****2.4 Software Requirements Specification (SRS)****

****2.4.1 Introduction****

**This section gives a description and overview of everything included in this SRS document. Also, the purpose for this document is described and a list of abbreviations and definitions is provided.**

****1.1 Purpose****

**The purpose of this document is to give a detailed description of requirements of the “Securify” application. It will illustrate the purpose and complete declaration for the development of the system. It will also explain system constraints, interfaces and interactions with other external applications. This document is primarily intended to be a reference for the developing the first version of the system for the development team.**

****1.2 Scope****

**Securify is an application designed to serve as an “emergency alert system” by just pressing a set of hardware buttons on the mobile, without opening the app. It will alert the relatives of the person in need by sending a message and also that person will be notified that the alert has been successfully delivered.**

**The app also provides features like call an ICE responder, send the current location and start video or voice recording – just by pressing shortcut buttons.**

****1.3 Definitions, Acronyms and Abbreviations****

|  |  |
| --- | --- |
| ****Term**** | ****Definition**** |
| ***Victim*** | **The user who is in emergency and the one sending the alert** |
| ***Volunteer*** | **The user who is selected by the victim and the one receiving the alert** |
| ***ICE*** | **In-case of emergency** |
| ***VIFR*** | **Victim’s functional requirement** |
| ***VOFR*** | **Volunteer’s functional requirement** |
| ***QR*** | **Quality Requirement** |
| ***FR*** | **Common functional requirement** |
| ***SR*** | **Security Requirement** |
| ***User*** | **Victim or Volunteer** |
| ***TITLE*** | **Title of the requirement** |
| ***DESCRIPTION*** | **Description about the requirement** |
| ***DEPS*** | **Any dependencies to another requirement** |

****1.4 References****

[1] IEEE Software Engineering Standards Committee, “IEEE Std 830-1998, IEEE Recommended Practice for Software Requirements Specifications”, October 20, 1998.

****1.5 Overview****

**The remainder of this document includes four chapters.**

The second chapter gives an overall description of the system by giving a perspective of the product, specifying its functions and user characteristics. At the end of this chapter, are given some general constraints and assumptions as wells as dependencies.

The third chapter is all about the external interface requirements of the product.

The fourth chapter describes the specific functional requirements of the product.

The fifth chapter includes all the non-functional requirements.

****2.4.2 Overall Description****

This section will give an overview of the whole system. The system will be explained in its context to show how the system interacts with other systems and introduce the basic functionality of it. It also describes what types of stakeholders will use the system and what functionality is available for each type. At last, the constraints and assumptions for the system will be presented.

****2.1 Product Perspective****

**The app Securify will provide the functionality to the victim of alerting either directly through the application or by pressing a sequence of volume buttons. After the victim confirms the alert, the app will check the database of volunteers and send the SOS message to the volunteer.**

**On the volunteer’s side, the app will use the received SMS to alert the volunteer of the victim. The victim will then send a confirmation reply to the victim. The victim will be notified of the reply through a haptic feedback. Along with the SOS message, the victim as well as the volunteers will get a short-hand way of calling an ICE responder, start video or recording.**

****2.2 Product Functions****

**The functions of the app are specified in *1.3* of *1. Introduction*.**

****2.3 User Characteristics****

**There are two types of users interacting the app: Victim and Volunteer. Both the users will install the application on their device.**

**The *victim* will use the application to send the SOS message to one or more *volunteers*, who will help the victim by reaching them or calling an ICE responder. The victim will select volunteers (up to 5) from the contacts. He will also customize the alert message, current location and other app settings.**

**The *volunteer* can send a reply to the victim describing the alert being received successfully. On receiving the message, the volunteer can also call an ICE responder to help the victim or use the received location to locate the victim.**

****2.4 Constraints****

**The app will require constant cellular network to send the alert message as we are using SMS. Moreover, the user must have a working SMS subscription. For alerting the victim and volunteer about the message, the app also requires access to the haptic (vibration) motor of the device. The app also makes use of GPS to send the current location, so it must be on.**

**Due to security restrictions of Android™, the instant alert (without opening app) can only work by pressing a sequence of volume buttons while the phone isn’t locked. Other hardware buttons such as power button, is not accessible by the app.**

****2.5 Assumptions and Dependencies****

**The app assumes that constant cellular network is available otherwise the SMS won’t be sent.**

**The instant alert scheme is implemented assuming that the latest version of Android™ which supports listening to volume buttons. If a new version blocks this support due to some reasons, then that instant alert won’t work.**

****2.4.3 External Interface Requirements****

****3.1 User Interfaces****

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****3.2 Hardware Interfaces****

**The following hardware will be required by the app:**

* **GPS (Location)**
* **Cellular Network for SMS**
* **Vibration Motor**
* **Microphone**
* **Speaker**

****3.3 Software Interfaces****

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****3.4 Communication Interfaces****

**The app requires an internet connection to registration, login & fetching the details. The following two interfaces can be used to access the Internet:**

* **Mobile Data**
* **WiFi**

****2.4.4 System Features****

**This section includes all the functional requirements for the product. The requirements are divided on the basis of user class i.e. what type of user will use the application.**

****4.1 Common Requirements****

**This section includes all the requirements which are common among *Victim* and *Volunteer.***

**FR – 1**

**TITLE: Create a new account**

**DESCRIPTION: When the app is opened for first time, the user should be able to register for a new Securify account with following information:**

