A Web-based application for the development of information and blood collection, blood donation for the immunohematology department

Shashikala H   Rajesh N

4th sem, MCA, AMCEC   Professor, MCA, AMCEC

Shashikalh222@gmail.com

Abstract

This paper is an online application that enables the patient or hospital to find the nearest blood donor or blood center to get the required blood. This is a web-based application that allows hospitals to verify the supply of necessary blood and to make requests to acquire important blood. The people can access this application where ever and whenever they required it. If the blood is unavailable, the blood financial institution can also request blood from another blood bank. The blood financial institution portal application will have the donor details so that patients or hospitals in urgent need of blood can contact them easily. On this blood financial institution portal, the maps are another option to find blood donation centers. The donors are only allowed to locate the blood donation centers in this application. The immunohematology department is a good solution for collecting, storing, and updating blood unit data. In our web-based application, the manual work time which is utilized to gather information is completely reduced by the usage of this online web application, which leads to less paperwork by increasing the work quantity and decreasing the time consumption. The technologies we used in our project were Python, HTML, CSS, JavaScript, and Django.

Keywords:- *Blood donation, donors, patients, admins, registration.*

Introduction

The blood financial institution portal application aims to help people who require blood. It is an online healthcare system. This online application saves the time of users like without going anywhere they can find necessary blood in our online application. Help the people in need of blood this online application successfully collects data about the donors. If blood is unavailable, the patient can request a person who is registered for blood donation to save the person's existence by donating blood. Before using this application the person who wants to donate or has to register by providing necessary contact information, such as name and phone number, and his or her age, and then the admin will approve their registration. The same as the patients have to register.

In our blood financial institution control application, we have the admin login the admin is the one who will approve registration and requests. The admin will maintain the patient and blood donation details. The admin can delete and edit the patient and blood donation details. The bloodstock will be to be had in the admin login the admin can update the blood unit. If blood isn't always to be had in a blood center means the blood bank can request another blood bank for the act of donating blood.

In most of the countries of the world, the blood demand is more than the supply they can get. For India, in 2016 the Ministry of Health and family welfare reported a donation of 10.9 million units against the requirement of 12 million units [1].

literature review

Nowadays the number of people who need hemoglobin is growing by a sizeable amount. Blood procurement before the blood financial institution's inception, there will be difficulty in finding the blood donor having equivalent blood in equivalent cities. The data collection and maintaining records become very difficult. The data stored in a record book can be stolen very easily and searching in favor of data in the record book in favor of the provider was very difficult it will become a very serious problem and the patient who needs blood can get a death because of unavailable blood at a certain time. Introducing this blood financial institution online application enables people to easily find the nearest blood bank and blood donor having equivalent blood and they can contact the donor easily.

The foremost intention behind the immunohematology department venture was to provide a plan of action that contains all the information regarding blood donation, and registered donors, which helps in providing fast blood delivery. We have put our all effort into collecting information about the blood banks we researched and we have put our knowledge into making our project the best that it could be.

Existing system

Amidst the aforementioned existing system, indicated immunohematology department framework manifested a large quantity of incapability and disorganization that had fetched results in the possession of the superintendency. The system established on the online application to collect the blood donor data, and keep the records of blood donors, had a deficiency that needed IT-based solutions. The functioning infrastructure contains almost everything about blood donation at a normal time. The user of our application can view information

about donors registered in this event accompanied by their identity, location, and contact details. The existing system of blood donors in several areas the donors are located. The hospitals and blood banks directly contact the donors when there appears to be an emergency for blood [3].

Proposed system

Such a blood financial institution project is a useful application for managing blood banks and hospitals. In our blood storage facility platform application, interested individuals can donate blood as donors. The patient who is in an emergency patient in need of blood can create an account in our application and then the patient can request hemoglobin from a donor who has matched blood and who is located nearest to the area it will consume time and also saves one person's life. Through GPS availability, they can quickly find the donor's location.

Our web-based application can work 24x7 so that our application users can get the information anytime. The main benefit of the delighted blood financial institution framework venture is the availability of references to plasma.

