Software Requirements Specification

Of

SaveLife

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Chapter 01

Introduction

1.1 Purpose

One of the biggest breakthroughs of medical science in the twenty-first century is organ transplantation. It is a therapy that can save a person's life. Organ transplantation has given persons with organ failure a better quality of life, allowing them to live a normal or near-normal life. Improved technology, a better knowledge of rejection, the discovery of newer immunosuppressive medicines, and advancements in medical treatment have all contributed to the progress in organ transplantation over time. However, the biggest problem of organ transplantation is the shortage of donated organs. Following are the data tables of the USA showing the number of patients on the waiting list for transplantation, the number of transplants performed by the organ in the year 2020, and the percentage of people that are waiting for different organs in September 2021.

Organ	Needed	Received
Kidney	91,099	22,817
Liver	11,886	8,906
Heart	1,707	3,658
Lung	3,521	2,539
Other*	281	1,115

Other* includes allograft transplants like face, hands, and abdominal wall.

Figure 1: Patients on the Waiting List vs. Transplants Performed by Organ (2020)

Organ	Percentage
Kidney	83%
Liver	10%
Pancreas	1%

Organ	Percentage
Heart	3%
Lung	1%
Other*	2%

Figure 2: Organs People Are Waiting For (September 2021)

From the following data tables, it is quite clear that the demand for organs is much greater than the number of donated organs. So, we thought about this problem and came up with an idea of building software named “SaveLife”. The purpose of this app is to find donors for the patients who are in need of organs for transplantation and arrange a formal meeting between them so that they can reach their decision.

1.2 Intended Audience

This document is for anyone involved with the creation, development, and management of this software. In other words, anyone involved with the development and management can access this document.

1.3 Intended Use

This document can be used to get an overall idea about the software. Intended audience can access this document to learn about the purpose or goal, functional & non-functional requirements, risk definition, user classes, user needs, assumptions, operating environment, constraints of the software. In simple words, this document gives an overview of what, why and how we are going to develop.

1.4 Product Scope

The main objective or goal of this product is to provide organs to patients with organ failure. This product will give the patient an opportunity to live again and the donor an opportunity to earn money in exchange for their donation. By using our app, a donor gets to choose between “live donation” and “after death donation”. The donor can ask for money for their organ in case of live donation. After death donations will be free of cost. If all the requirements of transplantation of a certain patient match with any donor listed in the database of our product, we will notify both parties and arrange a formal

meeting in person. The patient and donor can discuss this in the meeting and finalize their decision. After confirming from both parties, our business goal is to take a certain percentage of the amount that both parties agreed upon. The percentage will differ considering the financial condition & the donated organ of the donor. Our priority is to ensure that the donor gets a fair share of the money. However, 15% is the maximum percentage that will be charged. There will be a “payment” feature in our product through which our share of the money can be paid. Our product will also have features like “fund rising” (to raise funds for the poor patients), “Transplant Centers” (information about the doctors and hospitals where the transplantation takes place), and “Volunteering” (volunteer in raising funds and other necessary works), etc. As the demand for organ is much greater than the number of donations, A black market of organ creates on its own which also involve crimes. Our product might act as an alternate legal market of organs which will eventually force these black organ markets to vanish.

1.5 Risk Definitions

We are creating software that may act as a legal market for organs. Donors will donate their organs in exchange for money or someone might donate their organs after death which will be free from money exchange. In Bangladesh live donation is allowed only by close relatives and any sort of money exchange is forbidden. So, there is a high chance that our app will not get government approval for the live donation option. In that case, we will only be able to offer the “Afterlife donation” feature and our business goal will turn into a complete failure. We look forward to a near future when donating organs for money will be legalized in all the developed countries so that we can reach our goal.

Chapter 02

Overall Description

2.1 User Classes and Characteristics

2.1.1 User Classes

- Patient Class
- Donor Class
- Volunteer Class

2.1.2 Characteristics

- User can identify himself as patient, donor, or volunteer while registering
- User can find or donate organs
- User can see the details of transplant centers
- User can volunteer for raising funds and other relevant works
- Users can search for organs donated by people after their death.
- Users can pay our share of money through the payment option.
- User can request for an organ that is not available in the current database
- User can chat live with one of our representatives

2.2 User Needs

- Register
- Login/Logout
- Search
- Live Chatting
- Fund Raising
- Volunteering
- Payment
- Donate
- Request For Organ
- Transplant Centers

2.3 Operating Environment

The operating environment for our software is listed below:

Operating System: Our software is a web-based app. Therefore, any operating system which allows web browsing can run the app.

Programming Language: Python, CSS, HTML

Database: MySQL

Framework: Django

2.4 Constraints

- All the information of users will be stored in a database
- The system will be available 24 hours a day
- Users must put their correct username & password to login in order to use the services of the system.
- The system can be accessed from any device that supports web browsing
- The system will work on our existing technology infrastructure. New technology might be introduced in the future.

2.5 Assumptions

- User is familiar with basic terminologies like “Login / Logout”, “Search”, “Volunteering”, “Donate” etc.
- User has a good command of English
- User knows how to browse in web and can operate a web application
- User has internet access and a device that supports web browsing

Chapter 03

Requirements

3.1 Functional Requirements

1. As a user I want to chat live so that I can get my required information from one of the representatives.

Confirmation/Acceptance:

- Users will be able to see a chatbox.
- Users can write their messages in that chatbox.
- Users will see an instant automated reply after sending a message.
- Users will get a reply from our representative within 30 minutes.

1. As a user I want to donate organs so that I can help patients with organ failure.

Confirmation/Acceptance:

- Users must provide relevant information about their donation (name, address, mail, contact number, organ they want to donate).
- Users must provide a consent form while being alive.
- Users must provide their medical records and medical certificate of good health
- User must provide his/her signature according to his/her NID Card.

3.2 Non-Functional Requirements

3.2.1 Performance Requirements

The following must be clearly specified in order to assess the performance of a system:

1. **Response Time:** The application should always load in less than 0.1second.
2. **Workload:** The system should be able to handle 80,000 users.
3. **Platform:** Support for a Variety of Devices.

3.2.2 Safety Requirements

All data of the main database will be stored in a secondary database as backup. If server failure or any other catastrophic failure causes damage to the main database, all the data can be recovered from the backup.

3.2.3 Security Requirements

Our software will ensure the maximum privacy of users' data. It will also take care of other security options such as Authentication, Authorization, Error management, Session management etc.