

Lab 2 Care Corner Prototype Specification

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Introduction

Sexual assault is, unfortunately, prevalent in society today. One in three women have been a victim of rape or attempted rape (*What Is Sexual Abuse, n.d.*). The trauma of the experience leaves many women so confused that they ask, “was I raped”. This, according to the President of Rape, Abuse, and Incest National Network (RAINN), is the first question many victims often ask (*Tips for Talking, n.d.*). Despite this alarming threat, again unfortunately, there is nothing out there to help in the fight against sexual assault. This makes many women live in constant fear as they go about their daily routine especially when they are alone. Consequently, they adopt personal method of mitigation against sexual assault when they feel unsafe (*women safety sexual assault awareness, 2019, March 28*). In addition, there are no available tools that can be used to raise an alarm in the event of an ongoing attack. For instance, in the event of a fire outbreak, robbery or any other emergency, a victim could make a 911 call to ask for help but that is not the case with sexual assault. Neither are there any tools to provide evidence against an assailant after the occurrence of a sexual assault, hence most sexual assault goes unreported.

Having a mobile application that can help in the fight against sexual assault, especially one that can offer safety tips prior to any outing or being in an unsafe environment, will put the fears of many women to rest and boost their confidence when they are alone. It is against this backdrop that Care Corner was developed.

1.1 Purpose

Care Corner is a mobile application developed to help users avoid becoming victims of sexual assault and make information about what to do, in the event of an assault, readily available. Care Corner is primarily a safety focus application, aimed at helping women overcome living in constant fear of an assault and put confidence back on their faces as they go about their daily obligation. Care Corner is a feature-based application that will require user to click on specific feature base on their need. Features of the application are designed to make unsafe situations safe, offer reporting assistance in the event of an assault, connect users to local resources that

help victims of an assault recover from the pain associated with the assault. Care Corner will neither report an assault directly to any agency -- be it public or private, nor will it call law enforcement agency at any level on behalf of its user.

1.2 Scope

Care Corner's main objective is to be a preventive tool to help its users avoid being victims of sexual assault. Care Corner features include a time-stamped, GPS based video and audio recording which can be harnessed to provide evidence when it becomes necessary to report an assault. This will lead to a reduction in the number of unreported cases of sexual assault. Care Corner also features a resources tool that can help users connect to the right resource available locally in their effort to recover from the trauma of sexual assault. More feature available in the Care Corner application is the education resource which can offer reporting assistance to its users.

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

Client-server: Computer system where a central server provides data to a number of networked workstations

Cloud Based Database Server: Virtual infrastructure that performs application and information-processing storage

Data Retention: Storage of an organization's data for compliance or business reasons

Database: Structured data held in a computer

File Server: Controls access to separately stored files

Geofencing: Using GPS to create a virtual geographic boundary

GitHub: Web-based collaboration platform for software developers

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

JavaScript: Object-oriented computer programming language commonly used to create interactive effects within web browsers

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

Kotlin: Object-oriented programming language initially designed for Android and Java Virtual Machine (JVM)

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 Web site. The feed tells the reader when new material has been published on the Web site

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 opera

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1.5 Overview

This product prototype specification provides the hardware and software configuration, external interfaces, capabilities and features of Care Corner prototype. The information provided in the remaining section of this document includes a detailed description of the hardware, software, and external interface architecture of Care Corner prototype; the key feature of the prototype; the parameters that will be used to control, manage, or establish that feature; and the performance characteristics of that feature in terms of outputs, displays and user interaction.

1. General description

Care Corner features includes Armed Safe Mode, Fake Phone Call, Mombot, Journal, Resource, and Education. The design focus on preventive measures, helping users avoid becoming victims of sexual assault. But in the event that people get ensnared and becomes victims of sexual assault, they can take advantage of Care Corner in-built tools to provide evidence against an assailant. They can also get education on how to go about reporting an incidence. Victims can also be connected to local resource or assistance available to people going through sexual assault.

2.1 Prototype Architecture description

Care Corner is a client-server mobile application in which the client resides on an iOS or Android Smartphones. The client hosts the user interface that responds to various user interaction based on programming logic and communicate with Care Croner application programming interface (API). The Care Corner API in turn interacts with external interface like AWS, Google map, Twilio to process user request. Its software components requirement are as follows: its UI/UX and code is on Android studio IDE with Java as the programming language. The Database utilizes MySQL on AWS, the build manager is Gradle, the version control is Gitlab. Other software includes HTML, CSS, and Java Script for the web programming, Junit framework for testing. The development employs both Windows and Linux platform. The hardware requirement includes file server, web server, cloud-based database server, and an Android Phone. Figure 1 illustrates the major interaction.