System design

The device stipulates a search feature for the user of our application who needs blood by tracking the location associated with the blood provider through the maps.
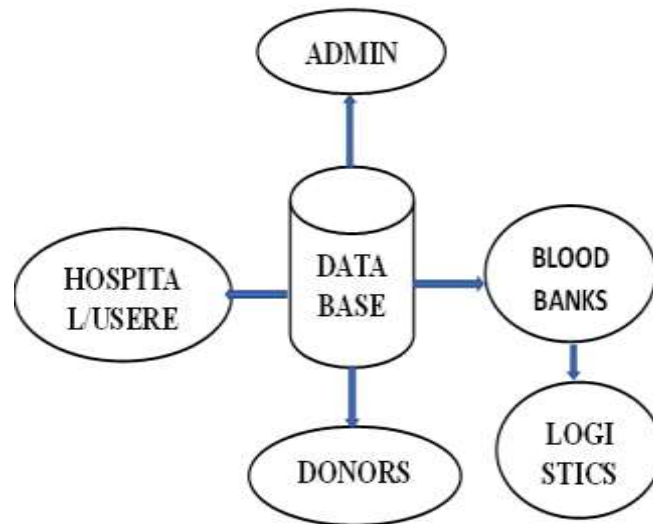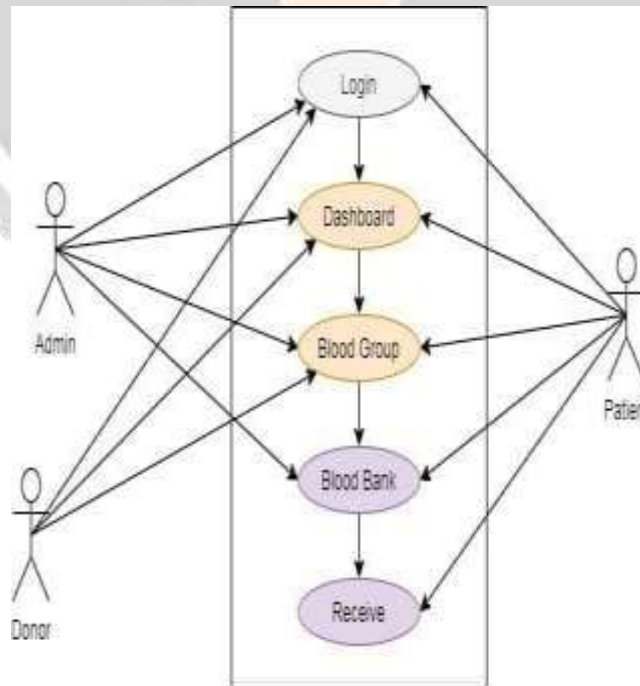
Figure 1: System design of hematology system.

Detailed design

All materials, systems, finishes, and construction methods are specified in a detailed design.

Use Case Diagram

The blood financial institution platform uses a case diagram is used to show the procedure involved when users instance the software. It represents the formation of system practices.

Figure 2: Use Case Diagram of an online web-based application.

Data analysis and discussion

At the moment all of the work about blood donation is done on paper or books. The registers have to keep a record regarding the individual who donated the blood and the patient who receives the blood, and how many units he/she took. So that it takes more time to calculate blood donation reports, and we are unable to provide reports that meet our standards as they currently stand.

Disadvantages

➢ Insufficiency of blood in an extremely needed time.
➢ The form entry and data entry take more time.
➢ The information cannot be stored for a long time.
➢ Less security that the registered person can steal the data.

MODULES

The modules we have in our online web-based application blood bank were:

1. Admin
2. Blood donor
3. Managing donor information
4. Patient

ADMIN

The admin is the one in charge of administrating both the vendors and sufferers of blood donation. The admin has the authority to grant permission or deny the request of both donor and patient. For each individual of our application users handed over a user id and password that serves as an individual identity.

The admin has the authority to edit the information about the vendor and sufferer. The home page of the admin module contains blood groups along with the stocks and it consists of total blood donors, requests, approved requests, and total blood units (in ml). Whenever the blood requests are approved for the patients, the blood unit will be deducted from the blood group they requested. The admin can update the blood unit.

BLOOD DONOR

The donor first has to register themselves by providing the necessary details or information that we asked them to provide in the registration form. Once they registered the network will provide a unique identity and passcode as their identity. The vendor can additionally make a blood request if he needs blood means. In the donor module we can see donation history and blood history [4].

