Lab 2 - Care Corner Product Description

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1. Introduction

Sexual assault is far too common. It is reported that one in three women have been the victim of rape or attempted rape (*What is Sexual Abuse?*, 2018). Sexual assault on women has become so prevalent that a majority of them admit to taking regular steps to avoid being sexually assaulted including always having their phone with them when preparing to walk alone (*Journalist*, 2019).

Another negative aspect of sexual assaults is how often they go unreported. Only around one in five rapes are ever reported (*What is Sexual Abuse?*, 2018). Not only is there a lack of education in regards to how to report rape or sexual assault, there is also a lack of education on what rape or assault even is. In addition to not knowing if what happened to them is considered rape or sexual assault, victims often have to deal with other barriers including confusion, fear of judgment, and perceived lack of evidence (*The US System Didn't Protect These Women*, n.d.). As a result, both victims and potential victims live in fear of being assaulted and, if they are assaulted, the assailant is rarely held accountable.

1.1 Purpose

Care Corner is a mobile application for both Android and iOS that is meant to aid anyone who feels they are at risk of being assaulted. Care Corner was designed with the safety of women in mind because the issue of sexual assault affects them at a higher rate than men. However, Care Corner is not designed for only women; instead it can be used by anyone who feels the need to take additional precautions in regards to their safety. The application consists of two main areas which are prevention and reporting.

Care Corner offers several options to assist in the prevention of assault. This extends from making sure the user's friends and family are aware of the user's location to planning a night out accordingly to maximize the user's safety.

Care Corner also looks to educate users and ensure if an assault does occur that the user has all the necessary tools needed to properly report any assailants. In addition, Care Corner also looks to assist users with recovery by connecting them with local and national aid.

1.2 Scope

The Care Corner prototype will be designed to reduce the frequency of these assaults by building an appropriate confidence in people while walking alone, and increasing the frequency that attacks are reported. It will offer features that serve as preventive measures as well as assistance to those who have been assaulted by offering local and national resources to aid and assist with the reporting process.

1.3. Definitions, Acronyms, and Abbreviations

Agile: Set of frameworks and practices where solutions evolve through collaboration between self-organizing cross-functional teams

Amazon Web Services (AWS): Cloud computing platform provided by Amazon

Android: Mobile operating system primarily developed by Google

API (Application Programming Interface): A set of functions that allow one program to access data and interact with an external program

Database: Structured data held in a computer

File Server: Controls access to separately stored files

Geofencing: Using GPS to create a virtual geographic boundary

GPS (Global Positioning System): Provides users with positioning and navigation information.

Gradle: Build automation tool for multi-language software development

GUI (Graphical User Interface): The set of interactive visual components in software to improve the user experience

HTML (Hypertext Markup Language): Standard markup language for documents designed to be displayed in a web browser

iOS: Mobile operating system developed by Apple

Jsoup: Open source Java library used mainly for extracting data from HTML

Linux: Unix-like, open source operating system for computers, servers, mainframes, etc.

MySQL: A freely available open source relational database management system that uses structured query language (SQL)

PHP (Hypertext Preprocessor): General-purpose scripting language suited to web development

RSS Feed (Really Simple Syndication Feed): Set of instructions on the computer server of a website. The feed tells the reader when new material has been published on the website

Scrum: A process framework used to manage product development and other knowledge work

Stakeholder (direct): Those involved in the company's day-to-day activities

Stakeholder (indirect): Those more interested in the result of the production

Twilio: A developer platform for communications

UI / UX (User Interface/ User Experience): The graphical layout of an application which includes components such as buttons, navigations bars, etc.

Web Scraping: Extracts and scrapes data from websites

Web Server: A computer that runs websites

Windows: Series of operating systems developed by Microsoft

1.4 References

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1.5 Overview

This product specification provides the hardware and software configuration, interfaces, and features of the Care Corner prototype. The remaining sections will provide a detailed description of each feature and their requirements for implementation.
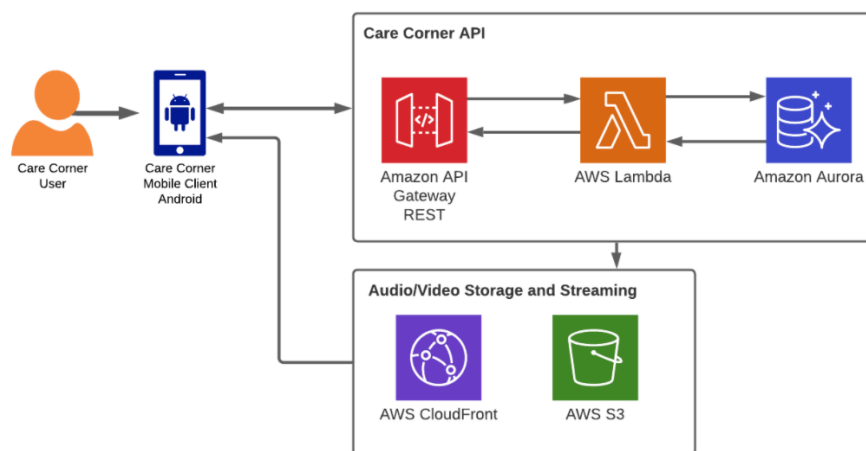
2 General Description

2.1 Prototype Architecture Description

The prototype for Care Corner will run on any Android device that is API version 21 Lollipop or higher. The prototype will be developed on Android Studio within the Windows 10 operating system. The application will be written using Java8.

