SOFTWARE REQUIREMENT SPECIFICATION

for

SHUVARTHI

Version 1.0

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Revision History

Name	Date	Reason for change	Version
Syeda Tamanna Alam Sourav Sarker	October 31,2017		version 1.0

1. Introduction

1.1 Purpose

Under the social welfare project of Department of CSE, Shahjalal University of Science & Technology, CSE SUST will develop the mobile application "SHUVARTHI" version 1.0 and the purpose of the this Software Requirement Specification (SRS) is to gather requirements for "SHUVARTHI" version 1.0

"SHUVARTHI" is a bilingual android based mobile application that will provide women & children a full time support of security. If a woman will face domestic violence or harassment at anywhere or in case of child abusing one can use this application and can find themselves the main beneficiary of the application.

This document will provide a complete description of the whole system of "SHUVARTHI" mobile application.

1.2 Document Conventions

The document is written in such a way that the requirements are stated first having a higher priority than the requirements are stated later. Readers are said to be careful while reading the document as the requirement are stated at hierarchical order. It's also needed to be notified that the names stated in the document are quoted in the ("") marks.

1.3 Intended Audience & Reading Suggestions

The intended readers of this Software Requirement Specification are the teachers of Department of CSE of Shahjalal University of Science & Technology, project team of "Pipilika" Search Engine and the project team of Department of CSE, Shahjalal University of Science & Technology.

The rest of this SRS contains overall description and individual description of each of the sub-system of "SHUVARTHI" mobile application. Readers have options of knowing both the full and brief description of the whole system and sub system of the discussible application.

1.4 Product Scope

The purpose of the mobile application is giving the feeling to the user of a security mate support in case of facing any kind of domestic violence or harassment anywhere and people will also find it beneficiary in case of child abusing. Users can know what legal option is open for them and what they need to do as it will provide a well-organized information center of both law enforcement agencies and other Non Govt. Organization which work on children and women safety. The application will also provide the scope of calling the nearest law enforcement agency and asking help just by clicking an emergency help button and the application will do it for her by tracking her position by GPS and the nearest police station. The application also introduces the user to a ML implemented Bangla Chat-bot that will chat with the user on the issue of violence, harassment and help or guide her to make a decision.

1.5   References

This Software Requirement Specification document is written under the standard of IEE Std. 830-1993 meaning IEEE Standard for Software Requirement Specification published in "IEEE standard Collection" 2001 edition.

1.6   Definitions, Acronyms & Abbreviations

Terms	Definitions
CSE	Computer Science & Engineering
SUST	Shahjalal University of Science & Technology
IEEE	Institute of Electrical and Electronic Engineers
SRS	Software Requirement Specification
ML	Machine Learning
Pipilika	A Search Engine of Bangla Language
USER	The people who will download the application from Google app store and use it
GUI	Graphical User Interface
READER	Who will read this document
PRODUCT	Discussed Mobile Application
GSM	Global System for Mobile
SMPP	Short Message Peer to Peer

