

Online Blood Bank

Ameya Kambe¹, Arbaaz Sheikh², Nilisha Bhishma³ and Dr. Manisha Khorgade⁴

Students, Department of Electronics and Telecommunication Engineering^{1,2,3}

Professor, Department of Electronics and Telecommunication Engineering⁴

Rajiv Gandhi College of Engineering and Research, Nagpur, Maharashtra, India

Affiliation to Rastrasant Tukdoji Maharaj Nagpur University

Abstract: *Out of 118.5 million blood donations collected globally, 40% are collected in high income countries which compromises 16% of the world's population. The median annual donations per blood centre are very low in low-income countries as compared to high-income countries. In high-income countries, the median blood donation rate is 31.5 donations per 1000 people, 15.9 per 1000 people in upper-middle-income countries and five donations per 1000 people in low-income countries, which is very low when compared. This indicates there is a huge gap between demand and supply. Most of the patients, due to the lack of communication between the donor and the recipient do not receive the blood in time and this may cost them their lives. The necessity for synchronisation between blood donors, hospitals, and blood banks is critical. The usage of online web portals has made it easy for the public to access and connect to other people and organizations. Using a portal we will be able to make blood donors easily available for the receivers. An online web portal where the hospitals and blood banks are integrated will make it easy for the receivers to get access to blood.*

Keywords: Web-based application, Online blood bank management system, Donor & Receiver, Communication.

I. INTRODUCTION

Population of the world is increasing day by day with a rate of 1.05% per year. with this rate the demand for blood supply has also sky rocketed. In low-and-middle income countries the need for blood is increasing every year and as the demand exceeds the supply it is difficult to make blood available while ensuring its safety and quality. Several organizations and hospitals in India carry out blood donation through several blood donation camps. Donors can also go to hospital blood banks to donate blood or to a recipient. Despite the efforts of the government and various organizations there is still increase in demand and supply gap. In 2016, the Ministry of Health and Family reported a donation of 10.9 million units against a requirement of 12 million units. In India, the blood donates around 346 millilitres. Despite a large population, the gap between demand and supply for blood units continues to exist in many of the country's health facilities. Improper communication between the blood banks and the hospitals has led to the wastage of available blood inventory. Most of the blood bank are manually operated where it is possible due to the lack of proper documentation about the donor, inventories of blood bank and blood transfusion services may endanger the life of the patient. Hence an online web-based application might be efficient in performing the tasks needed and reducing the possibility of manual error.

II. METHODOLOGY

The Web-based Blood Donation Management System is a website that allows anyone who wants to donate blood to help those in need to do so. It also allows hospitals to save and store data for those who wish to contact them, and it also provides a centralized blood database. The system is developed by using HTML, PHP, CSS, JavaScript for web development and MySQL for database design. The system targets three types of users: the public who wants to donate blood, the recipients who need the donated blood, and hospitals that are used as intermediaries to manage communication between donors and recipients. This Web-Based Blood Bank System Is used to manage the records of donors and recipients, and encourage voluntary blood donation, easily accessing any information about blood type and

the distribution of the blood in various hospitals in India. Blood donors can register on the system and it will provide a donor-ID. Blood-campaign organizers can organize a campaign online. The request is sent to the particular blood bank officer and the officer can approve or reject the request. Patients can request blood online through this system. Then the system will inform all the relevant donors of the request. Bloodstock will be handled day by day through the system. A Blood bank officer can add or remove a donor to the system and from the system. Also, he can add bloodstock to the relevant blood bank.

