Blood Donation Agent System

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BACHELOR OF ENGINEERING IN

COMPUTER ENGINEERING

By

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Contents

Abstract

This paper presents a system to bridge the gap between the blood donors and the people in need for blood. It is a Web Application through which registered blood banks can check the availability of required blood and can send requests for blood to the donor matching with blood requirement and can be ordered online as and when required.It is a browser based system that is designed to store, process, retrieve and analyze information concerned with the administrative and inventory management within a blood bank. This project aims at maintaining all the information pertaining to blood donors, different blood groups available in each blood bank and helping them manage in a better way. Aim is to provide transparency in this field, make the process of obtaining blood from a blood bank hassle free and make the system of blood bank management effective.

Acknowledgments

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Last but not the least we would like to thank **Dr. Nazneen Ansari** for guiding us throughout the project and encouraging us to explore in this domain.

List of Abbreviations

Sr. NO.	ABBREVIATION	EXPLANATION	PAGE NO
1	CSS	Cascading Style Sheets	6
2	HTML	Hypertext Markup Language	6
3	SQL	Structured Query Language	6

List of Figures

Chapter 1

Introduction

1.1 Introduction

The main aim of developing this software is to manage the working of blood banks efficiently and effortlessly. Using this system, needy people can search for blood availability of their respective blood groups. If they want, they can also get the contact details of the donors who have the same blood group they need. In order to help people who are in need of blood, this Blood Bank management system software can be used effectively for getting the details of available blood groups. So, if the blood group is not available in the blood bank, needy ones can request the donors to donate the blood and save a life. Using this blood bank management system, interested donors can get themselves registered in the software database. Donor registration is very easy, to get registered to the system they have to fill up registration form and enter their contact information like address, mobile number etc. After submitting the registration form, he can create username and password. Donors can also update their account information whenever required. If in case of emergency when a person cannot find any donor, then he is given the contact numbers and addresses of the Life Saving Contact Persons for big cities.

1.2 Motivation

The population of the world is multiplying with each coming year and so are the diseases and health issues. Recently in times of Covid with an increase in infections there is an increase in the need of blood. The growing population of the world results in a lot of potential blood donors. But in spite of this not more than 10% of the total world population participates in blood donation. With the growing population and the advancement in medical science the demand for blood has also increased. Due to the lack of communication between the blood donors and the blood recipients, most of the patients in need of blood do not get blood on time and hence lose their lives. There is a need for synchronization between the blood donors and hospitals and the blood banks. This improper management of blood leads to wastage of the available blood inventory. Improper communication and synchronization between the blood banks and hospitals leads to wastage of the blood available. These problems can be dealt with by automating the existing manual blood bank management system. An efficient, highly available scalable system has to be developed to bridge the gap between the donors and the recipients and to reduce the efforts required to search for blood donors.

1.3 Problem Statement & Objectives

The following problem arises when using a typical blood bank's existing system

1. Personal profile accessibility (P1) - The donor's information can only be updated by the administrators of the blood bank. A donor can update their information by calling, faxing, e-mailing, but not by themselves. This is a waste of time just for updating a piece of information and it may be troublesome for some donors.
2. Donation record accessibility (P2) - The donor ID card is the only tangible evidence that contains the donor's recent donation records, if the card gets lost, donors may find it difficult to schedule their next appointment since they are not able to see the last time they had donated blood.
3. Blood stock management (P3) - Blood banks are required to maintain an account of blood bags in the inventory. This increases with each blood donation recorded in our system and decreases as they are checked out upon hospital requests. Our system will need to keep the information up-to-date to ensure correctness of the inventory.
4. Mailing by postal system (P4) - Blood banks will only mail donors when the donated blood is disqualified, however, this mail is sent through the postal system to the donor's given address. If the donor's address is recorded incorrectly, the mail will be sent to the wrong address and the donor will never be notified that their blood is rejected and given the reason for that.

The project objectives are:

- To ease the process of blood donation and reception.
- To improve the existing system.
- To develop a scalable system.
- To be highly available
- To develop an application that is user friendly
- To develop an application that has easy & accurate hmi functionalities.
- To contact user for blood requirements and notify them.
- To check if the blood required is available in the bank.