2.   Overall Description

The following picture (use case diagram) will give the reader a brief idea about the scope of the product and show the internal interaction among the subsystem of the products.
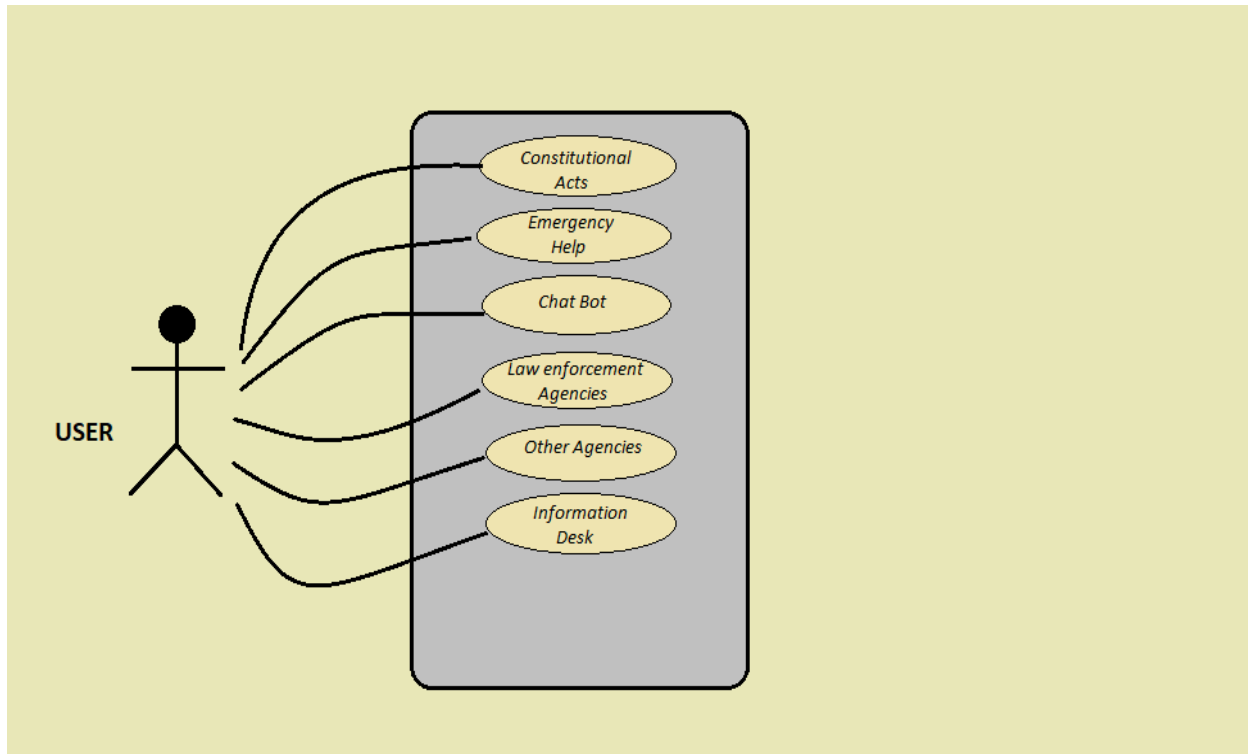
2.1   Product Perspective

The "SHUVARTHI" mobile application is a fully new application and will be developed from scratch by CSE, SUST. There was no such previous version of this kind of application and the application will be built on the unique idea basis.

2.2   Product Functions

In a whole, we can say that "SHUVARTHI" is a social security mobile application for the women at any age. The functionalities the application provides are:

- Asking for Emergency help

- Making decision by chatting with Bangla Chat bot
- Chat with assigned lawyer or Police by live help
- Providing information
- Providing non Govt. Organization information
- Adding multiple mobile number for emergency
- Creating new user by using different SIM card
- Logging in by providing phone number
- Verifying the phone number

2.3   User class and Characteristics

The only kind of user of this mobile application are the common user of this mobile application but in deep sense the user identity can be divided on the basis of authenticity meaning that the user can use the application by providing his/her phone number or the user can use the application by using someone's login credential.

2.4   Constraints

The following options are the limitations of the application and meeting the following options fully having the complementary issues.

- The mobile application can only be operable on android operating system
- The application can't be operable on the devices that run on previous version of android 4.0 or earlier.
- The application use SQLite database for data query and storing.
- The application using the information of the law enforcement agencies contact numbers provided by their website.
- The application always use the device GPS system.

2.5   Assumptions and Dependencies

As the constraint refers the product can't be operable on earlier version of android 4.0 version. It also highlights about the product that it will always be used on mobile phones that have enough performance and if the phone doesn't have enough hardware resources available for the application, for example the users might have allocated them with other applications, there may be scenarios where the application doesn't work as intended or even at all.

The application is using the device GPS system so if the phones have different interfaces to the GPS the application need to be specifically adjusted to each interface and that would mean the integration with the GPS.

2.6   User Documentation

The application provides a supporting user manual to guide the user in right way of using the application. It will be built in such a way that even the user who is using the app for the first time will also find it helpful.

3.   Specific Requirements

3.1   User Interface

Three types of user interface will be created on the basis of services provided by the application not by the user type as the user here, using the application are generalized. User interfaces of different sub menu are different in the only sense of functionality provided by the application. All the interface will be available both in Bengali and English Language.

The all three interface will carry Constitutional Act, Emergency Help, Chat mate, Live-help, Information Desk, update Emergency Number.
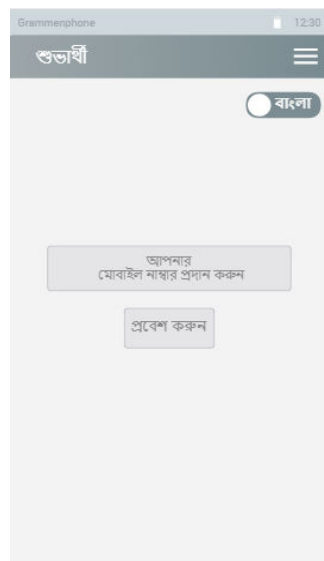