III. SOFTWARE USED AND DESCRIPTION

Languages Operated to Implement Blood Bank Website System

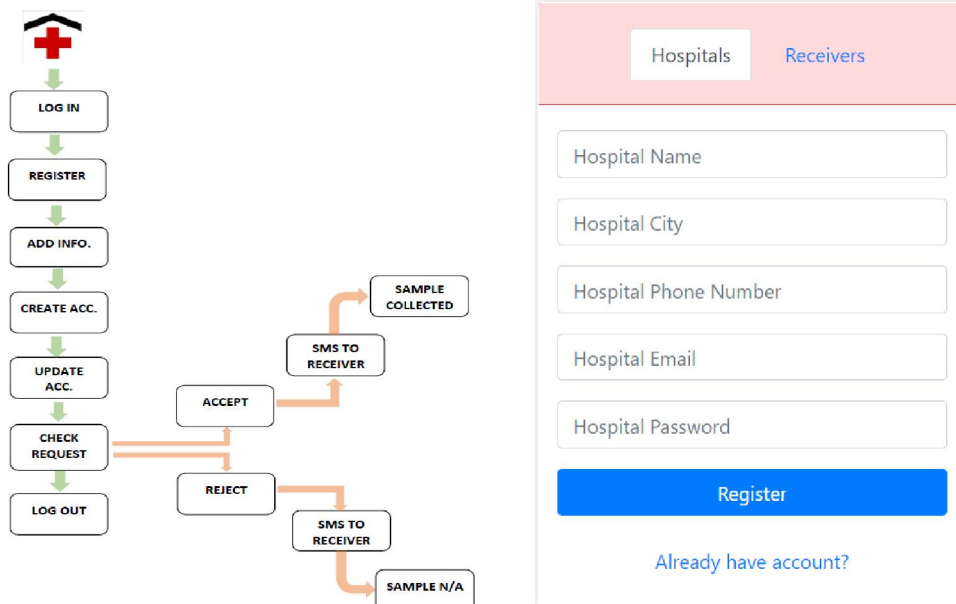
3.1 Front end: HTML, CSS, JavaScript

- **HTML:** Hypertext Markup Language, the basic function of this language is to create web content. The goal of the web browser is to read the documents as web pages; and it is also possible to incorporate scripts written in several languages, like JavaScript, which controls on the behaviour of web content.
- **CSS (Cascading Style Sheets) Create attractive Layout:** Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a language like HTML. CSS is meant to enable the separation of presentation and content, including layout, colours, and fonts. This separation can improve content accessibility, provide more flexibility and control within the specification of presentation characteristics, enable multiple websites to share formatting by specifying the relevant CSS in an separate CSS file.
- **JavaScript:** an object-oriented computer programming language commonly used to create interactive effects within web browsers, developed for the design of interactive sites and creating web applications. JavaScript can interact effectively with HTML ASCII text file, enabling web authors access to their sites with dynamic content

3.2 Back End: PHP, MySQL

- **PHP:** A scripting language that's integral part of HTML to feature functionality that native HTML is unable to do. Originally designed for web development to supply dynamic web content, "PHP allows you to collect processes and utilize data to create a desired output"
- **MySQL:** A database system, queries, and features easily paired with PHP because it works side by side with ease. Uses MS SQL to store many sorts of data, information and graphics. Also it is easily accessible from anywhere around the globe.
- **Notepad ++:** A source code editor that supports several languages and it uses pure Win32, which allows a high-speed implementation
- **Wamp:** WampServer is a Web development platform on Windows that enables you to form dynamic Web applications with Apache2, PHP, and MySQL.
- **Visual Code Studio:** A freeware source code editor with features like support for debugging, syntax highlighting, intelligent code completion, code refactoring, etc. It supports languages like C++, python, PHP, java, JavaScript and CSS.

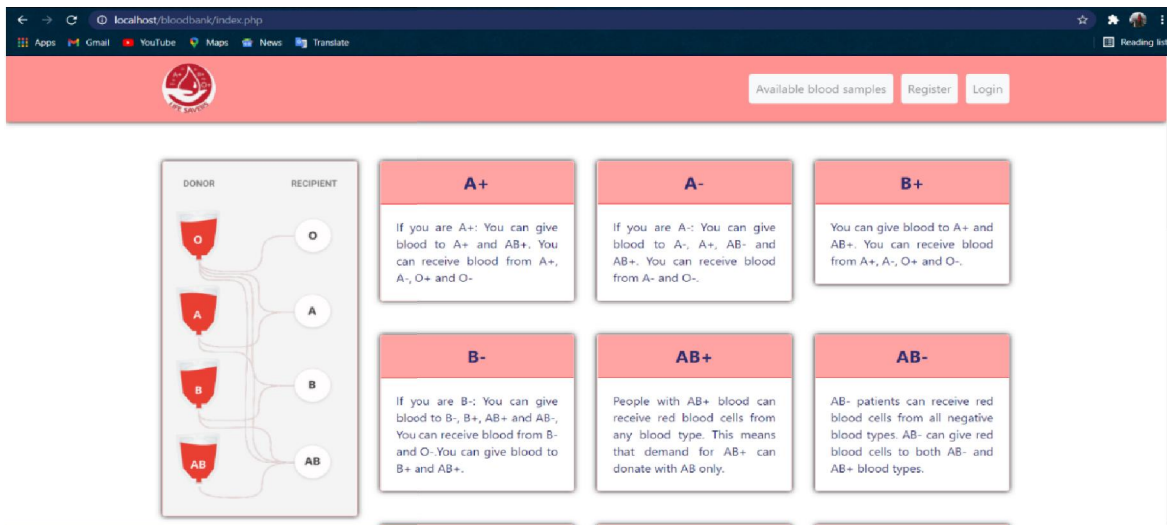
IV. FLOW-CHART



V. RESULTS

Below are the screenshots from the web application and their description.

- **Home Page:** The website's home page consists of navigation bar having available blood samples, login and register which redirects the user to the respective page of the website. Also it contains basic information about blood groups.