Chapter 2

Proposed System

2.1 Introduction

The proposed Blood Donation Agent System helps the people who are in need of a blood by giving them all details of blood group availability or regarding the donors with the same blood group. They don't need to go anywhere to search for blood when needed. They just need to use this web application then all the result will appear in just a second.Our life is so busy so we don't have time to spend going here and there, we can use technical way to search the blood by using the Blood Bank software we can find thousands of people who are donating the blood and also get the detail the of that person that in which city he belongs to and what is the Blood group of that person.So this is the most useful software ever .

Some of the functionality which can be benefited by being a User is listed below

- User Registration and Login, Logout.
- Update your Profile , Delete your account.
- Request/contact for Blood.
- Notification for Requests.
- Search for Blood.

Functionality for Admin is listed below

- Dashboard
- Add blood in the Blood Bank
- Edit blood donations and their details
- Contact registered users
- Delete users/entries

2.2 Architecture/ Framework/Design

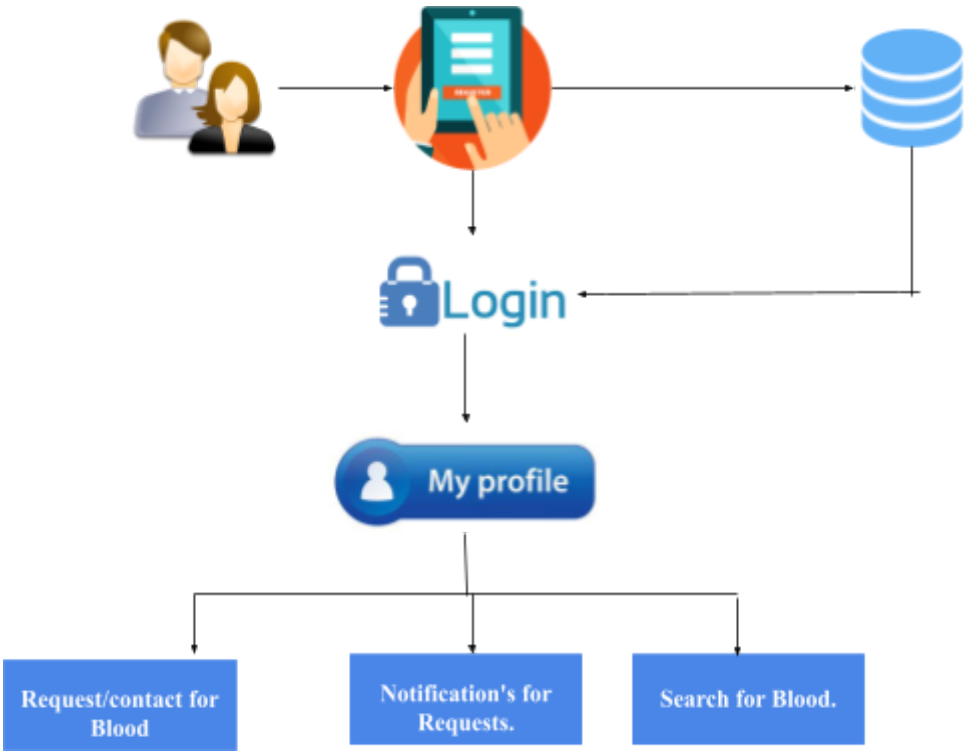

Figure 1: Architecture user Side

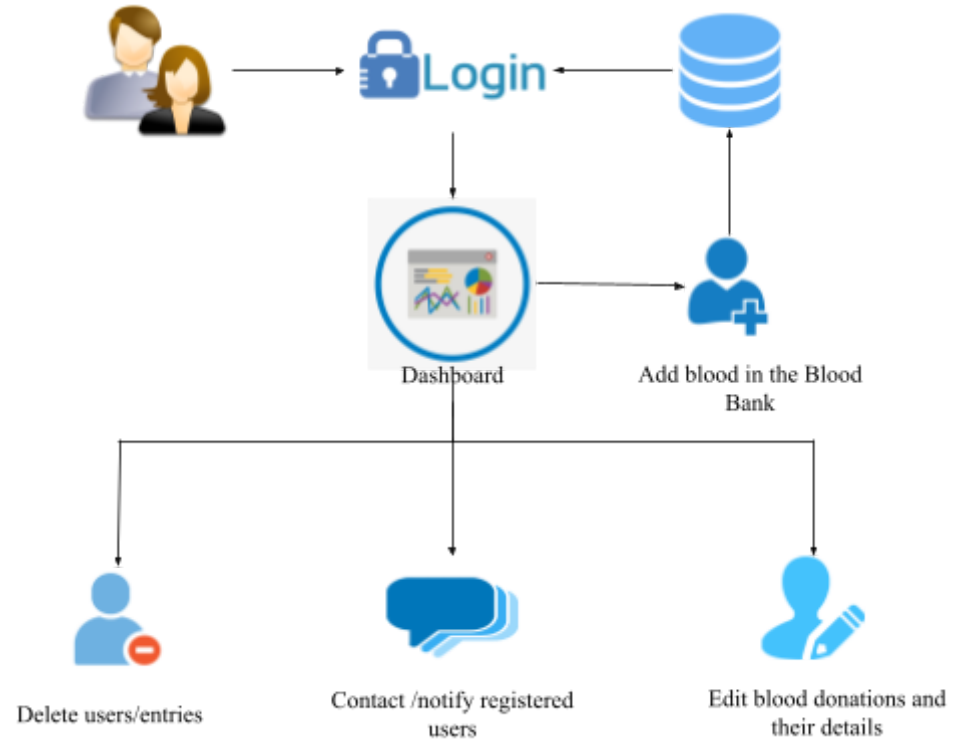

Figure 2 : Architecture Admin side

2.3 Procedure/Method

Steps to run the web application

1. Navigate to the directory
2. Create a virtual environment

python3 -m venv venv && source venv/bin/activate

3. Install the dependencies

pip install -r requirements.txt

4. Start the server

python3 server.py

5. Select the link provided by flask and paste it in the web browser.
6. You will be redirected to the login page were user and admin can login

2.4 Tools

1. Python3

Python is an interpreted high-level general-purpose programming language. Python's design philosophy emphasizes code readability with its notable use of significant indentation. Its language constructs as well as its object-oriented approach aim to help programmers write clear, logical code for small and large-scale projects.

