Software Requirement Specification

for

BLUD

Prepared by

Vyshnav C J

Adarsh P Sunil

Saurav K S

Jinash Jaleel

Department of Computer Science and Engineering

Rajiv Gandhi Institute of Technology, Kottayam

Contents

1 Introduction

1.1 Purpose

This project aims to connect blood donors with individuals or organizations in need of blood. It simplifies finding a suitable donor, scheduling appointments, and live tracking.

1.2 Document Conventions

- *Convention for the main title:*
  - *Font Face: Computer Modern.*
  - *Font Style: Bold*
  - *Font Size: 32*
- *Convention for subtitle:*
  - *Font Face: Computer Modern.*
  - *Font Style: Bold*
  - *Font Size: 22*
- *Convention for the body:*
  - *Font Face: Computer Modern.*
  - *Font Style: Normal*
  - *Font Size: 10*

1.3 Intended Audience and Reading Suggestions

- *Blood Recipients who need to find eligible donors quickly and efficiently.*
- *Blood donors can donate accordingly based on the blood requests and check their successful donation history.*
- *The engineers and developers will be in charge of designing and putting the program into action.*
- *Project managers who are in charge of overseeing the development process must comprehend the requirements.*
- *Database Handlers.*

1.4 Project Scope

The purpose of this project is to increase the efficiency of the blood donation process. Through this system, we can ease the process of finding suitable blood donors, enhance the tracking process and incorporate social media platforms like WhatsApp for advanced communication.

1.5 References

For obtaining a clear understanding of the existing system,

- *Simply Blood App*
  https://play.google.com/store/apps/details?id=com.simplyblood
- *UBlood App*
  https://play.google.com/store/apps/details?id=com.ubld.ublood
- *Blood Friends App*
  https://play.google.com/store/apps/details?id=com.posl.bloodfriends

Blood Donation Eligibility Criteria

- *http://nbtc.naco.gov.in/page/eligibility*

2 Overall Description

2.1 Product Perspective

The Blud is a replacement for certain existing systems that are aimed at enhancing the efficacy of blood donation procedures. The conventional system performs rather inadequately in its maintenance and updating. Blud approaches the task of conquering this dilemma and proffering a resolution by providing an efficient notification system and utilizing social media platforms like WhatsApp for efficacious communication.

2.2 Product Features

The blood donation app offers live tracking, effective communication, and a notification system to enhance the user experience.

2.3 User Classes and Characteristics

1. *Recipients- The user can request blood through the app to avail donors.*
2. *Donors - The donors can confirm the donation of blood and provide the location of the donor.*

2.4 Operating Environment

1. *Hardware Environment - Smartphone.*
2. *Operating System - iOS, Android 8.0, and above.*
3. *Software components - Dart, Nodejs, MongoDB, Firebase.*

2.5 Design and Implementation Constraints

1. *Reduced availability of RAM.*
2. *Possible unavailability of Whats App in users.*
3. *Permission to access location for tracking features.*

2.6 User Documentation

1. *Quick Start guide.*
2. *Demonstration video.*

2.7 Assumptions and Dependencies

Assumptions

1. The data provided by the user is accurate including the blood group and location of the user.
2. Selection of Whats App as our primary communication platform owing to its frequent usage amongst the general population.

Dependencies

1. The app is dependent on the network connection, like the internet.
2. The app is dependent on the accuracy of the data provided by the user.
3. The app depends on third-party API (like Whats app Business API) for communication.
4. The proper functioning of the app depends on the operating system on the device.

3 System Features

3.1 Efficient Whats App donation confirmation system

3.1.1 Description

The "Efficient Whats App donation confirmation system before donation" feature of the blood donation app enables the app to send donors a confirmation message via Whats App before they donate. This feature is designed to ensure that donors have all the necessary information and reminders before the donation and to encourage them to follow through with their donation commitment.

3.1.2 Priority

The priority of this feature is medium to high, as it can help to improve donor engagement and retention, but it is not as critical to the functioning of the app as other features such as donor tracking and communication

3.1.3 Stimulus/Response Sequences

Stimulus: The donor schedules a blood donation appointment.
Response: The app sends a confirmation message to the donor via WhatsApp.

3.1.4 Functional Requirements

- *The app must have access to the Whats App API to enable the sending of confirmation messages.*
- *The confirmation message must include the date, time, and location of the donation, as well as any relevant information about the preparation for the donation and donor eligibility criteria.*
- *The app must ensure the privacy and security of donor information, under data protection laws and regulations.*
- *The app must provide donors with the option to opt out of receiving confirmation messages via WhatsApp.*

3.2 Live Tracking of Donors

3.2.1 Description

The "Live tracking of donors" feature of the blood donation app enables the tracking of donors in real-time, allowing blood banks to quickly and easily locate donors who are currently available to donate blood. This feature is designed to enhance the efficiency and effectiveness of blood donation by providing an up-to-date and accurate list of donors who are ready to donate.

3.2.2 Priority

The priority of this feature is high, as it is critical to the functioning of the app and the overall success of the blood donation program. The feature helps blood banks quickly locate donors and manage their inventory, ensuring that blood is always available to those who need it.