MANAGING DONOR INFORMATION

In our web-based application, the enrolment frame will prevent others away from getting into the namesake and password. So that the vendor records will be safe. While logging if they enter the wrong namesake and passcode means they would be furnished with an "incorrect namesake and passcode inserted, try out again". Only the enrolled vendor can make changes to their data no other persons can edit the donor data.

PATIENT

The patients have to register first in our web-based Application by providing the necessary details. Once they registered they will be provided with an id and password. The patient can request the blood they needed. For

making a blood request they have to fill out the blood request form which contains their name, age, reason, blood group, and what number of gadgets of blood they needed then they can make a request. The patient can see their request history in their modules.

Issues Faced in Blood financial institution framework

Fake donors:- During the registration, we have to make ought to make certain the person who is registered for donating blood has uploaded valid details and proofs. Then it's an improbable chance for the person to fake the donor details [7].

Fake requests:- The person can make a fake request by registering in the application. To prevent the issue of fake requests demanding blood, a password facility is provided. The donor can also able to check a blood assistance appeal [7].

Outcome of Research

The one-person donation of blood can save three lives. We should volunteer to donate blood that will save many people's lives and also it gives us a good feel.

Rather than the use of record books to store the data, we can use this blood financial institution software which will enable time savings. During the development of this blood bank project, we get an awareness of how donating blood is the power to sustain lives and also how it plays an important role in society. Through this paper, we get more knowledge about blood donation. The study of this paper inspires us to donate more blood and also giving encourage other to donate blood.
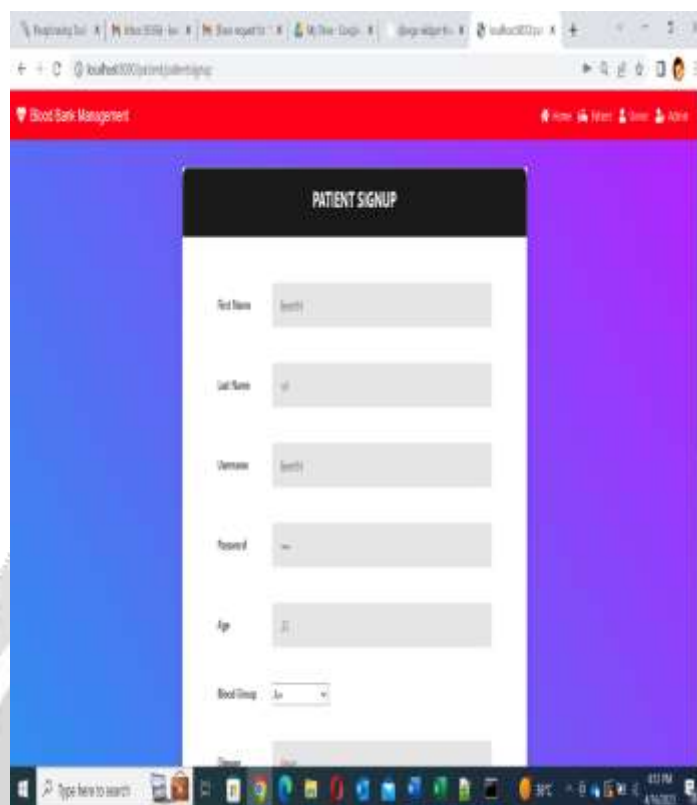
Experimental results

Home

Figure 3 The screenshot of the Home page.

Patient register

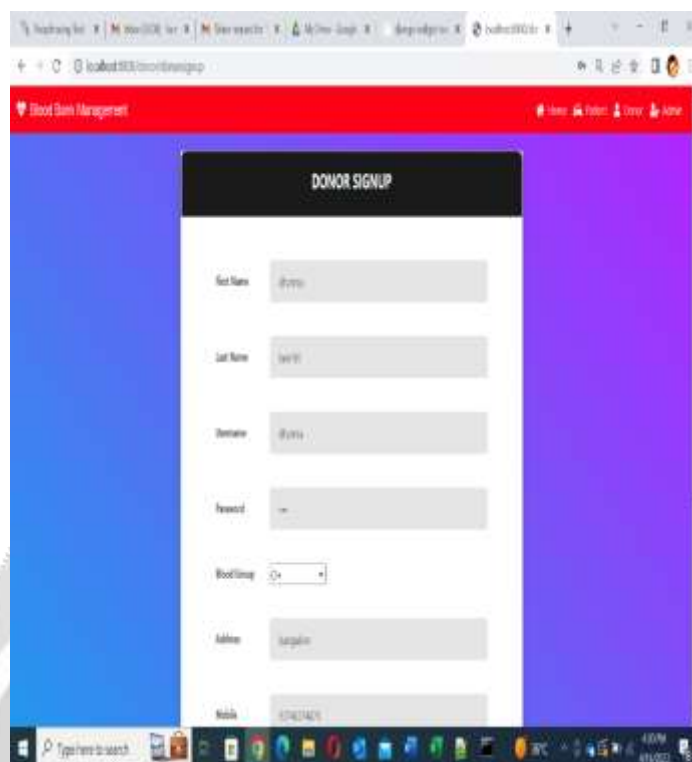**Figure 4 The screenshot of the patient registration page.**