Python is dynamically-typed and garbage-collected. It supports multiple programming paradigms, including structured (particularly, procedural), object-oriented and functional programming.

2. Flask

Flask is a micro web framework written in Python. It is classified as a microframework because it does not require particular tools or libraries.It has no database abstraction layer, form validation, or any other components where pre-existing third-party libraries provide common functions. However, Flask supports extensions that can add application features as if they were implemented in Flask itself. Extensions exist for object-relational mappers, form validation, upload handling, various open authentication technologies and several common framework related tools.

3. Bootstrap

Bootstrap is a free and open-source CSS framework directed at responsive, mobile-first front-end web development. It contains CSS- and (optionally) JavaScript-based design templates for typography, forms, buttons, navigation, and other interface components.Bootstrap is a giant collection of handy, reusable bits of code written in HTML, CSS, and JavaScript. It's also a frontend development framework that enables developers and designers to quickly build fully responsive websites.Essentially, Bootstrap saves you from writing lots of CSS code, giving you more time to spend on designing web pages.

4. SQLite

SQLite is an in-process library that implements a self-contained, serverless, zero-configuration, transactional SQL database engine. The code for SQLite is in the public domain and is thus free for use for any purpose, commercial or private. SQLite is the most widely deployed database in the world with more applications than we can count, including several high-profile projects.SQLite is an embedded SQL database engine. Unlike most other SQL databases, SQLite does not have a separate server process. SQLite reads and writes directly to ordinary disk files. A complete SQL database with multiple tables, indices, triggers, and views, is contained in a single disk file. The database file format is cross-platform - you can freely copy a database between 32-bit and 64-bit systems or between big-endian and little-endian architectures.