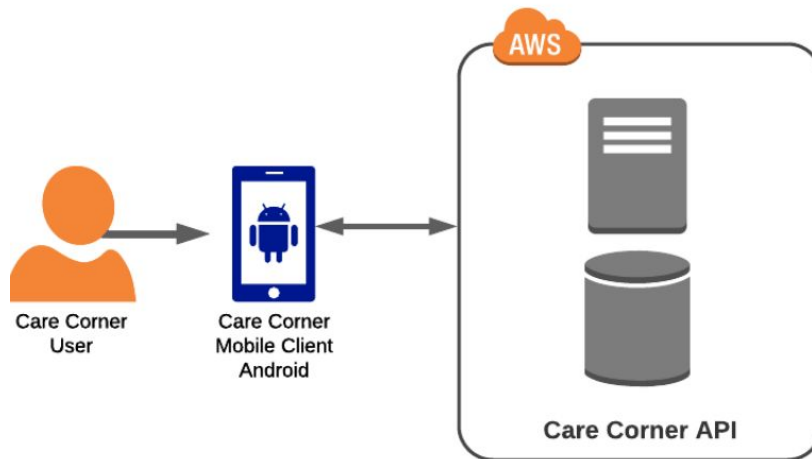


Figure 1

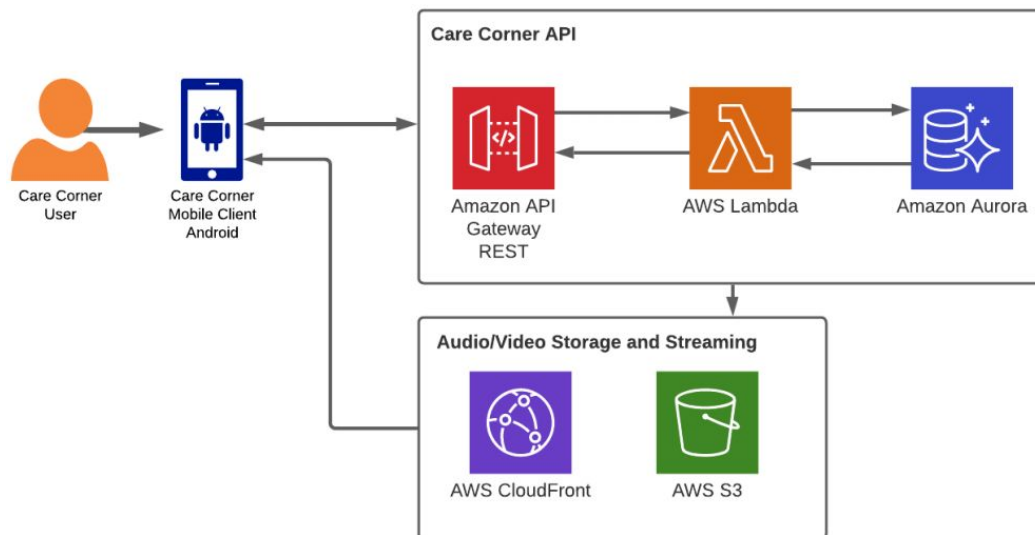


Figure 2

2.2 Prototype Functional Description

The Armed Safe Mode allows a user to share information about a trip with friends and family. This mode offers a panic button which can be activated by simply saying a key phrase or clicking a button. The panic button when triggered sends scripted messages with the user's current location and destination to a specific recipient --alerting the recipient of an

unsafe situation. The recipient can then make 911 call or use the location info attached to the message to offer safety assistance to user. The message recipient can choose to physically go to user's location to actually help. The panic button also automatically triggers a time-stamped audio and video recording which a user can use to provide evidence if it becomes necessary to report a situation.

The Fake Phone Call feature enables a user to legitimately get out of an uncomfortable situation or environment. The user can set up an incoming fake phone call within a specified time which appears as a real call; this can be a good excuse for escaping from an unsafe situation

The Mombot offers safety advice to users as they verbalize their plans to the application. The user receives feedback which can include "Do you want to start an armed journey?" or "Do you want to schedule a fake call?" Depending on the user's response, they will receive an answer tailored to their needs.

The Journal offers a secure, readily available logs for users to document key fact about an incidence when they are still fresh in the victim's mind. For instance, if they were at some point a victim of sexual assault and they are going through a recovery process, they can document what matters to them at any point during this period.

Resources is one of the main features of Care Corner. Many times, when people are traumatized, they have difficulty in thinking clearly and they need assistance. But because of ongoing issues, they are unable to think straight or make the right decision. The Care Corner resource tool can be harnessed to link the user to the most appropriate and available resource close to home. This feature uses geofencing to connect a user to the closest available resource. Resources can be in the form a shelter, books that offer a recovery guide for the victims, education, and reporting assistance.

2.3 External interface

2.3.1 Hardware Interface

Care Corner utilizes a smart phone to host the client which the user interacts with to process requests. The back end utilizes AWS server and various amazon product.

2.3.2 Software Interface

The software interface includes android studio for developing the application features, Google Map for geofencing, Twilio for sending messages.

2.3.3 User Interface

The user interface relies on the touch screen of the smart phone to interacts with Care Corner application.

2.4 Communication Protocols

Communication between the client and server utilizes HTTP and SSL/TLS as users interacts with the front end.