Patient Dashboard
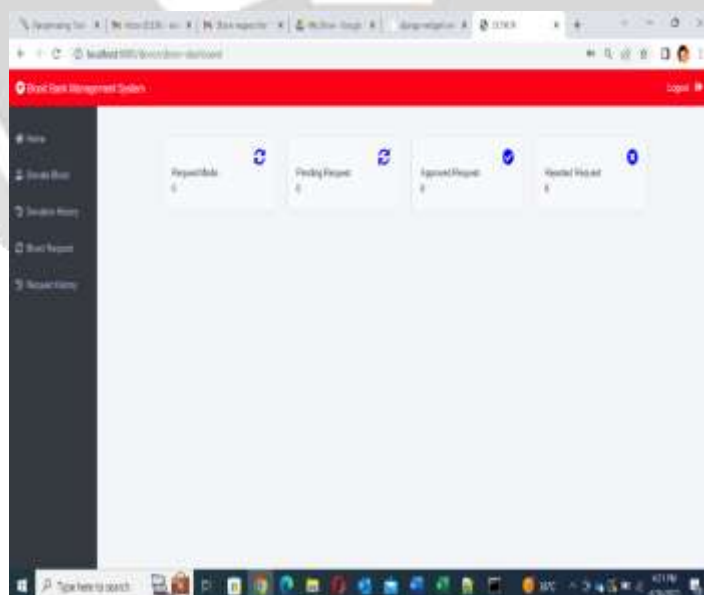

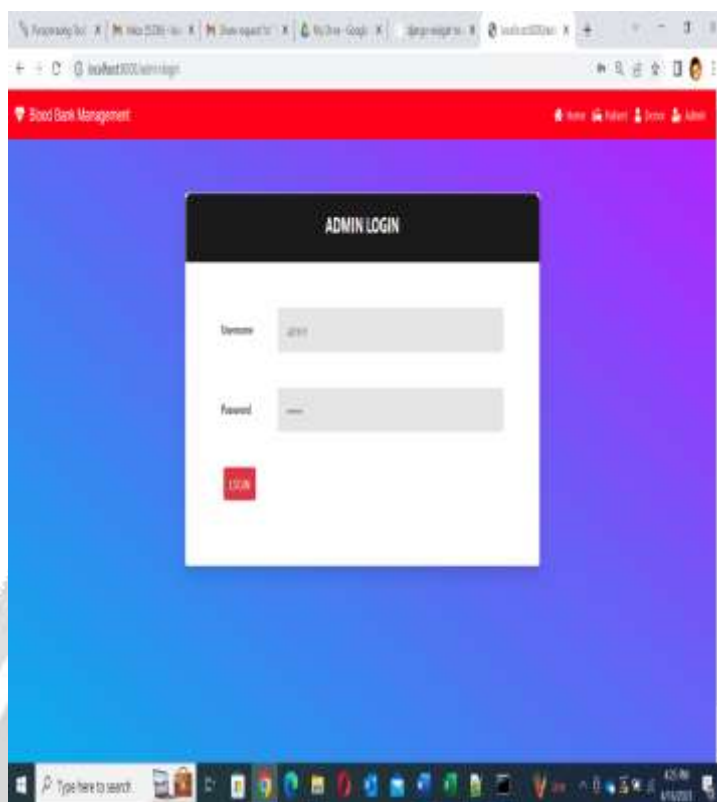**Figure 5 The screenshot of the patient dashboard page.**