2.5 Results

Blood Bank Agent System website created on local server

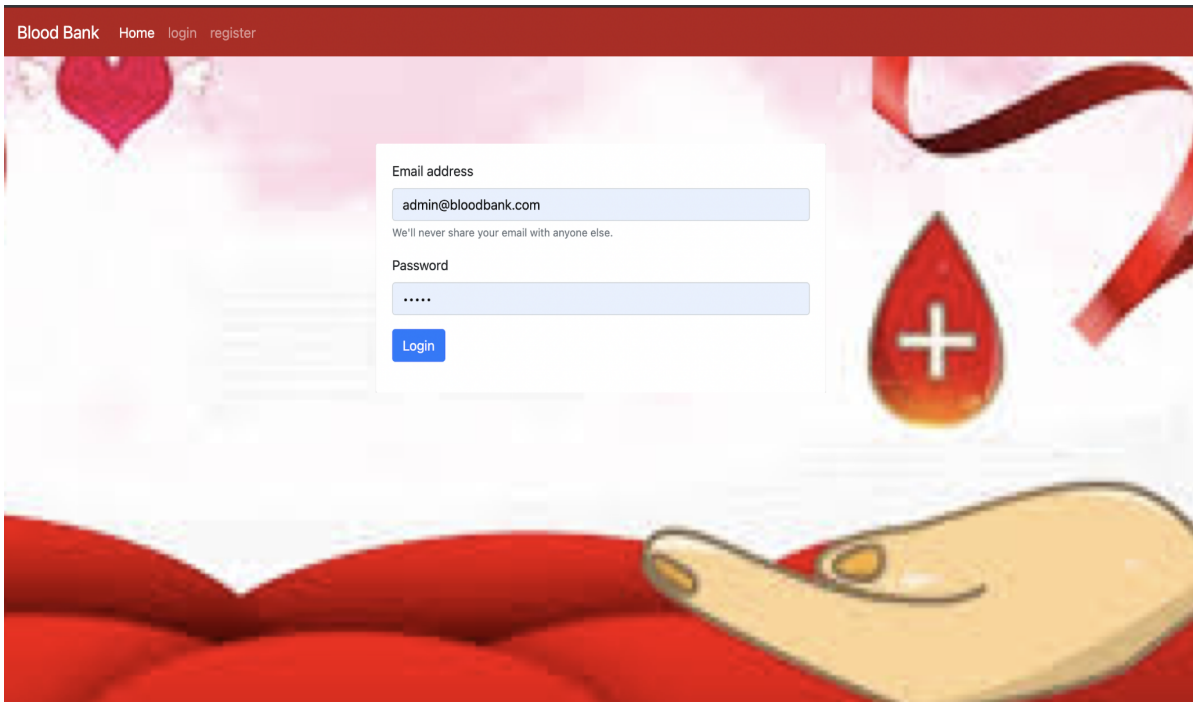

Figure 3: Login Page of the Website

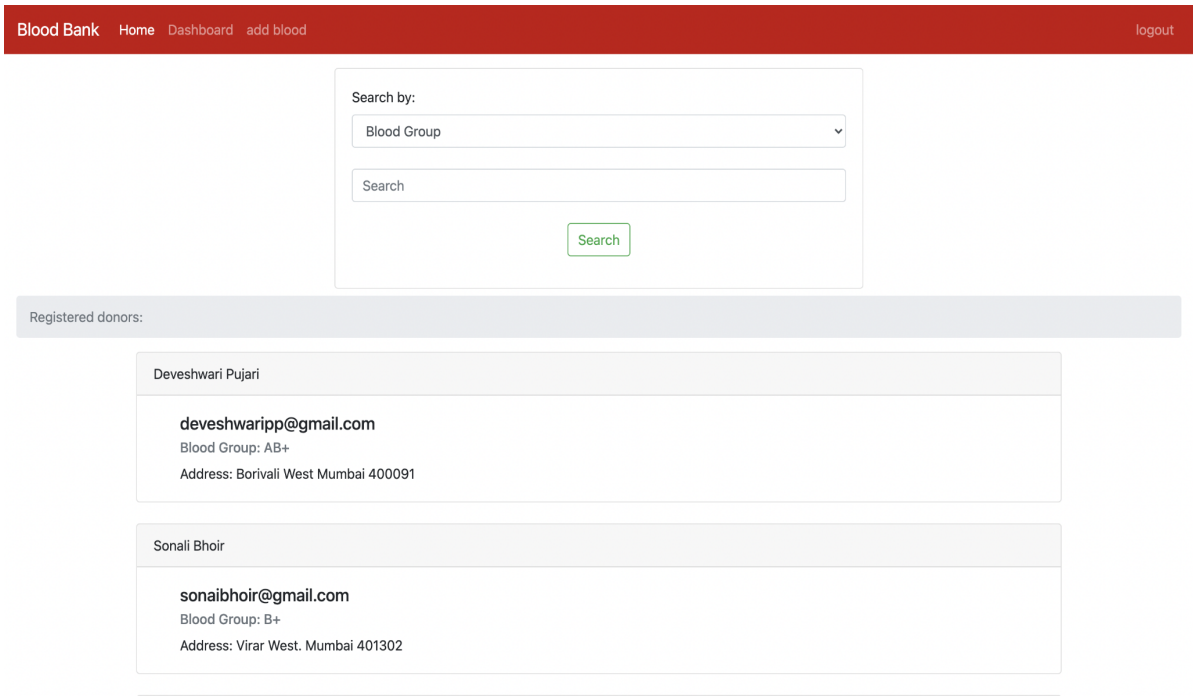

Figure 4 : Home Page after login.