Figure: Login GUI (Bangla)   Figure: Login GUI (English)
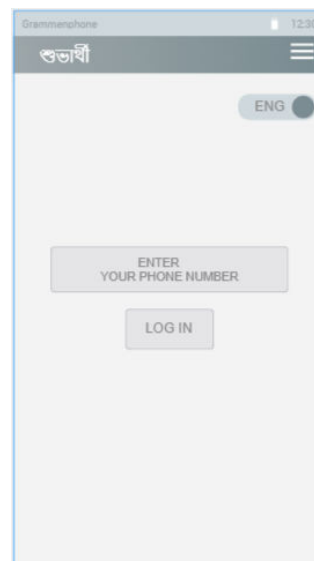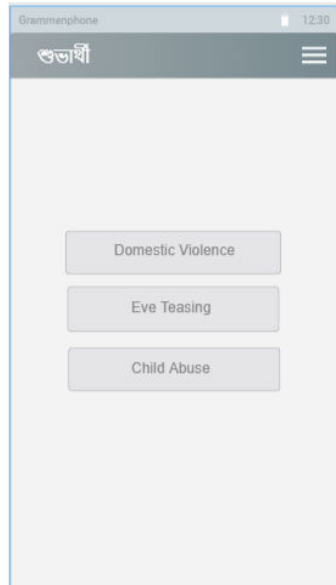
Figure: Sub-System GUI   Figure: Main Menu GUI
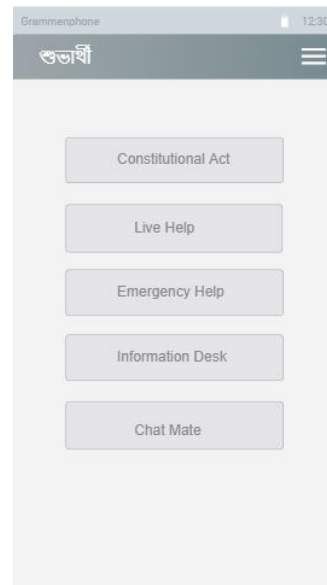
3.2   External Interface Requirement

3.2.1 Hardware Interfaces

As the mobile application doesn't have any designated hardware, it doesn't have any direct   hardware interface

3.2.2 Software Interfaces

1. Name: SQLite Database
    Mnemonic: SQLite
    Version: 3.21.0
    Source: www.sqlite.org

2. Name: Android Operating System 4.0 or later
    Mnemonic: kitkat, Jellybean, Marshmallow, Nougat
    Version: Android 4.1
    Source: Google Inc.

3.2.3 Communication Interfaces

1. GSM protocol will be used for mobile calling

2. SMPP protocol will be used for sending SMS.

3.2.4 Memory Constraint

As here the operating system is android, so there is limited scope for using the memory to get better performance. Though the definite statistics isn't yet detected but it is assumed that running directly the chat mate (ML implemented chat bot) may face difficulties.

3.3   Functional Requirements

3.3.1 Authentication

Requirement ID	Functions : Authentication(Login)
Title	Login
Description	The users should be able to login into the application with their mobile numbers and a provided verification code for the first time only.
Identifier	Syeda Tamanna Alam, Requirement Engineer
Rationale	The application will verify if the number provided is authentic
Dependencies	The user should provide a valid mobile number.

Requirement ID	Functions : Authentication(Logout)
Title	Logout
Description	The users should be able to logout in order to change the phone numbers they provided previously.
Identifier	Syeda Tamanna Alam, Requirement Engineer
Rationale	Users logged in previously may want to change their mobile numbers.
Dependencies	The user should be logged in.

3.3.2 Emergency Help

Requirement ID	Functions : Emergency Help (GPS Tracking)
Title	Emergency Calling
Description	The application should be able to track the user location using GPS and make a call to the nearest police station.
Identifier	Syeda Tamanna Alam, Requirement Engineer, on project team meeting on 22/10/2017
Rationale	To make a call to the nearest police station.
Dependencies	The users GPS should be enabled and the sim card should have enough balance to make the call.

Requirement ID	Functions : Emergency Help (Sending SMS)
Title	Emergency Texting
Description	If the application is unable to contact any police station then it should send specific message to the emergency contacts that were provided by the user.
Identifier	Sourav Sarker, Requirement Engineer, on project team meeting on 22/10/2017
Rationale	To let the provided emergency contact users make aware of victims situation.
Dependencies	The users GPS should be enabled and the sim card should have enough balance to make the call.