3.2.3 Stimulus/Response Sequences

Stimulus: A request for the current location of available donors.
Response: The app displays a list of donors who are currently available to donate, along with their location and contact information

3.2.4 Functional Requirements

- *The app must be able to collect and store donor location data in real-time.*
- *A current list of available donors for blood banks must be available from the app.*
- *Based on their availability and location, the app must be able to filter donations.*
- *According to data protection laws and regulations, the app must guarantee the confidentiality and security of donor information.*
- *To help blood banks quickly find available donors, the app must be able to show their locations on a map.*
- *When a donor's blood type is urgently needed, the app must be able to notify them.*
- *The app must be able to keep track of how many donations each donor has made and notify donors when they are next eligible to give.*

3.3 Live Blood Request Feed

3.3.1 Description

The "Live blood request feed, showing current blood requests" feature of the blood donation app enables users to view a real-time feed of current blood requests in their area. This feature is designed to make it easier for potential donors to see where their help is needed and to encourage them to donate

3.3.2 Priority

The priority of this feature is high, as it is critical to the functioning of the app and is the main purpose of the app, which is to facilitate blood donation by connecting donors and recipients.

3.3.3 Stimulus/Response Sequences

Stimulus: The user opens the app and navigates to the blood request feed.
Response: The app displays a real-time feed of current blood requests in the user's area.

3.3.4 Functional Requirements

- *The app must have access to a database of current blood requests in the user's area.*
- *The app must be able to display blood requests in a real-time feed, with the most recent requests displayed first.*
- *The app must be able to filter blood requests by location, blood type, urgency, and other relevant criteria.*
- *The app must provide users with a way to respond to blood requests by indicating their willingness to donate and providing their contact information.*
- *The app must ensure the privacy and security of user information, under data protection laws and regulations.*
- *The app must be able to send notifications to users when a new blood request is posted in their area.*
- *Overall, the "Live blood request feed, showing current blood requests" feature is a critical component of a blood donation app, enabling users to see where their help is needed and to connect with potential recipients in real-time. This feature can help to encourage more blood donations and ultimately save lives, making it a high-priority feature for any blood donation app.*

4 External Interface Requirements

4.1 User Interfaces

- *Login Page- The user logs into his/her account using the provided OTPs*
- *Registration Page- User enters the necessary details*
- *Survey Page-Takes the user through a set of questions to check the eligibility of the user to donate blood.*
- *Home Page- This page contains the live feed of blood requests and the navigational functionalities to move to required pages*
- *Blood Request Page- The user can request blood of any group by giving the essential details*
- *Available Donors' list-Once the user requests blood, this page displays the available list of Donor sorted by distance and availability*
- *Profile Page-User Profile can be viewed on this page and can be edited by the user*
- *History Page- This page views the history of blood donations or requests done previously by the user throughout the usage of the app*

4.2 Hardware Interfaces

- *Device: Smartphone*
- *Operating System - iOS, Android 8.0 and above*
- *RAM: 2 GB or above*
- *Storage space: 32 GB*

4.3 Software Interfaces

- *VS Code-text editor for development purposes*
- *MongoDB compass-Document database for storing app data*
- *Firebase-for using tools like real-time notification and real-time tracking*
- *NodeJS-for creating the back-end server by using JavaScript*
- *Dart-creating the app*
- *WhatsApp Business API-API is used for connecting the app with Whats app to communicate with potential donors.*

4.4 Communications Interfaces

- *The user must have an internet connection*
- *Must have GPS feature turned on*
- *Web socket for real-time data sharing using HTTP handshake protocol*

5 Other Nonfunctional Requirements

5.1 Performance Requirements

1. *Higher speed of network connection to provide quick response and update for blood activities.*
2. *The latest version of Android for the smoother response of the app*

5.2 Safety Requirements

The user must confirm in the app if a donor approves the request for donation so that the request is revoked from the database. If the confirmation is not given, the request continues to circulate in the live feed until a donor is found.

5.3 Security Requirements

1. *The system uses a secure database that can only be accessed by the admin.*
2. *An advanced database system is used that has its own readily available backup system so that the user's data is not lost.*
3. *OTP system used for registration provides an extra layer of security from hackers that may access user profiles.*

5.4 Software Quality Attributes

1. *Usability- The app provides a user-friendly interface for easier functioning*
2. *Maintainability - The app will be provided with regular updates to remove bugs or to add additional features*
3. *Portability-The app can be installed and used in any of the smartphones of the current technology.*

6 Other Requirements

A No SQL database is required for efficient access to data.
The user should be able to donate blood according to their eligibility and health conditions.

7 Appendix A: Glossary

- *User: Donors and receivers that use the app for blood activities*
- *No SQL: Not only Structured Query Language*
- *HTTP handshake: connecting server and client using an HTTP request and sharing data in full duplex mode.*
- *OTP: One-time password for authentication*
- *API: Application programming interface that provides the readily available features that are beyond the scope of development*

8 Appendix B: Analysis Models

No Analysis Models developed

9 Appendix C: Issues List

No issues discovered at this stage