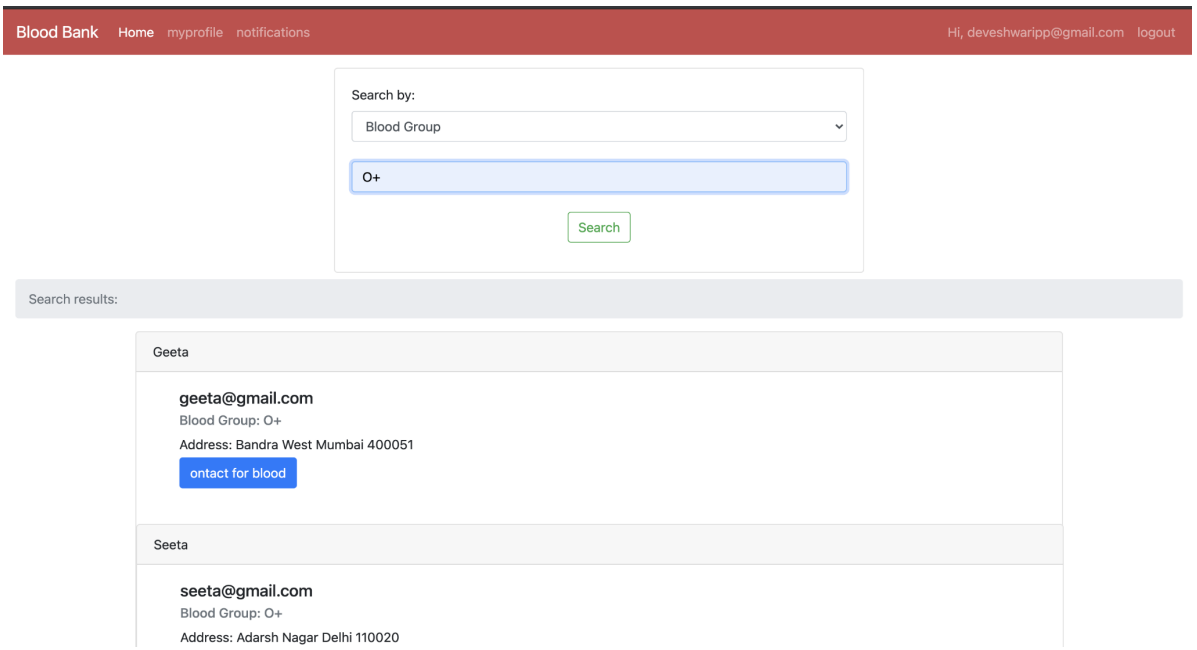

Figure 5 : Search Bar for Blood based on Blood Group

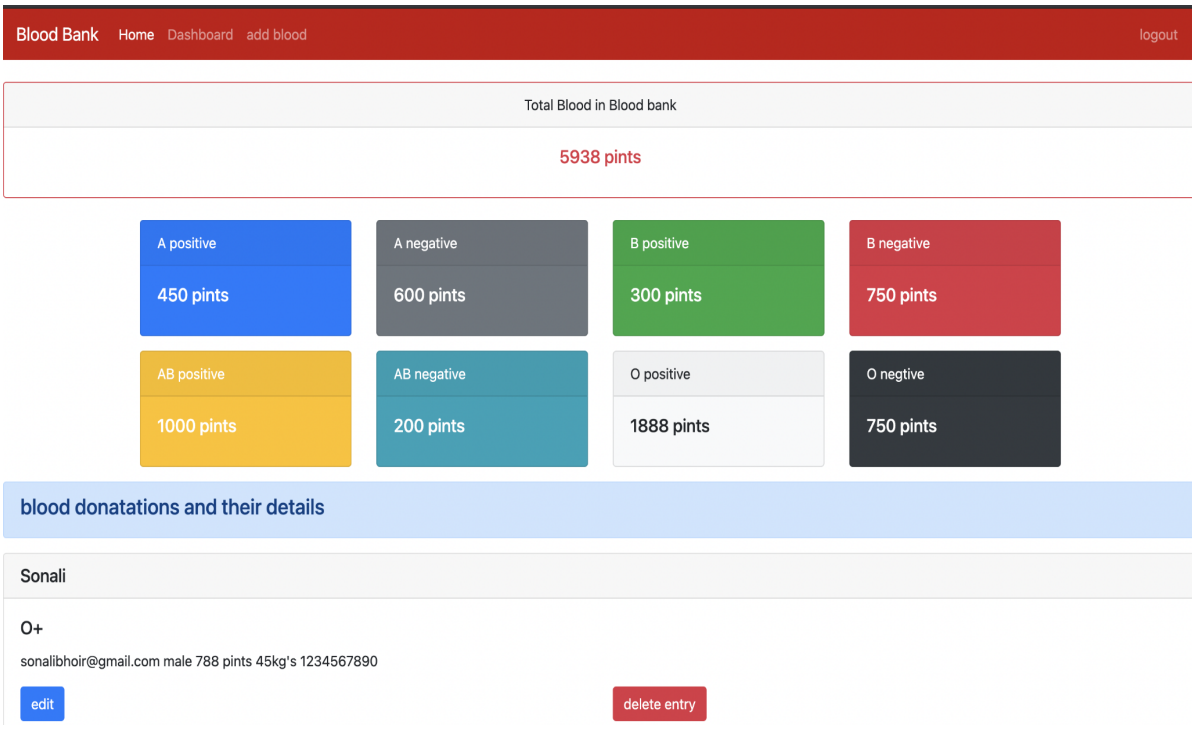

Figure 6 : Admin Dashboard.