3.3.3 Chat Mate

Requirement ID	Functions : Chat Mate (Making Decision)
Title	Chat mate
Description	The user should be able to discuss the faced problem with the chat bot and the application should provide a wise decision of what to do next.
Identifier	Sourav Sarker, Requirement Engineer, on project team meeting on 15/10/2017
Rationale	Helping the user to make a decision.

Dependencies	N/A

3.3.4 Live Help

Requirement ID	Functions : Live Help (Lawyer)
Title	Consulting Lawyer
Description	The user should be able to chat with an assigned lawyer with the problems.
Identifier	Sourav Sarker, Requirement Engineer, on project team meeting on 7/10/2017
Rationale	To consult with a lawyer.
Dependencies	The device should be connected to the Internet

Requirement ID	Functions : Live Help (Police)
Title	Call Police Station
Description	The user should be able to call a desired police station.
Identifier	Syeda Tamanna Alam, Requirement Engineer, on project team meeting on 7/10/2017
Rationale	To take instant legal action
Dependencies	The user's mobile balance need to be enough

3.3.5 Information Desk

Requirement ID	Functions : Information Desk (Law Enforcement Agencies)
Title	Law enforcement agencies
Description	The system should be able to provide the information about each station including addresses and contact numbers.
Identifier	Syeda Tamanna Alam, Requirement Engineer, on project team meeting on 1/10/2017
Rationale	Users may need any kind of information about any law enforcement agency.

Dependencies	N/A

Requirement ID	Functions : Information Desk (Other Agencies)
Title	Other Non-Govt. Organizations and NGOs
Description	The system should be able to provide the information about all private agencies and NGOs related to violence, harassment and abuse.
Identifier	Syeda Tamanna Alam, Requirement Engineer, on project team meeting on 1/10/2017
Rationale	Users may need any kind of information about the related agencies.
Dependencies	N/A

3.3.6 Constitutional Act

Requirement ID	Functions : Constitutional Acts
Title	Constitutional Acts
Description	The application should be able to provide all kinds of prevailing constitutional acts related to domestic violence, harassments and child abuse.
Identifier	Sourav Sarker, Requirement Engineer, on project team meeting on 7/10/2017
Rationale	To let the users be aware of the acts.
Dependencies	N/A

3.3.7 Foreground Service

Requirement ID	Functions : Foreground Service
Title	Foreground Service
Description	The application should be able to run in the foreground after first access as emergency help.

Identifier	Syeda Tamanna Alam, Requirement Engineer, on project team meeting on 7/10/2017
Rationale	To let the user easily access emergency help.
Dependencies	N/A

3.3.8 Bilingual Display

Requirement ID	Functions : Bilingual Display (English)
Title	Display in English
Description	The application should be able to display information in English.
Identifier	Sourav Sarker, Requirement Engineer, on project team meeting on 1/10/2017
Rationale	For users who prefer English.
Dependencies	Functions: Bilingual Display (Bengali)

Requirement ID	Functions : Bilingual Display (Bengali)
Title	Display in Bengali
Description	The application should be able to display information in English.
Identifier	Sourav Sarker, Requirement Engineer, on project team meeting on 1/10/2017
Rationale	For users who prefer Bengali.
Dependencies	Functions: Bilingual Display (English)

3.3.9 Update Emergency Contact

Requirement ID	Functions : Update Emergency Contacts
Title	Update Emergency Contacts
Description	The user should be able to update the previously provided emergency contacts.
Identifier	Sourav Sarker, Requirement Engineer, on project team meeting on 22/10/2017
Rationale	The users may want to change the contacts.

Dependencies	N/A

3.4   Design Constraint

There is no stable corpus of Bengali language and in case of developing the ML implemented chat bot in Bengali language, there is a strong need of Bengali corpus.

3.5   Software System Attributes

The requirement in this section specify the required reliability, availability, security and maintainability of the software system.

3.5.1   Reliability

The reliability that the system provide while searching the police station around the user by tracking her GPS. So, it is assumed that 99% chance of finding the respective police station.

3.5.2   Availability

The average system availability while not considering the network failing and measurements obtained from a large time of testing.

3.5.3   Security

Security of the communication between system and server and 100% of the Communication Messages in the communication of a log-in session should be encrypted. It also ensure the security of the accounts, saves it personal data while chatting with lawyer or with the bot by individual's login credentials.

3.5.4   Maintainability

The application should be easy to extend further. The code should be written in a way that it favors implementation of new functions. Prior to other requirements, this functionality is important in order for future functions to be implemented easily to the application.

4.   Release

4.1   Release Plan

Assuming the developing time of six months and no release plan. The whole feature fulfilling the requirement will be available with version 1.0

4.2   Business Issue

There is no business issue associated with the application.

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