The user's device will serve primarily as the method in which users interact with the Care Corner application. Care Corner's API will be how client devices interact with the Care Corner servers and databases. This relationship will serve as the basic foundation for Care Corner's architecture and most operations will occur within this scope. This architecture is outlined in Figure 1.

Figure 1

Care Corner API Architecture

2.2 Prototype Functional Description

A majority of CareCorner's feature set will be implemented in the prototype. The core features are Safe Walk, the Panic Button, and the Fake Phone Call. The three core features will be almost implemented in their entirety. Most of the remaining features will be implemented with limited functionality. The Care Corner prototype will serve as an adequate proof of concept. Please refer to Table 1 for details regarding the feature implementation of the Care Corner prototype.

Table 1

Care Corner Real World Product vs Prototype

	RWP	Prototype
Safe Walk (armed) mode		
Notify contacts via MMS	Fully Functional	Fully Functional
Customize MMS messaging	Fully Functional	Eliminated
Send location/destination to contacts	Fully Functional	Fully Functional
Audio Recording & Storage on Server	Fully Functional	Fully Functional
Video Recording & Storage on Server	Fully Functional	Fully Functional
GPS data Recording & Storage on Server	Fully Functional	Fully Functional
If Location/Destiantion is sent	Fully Functional	Eliminated
Panic Button		
Send location	Fully Functional	Fully Functional
Send pre-set message	Fully Functional	Fully Functional
Start recording audio	Fully Functional	Fully Functional
Start recording video	Fully Functional	Fully Functional
Dial out to pre-set contacts	Fully Functional	Eliminated
Timestamp location and time of panic	Fully Functional	Fully Functional
Fake Phone call		
Start recording audio	Fully Functional	Fully Functional
Start recording video	Fully Functional	Fully Functional

Activate Panic	Fully Functional	Fully Functional
User can say key phrase to activate panic button	Fully Functional	Eliminated
Include fake voice	Fully Functional	Fully Functional
Pre-program what name the call appears to come from	Fully Functional	Fully Functional
Mombot		
Write plans and recieve advice in reponse	Fully Functional	Partially Functional
Verbalize plans and recieve verbalized advice in reponse	Fully Functional	Partially Functional
Journal		
Can record in/ view Journal	Fully Functional	Partially Functional
Journal will be encrypted	Fully Functional	Eliminated
Password Protected	Fully Functional	Fully Functional
Educational Readings		
Govt/Official documents (just main sites like RAINN)	Fully Functional	Partially Functional
Trusted blogs	Fully Functional	Partially Functional
National hotlines	Fully Functional	Partially Functional
Geofenced Resources		
Shelters	Fully Functional	Partially Functional
Non-Profits	Fully Functional	Partially Functional
Counselors	Fully Functional	Partially Functional
Campus Police	Fully Functional	Partially Functional
Websites		
Govt Official Sites	Fully Functional	Partially Functional
Trusted non-profits/ other	Fully Functional	Partially Functional
Depression/PTSD Councelor		
Reach a counselor via MMS	Fully Functional	Eliminated
Reporting Assistance (Partial)		
Time/location stamp at any time	Fully Functional	Fully Functional
Assistance reporting via preset questions	Fully Functional	Partially Functional
General		
Cross-Platform Support	Fully Functional	Partially Functional
Authentication		
User account creation/ authentication	Fully Functional	Partially Functional
User Credential Authentication	Fully Functional	Fully Functional
Password Recovery	Fully Functional	Fully Functional

File Server		
Audio/Video/GPS data stored	**Fully Functional**	**Fully Functional**
Database		
User/Contacts	**Fully Functional**	**Fully Functional**
Incident/Audio/Video/Journey	**Fully Functional**	**Fully Functional**
School/Resources	**Fully Functional**	**Fully Functional**
Mombot Advice	**Fully Functional**	**Fully Functional**

2.3 External Interfaces

2.3.1 Hardware Interfaces

The Care Corner Prototype will run on any Android device that runs Android Version 21 or higher. The device must have access to the internet, GPS functionality, and a functioning built in microphone as well.

2.3.2 Software Interfaces

The Care Corner prototype will use the Android Media Recorder to record audio. The Android GPS functionality is used to track the user's location. This GPS information will be processed using Google Maps API to align it with mapping features. SMS functionality is provided through the Twilio API.

2.3.3 User Interfaces

User's will interact with the Care Corner Prototype via their touch screen Android device. The device must also have a functioning internal microphone in order to record audio and interact with the Mombot via talk-to-text.