Donor Register

Figure 6 The screenshot of the donor registration page.
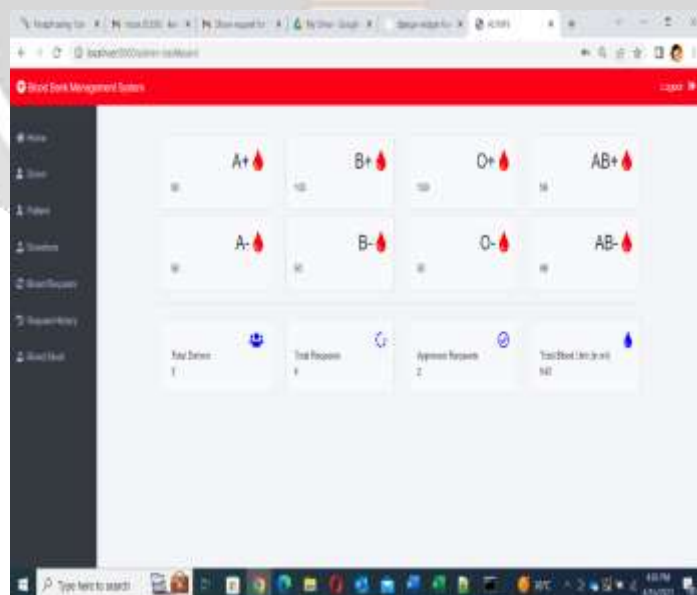
Donor Dashboard

Figure 7 The screenshot of the donor dashboard page.

Admin Login

Figure 8 The screenshot of the admin login page.

Admin Dashboard

Figure 9 The screenshot of the Admin dashboard page.

Conclusion

The scrutiny of the blood financial institution platform has developed an online platform that has made the blood acceptors connect with the donors at the place of equivalent areas. The blood reservation facility is a study of collecting blood and information about the donor and mainly the blood collection center collects and stores the blood until the patient needs the blood. Our online web-based application for blood financial institutions helps people possessing in urgent need of blood and it saves people a lot of time. Without going anywhere within the mobile or system they can find the required blood by registering in our web-based application. This web-based application of blood banks inspired participation in blood donation at regular times and also motivated and persuade our fellow citizens to donate blood. It creates an opportunity to volunteer for blood donation that saves someone's life. This application connects the blood bank.

This application can be developed more by using the Django application and also by adding GPS tracking technology. This web-based application serves as a channel for broadcasting and synchronism between hospitals and blood banks. The system contains a well-based database to store all the records. This system inspired us to donate and register for blood donation and also to encourage others to participate in blood donation.

Future Enhancement

We can enhance this blood financial institution framework by including more facilities like sending an emergency SMS for a donor who is ready for donating blood immersed in hospitals, for hospitals the sufferer in search of blood can find it easily [5].

References

[1] Sibinga CT. Existing and recommended legislative framework for a national blood transfusion policy. Global Journal of Transfusion Medicine. 2017 Jul 1;2(2):89.

[2] Publications of the World Health Organisation. (2012). Guidelines on Assessing Donor Suitability for Blood Donation. Geneva

[3] Teena C.A, Sankar, K. and Kannan, S.(2014). "A study on blood bank management system".

Middle-East o9f scientific research, issue 2014, page 1 of their paper.

[4] Ibrahim Fawze Akar, Tukur Anas Mohammad, Mohamed Ismail Z(2015), "CBBR Centralized Blood Bank Respiratory Implementation with JAVA/JSP and integrated with a mobile app using phonegap (Case Study on Developing countries)". International Journal of information system and Engineering, volume 3, issue April 2015, pages 1–3 of their paper.

[5] Kebede, G. (2016). "Developing a Web-Based Blood Bank Information Management System for the National Blood Bank of Ethiopia" is the title of the project. Master of Science thesis. The University of Addis Ababa. Addis Ababa Ethiopia, issue Jun 2016, pages 1-2 of their paper.

[6] http://www.bloodbankindia.net.

[7] Devanjan K.Srivastava, Utkrash Tanwar, M.G.Krishna Rao, Priya Manohar, Balraj Singh(2021). "A research paper on blood donation management system". International Journal of creative research thoughts(IJCRT), volume 9, issue 5 May 2021, pages 1-3 of their paper.