number of lines of code this app will gain throughout its development.

Projected Date	Number of Lines of Code
October 20, 2017	0
October 27, 2017	2100
November 3, 2017	4200
November 10, 2017	6300
November 17, 2017	7350
November 24, 2017	8820
December 1, 2017	10080
December 4, 2017	10500

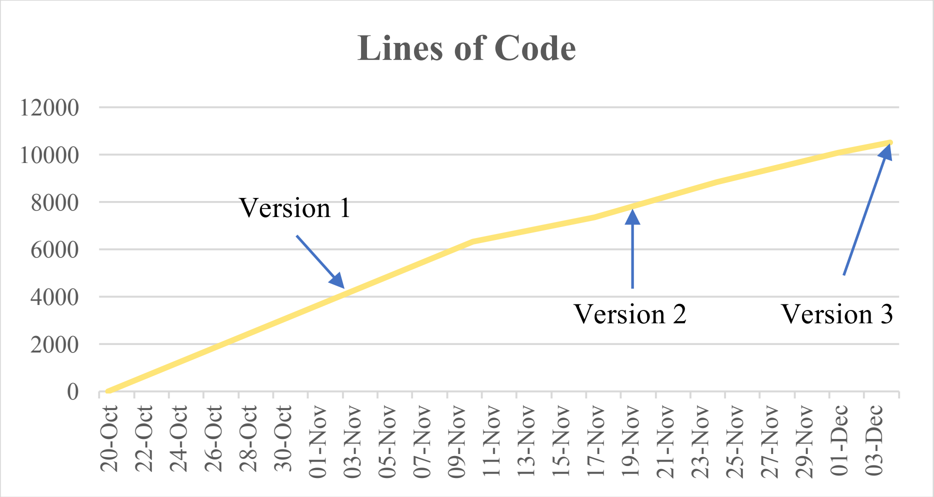

Figure 6.1 – Number of Lines of Code vs Date

6.2 Projected Complexity Metric – Number of Classes

Below is the expected projection for the number of classes this app will gain throughout its development.

Projected Date	Number of Classes
October 20, 2017	0
October 27, 2017	10
November 3, 2017	14
November 10, 2017	15
November 17, 2017	15
November 24, 2017	18
December 1, 2017	20
December 4, 2017	21

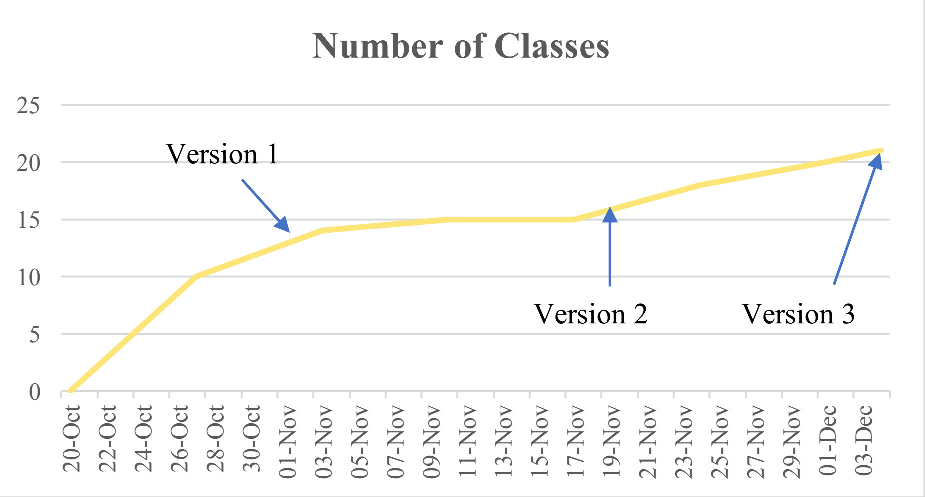

Figure 6.2 – Number of Classes vs Date

7. Other Quality Assurance

In general, the team behind Safety Beacon will adhere to the recommended developer guidelines set by Apple, in addition to the material design guidelines by Google.