* **First Name & Last Name**
* **Mobile No.**
* **Password (includes uppercase, lowercase letters and digits)**
* **Email**

**FR – 2**

**TITLE: Login**

**DESCRIPTION: When the app is opened for first time, the user should be able to login with its Securify account using one of the following information:**

* **Email & Password**
* **Mobile No. & OTP**

**FR – 3**

**TITLE: Reset password**

**DESCRIPTION: If the user forgets the password, then app should provide reset password facility using OTP verification.**

**FR – 4**

**TITLE: Logout**

**DESCRIPTION: The user should be able to logout from the app and then register or login again.**

**FR – 4**

**TITLE: The app’s home screen should contain a map which shows the user’s current location**

**FR – 5**

**TITLE: On top of the map, an alert button should be displayed**

**DESCRIPTION: On clicking the alert button, the following five options should be displayed:**

* **Call Police**
* **Call Ambulance**
* **Call Fire station**
* **Alert all**
* **Call any custom contact**

**FR – 6**

**TITLE: Edit the profile settings**

**FR – 7**

**TITLE: Display the About & Help section**

**FR – 8**

**TITLE: Toggle whether to type and send the additional when sending the alert.**

**FR – 9**

**TITLE: Toggle whether to turn on voice recording when sending the alert.**

****4.2 Victim’s Requirements****

**This section includes all the requirements of the *Victim.***

**VIFR – 1**

**TITLE: Send an alert to volunteers for help**

**DESCRIPTION: The victim should be able to send an alert to the volunteers through SMS. The alert should fulfil the following requirements:**

* **VIFR – 1.1**

**TITLE: Using Volume buttons to send alert**

**DESCRIPTION: On pressing Volume Up/Down button three times, a dialog box should pop up which confirms the alert.**

**If the alert is confirmed, then another dialog box appears, which allows the victim to send some additional message along with the SOS signal.**

* **VIFR – 1.2**

**TITLE: Using the app to send alert**

**DESCRIPTION: The alert can also be sent by opening the Securify app and clicking the alert button.**

**VIFR – 2**

**TITLE: Instant alert should not affect the system volume**

**DESCRIPTION: On pressing the volume button three times, the system volume shouldn’t be affected.**

**VIFR – 3**

**TITLE: Schedule the instant alert service**

**DESCRIPTION: The victim should be able to schedule the instant alert service to prevent accidental triggering of instant alert dialog.**

**VIFR – 4**

**TITLE: Manually turn on/off the instant alert service**

**VIFR – 5**

**TITLE: Display a log of alerts**

**DESCRIPTION: The app should display a list of all the alerts sent by the victim with:**

* **Location**
* **Date & Time**
* **Volunteers responded**

**VIFR – 6**

**TITLE: Select the volunteers**

**DESCRIPTION: The victim should be able to select the volunteers which will be alerted through SMS. They should be selected from the contacts of the mobile phone. Maximum 5 contacts should be selected as volunteers.**

**VIFR – 7**

**TITLE: Display all the volunteers**

**DESCRIPTION: The victim should be able to see and modify the volunteers that are selected.**

****4.3 Volunteer’s Requirements****

**This section includes all the requirements of the *Volunteer*.**

**VOFR – 1**

**TITLE: Display a dialog on receiving the alert**

**DESCRIPTION: As soon as the volunteer receives the alert, a dialog box should popup displaying the additional message that the victim might have sent along with the SOS signal. The dialog box should fulfil the following additional requirements:**

* **VOFR – 1.1**

**TITLE: Send a reply to the victim**

**DESCRIPTION: The dialog box should provide a Reply button which sends an acknowledgement message back to the victim.**

* **VOFR – 1.2**

**TITLE: Directly call the victim through the dialog box**

* **VOFR – 1.3**

**TITLE: Provide a location button which redirects to the maps application to show the victim’s location.**

**DEPS: VIFR – 1**

**VOFR – 2**

**TITLE: Notify the volunteer on receiving the message.**

**DESCRIPTION: The volunteer’s phone should vibrate and play an app specific notification tone notify the volunteer about the alert message.**

****2.4.5 Non-functional Requirements****

****5.1 Performance Requirements****

**QR – 1**

**TITLE: Instant alert should be fast**

**DESCRIPTION: The instant alert dialog should be fast and not laggy to open up. It is most critical part as it is used for sending the alert.**

**QR – 2**

**TITLE: Fast and smooth app UI**

**DESCRIPTION: The user interface of the app should be fast and smooth enough such that it takes the least possible time to load the various components.**

****5.2 Security Requirements****

**SR – 1**

**TITLE: The user must be authenticated before using the app**

**DESCRIPTION: The app should not provide the functionality without the user logging in. The authentication should be done either using:**

* **Email & Password**
* **Mobile No. & OTP**

**SR – 2**

**TITLE: The app should provide a privacy policy about user’s data**

****5.3 Software Quality Attributes****

* **Reliability – The app must send alert without any crash or bugs**
* **Maintainability – The app must be extendable. It must be implementation-ready to accept new features.**
* **Availability – The app must be available to the user for use without any problems**
* **Correctness – The app must be correctly implemented without any runtime errors and bugs**