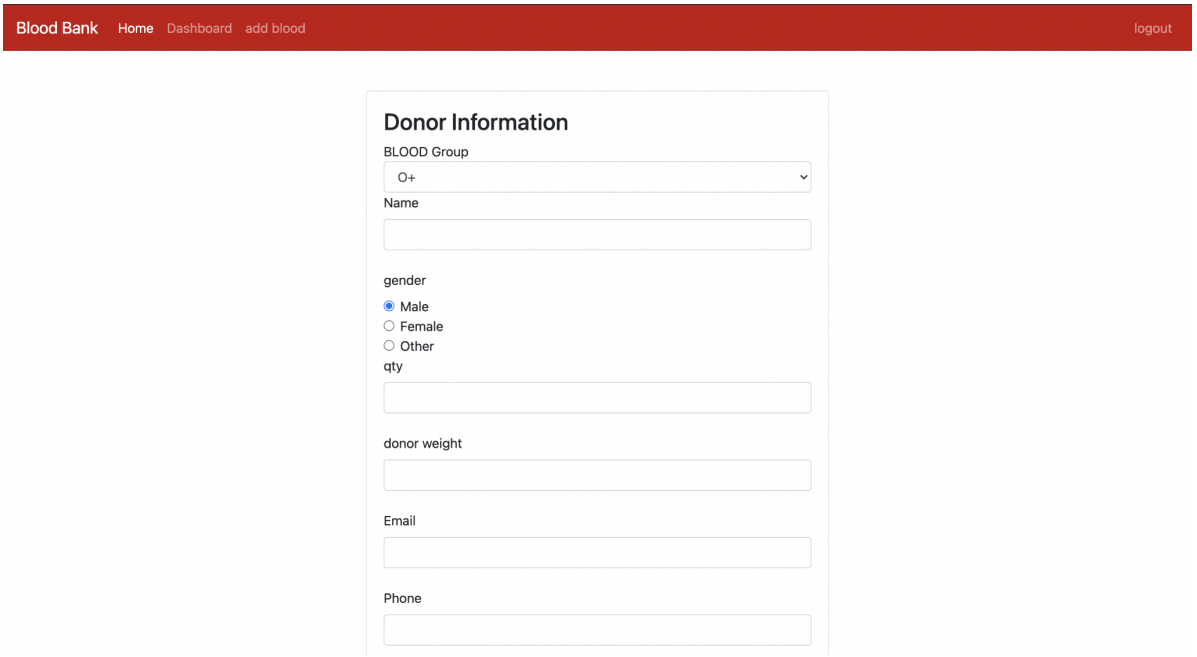

Figure 7 : Register Donor Page

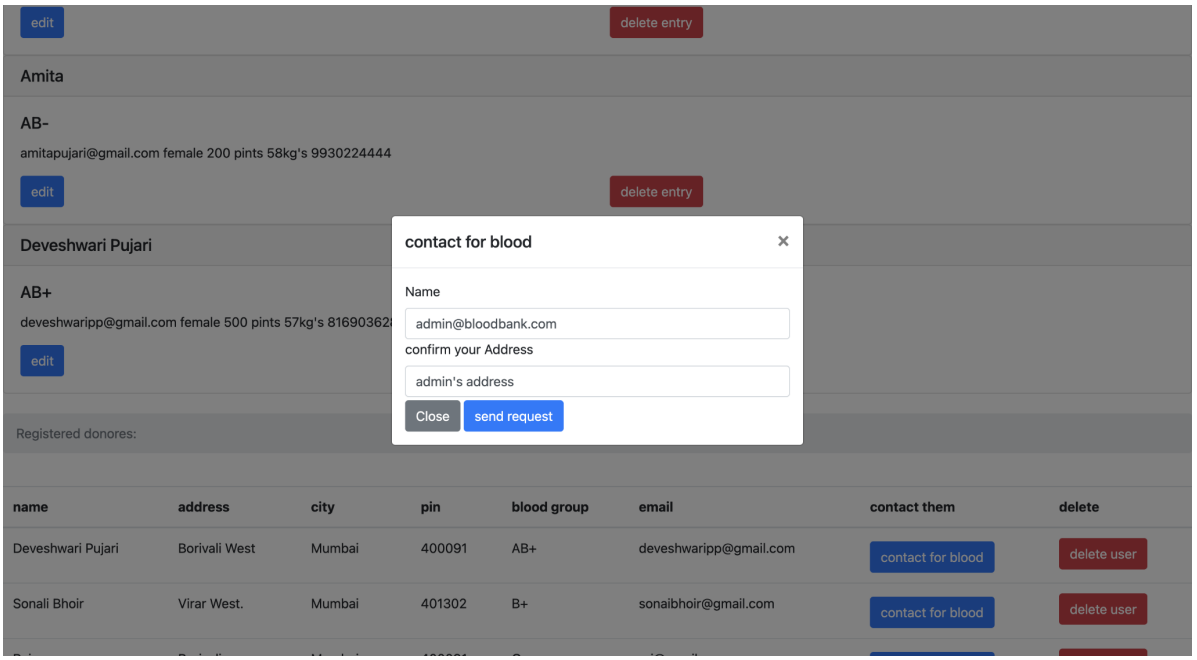

Figure 8 : Contact for Blood Page

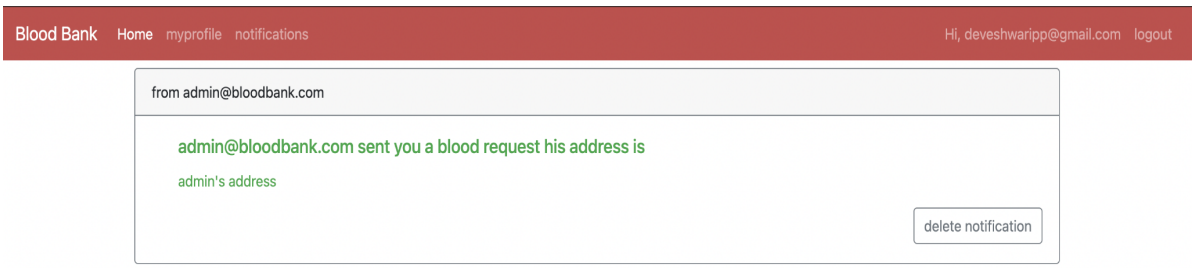

Figure 9 : Notification Page

2.6 Conclusions

Technology is introducing new innovations day by day, thus reducing the time required to do things. The proposed system can be used to reduce the time required to deliver required blood to the needy in cases of emergency. The web application provides a way of communication and synchronization between the donor and the blood banks. It also provides them with the facility of communicating with the nearby donors in an emergency. The database is a vital aspect of the system. The database of the hospitals and the blood banks must be checked for consistency on a regular basis for smooth working of the system.We designed a simple & responsive website for HMI mini project.

References

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