- **Login and Register Page:** The blood bank officer and receiver can visit the website's login and register page to create and log into their respective accounts. The account will be created by filling in some details which are used for further process.

Hospitals Receiver's

Hospital Email

Hospital Password

[Login](#)

[Don't have account?](#)

Hospitals Receivers

[Register](#)

[Already have account?](#)

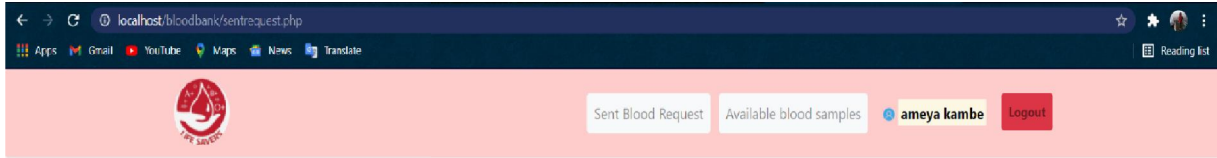
- **Availability:** Available blood samples shows the receiver the type of blood groups available for usage.

Select Blood Group:

[Reset](#) [search](#)

Available Blood Samples						
#	Hospital Name	Hospital City	Hospital Email	Hospital Phone	Blood Group	Action
1	Gandhi hospital	Delhi	gandhi@gmail.com	7865376358	B+	Request Sample
2	Unknown hospital	unknown	unknown@gmail.com	9876543267	A+	Request Sample
3	Orange City Hospital	Nagpur	orangecity@gmail.com	9752168762	A-	Request Sample
4	Orange City Hospital	Nagpur	orangecity@gmail.com	9752168762	AB+	Request Sample
5	Orange City Hospital	Nagpur	orangecity@gmail.com	9752168762	O-	Request Sample

- **Sent Blood Request:** here the receiver can send blood request to the hospital.



Sent Requests							
#	Name	Email	City	Phone	Blood Group	Status	Action
1	Orange City Hospital	orangecity@gmail.com	Nagpur	9752168762	AB+	Accepted	

- **Accept or Reject Request:** from the hospitals side the request can be accepted or rejected.

Blood Requests								
#	Name	Email	City	Phone	Blood Group	Status	Action	
1	arbaaz sheikh	arbaaz@gmail.com	Nagpur	9742565462	O-	You have Accepted	Accepted	Reject
2	nilisha bhishma	nilisha@gmail.com	Nagpur	9742563185	O-	You have Rejected	Accept	Rejected
3	ameya kambe	ameya@gmail.com	Nagpur	9742565462	AB+	You have Accepted	Accepted	Reject

- **Add Blood Info:** It is where the hospital can add information about the available blood samples.



Add Blood Group Available In Your Hospital

[Term & conditions.](#)
 Agree

Blood Group

Add

[Cancel](#)

Blood Bank

#	Blood Samples	Action
1	A-	Delete
2	AB+	Delete
3	O-	Delete

VI. CONCLUSION

The increase in population has contributed to the increase in the demand of blood and widen the demand and supply gap of blood donations. Many countries are constantly facing problems regarding the supply of blood to the people in need. Thousands of people lose their lives due to lack of proper communication between the blood banks, hospitals and receivers. Our project focusses on one of such problems that is blood donation and provides an alternative that could change the dynamics of how this process is carried out. From our research we can see a huge gap in the demand and supply of blood donations and to mend this gap we have successfully created an online web portal. This portal displays the blood samples available in the hospitals to the people in need. The receiver can not only view but also request the sample to the hospitals or blood banks directly. Technology has proven to be a boon and provides solutions to many problems faced by us. where the blood donors, the hospital and the receivers communicate directly to each other which can lead to easy access of blood to the receivers. Thousands of people in need of blood lose their lives due to improper communication between blood banks and the hospitals, this also leads to wastage of available blood inventory. The online web portal not only tackles this problem but also can mend the gap of supply and demand of blood. This process is thus less time consuming and very efficient.

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AUTHORS

- First Author — Dr. Manisha Khorgade , Department of Electronics and Telecommunication Engineering, Rajiv Gandhi College of Engineering and Research, Wanadongri-441110
- Second Author — Ameya Kambe, Department of Electronics and Telecommunication Engineering, Rajiv Gandhi College of Engineering and Research, Wanadongri-441110, ameyakambe@gmail.com
- Third Author — Arbaaz Sheikh, Department of Electronics and Telecommunication Engineering, Rajiv Gandhi College of Engineering and Research, Wanadongri-441110, A9518718290@gmail.com
- Fourth Author — Nilisha Bhishma, Department of Electronics and Telecommunication Engineering, Rajiv Gandhi College of Engineering and Research, Wanadongri-441110, niki29bhishma@gmail.com