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BLOOD DONATION MANAGEMENT SYSTEM USING ANDROID APPLICATION

ProfASHA JOSEPH[1], NISHAN BASNET[2], PRABIN KARKI[3], ANKIT BARAL[4], ZANGA THAPA[5]
[1,2,3,4,5]*Department of Computer science and Engineering, Bangalore Technological Institute, Karnataka, Bangalore, India*

ABSTRACT

Blood Donation Management System is an android application that brings voluntary blood donors and those in need of blood on to a common platform. The mission is to fulfil every blood request in the country with a promising android application and motivated individuals who are willing to donate blood. The proposed work aims to overcome the communication barrier between donors and receivers and aims to encourage people to donate blood by providing motivational videos and quotes in the app. This project will contain details about medical history of the donors and blood camps. We also aim to create misconceptions that people has regarding blood donation. This project aims at servicing the persons who seek donors who are willing to donate blood and also provide it in the time frame required. Blood Donation Management System tries to assist victims/patients/those in want of blood. It is an endeavour to achieve dead set these people in want of blood and connect them to those willing to donate. The proposed work explores to find blood donors by using the blood group and address they have filled during registration. The vision is to be "The hope of every person in search of a voluntary blood donor".
Keywords: *Blood Donation, Technology, Emergency Blood Requirement and Android Application.*

I. INTRODUCTION

Every year the nation requires about 4 Crore units of blood, out of which only a meagre 40 Lakh units of blood are available. There are multiple blood banks around the world, however none of them offer the capability for a direct contact between the donor and recipient [2]. A blood donation occurs when a person voluntarily has blood drawn donating blood may be of whole blood(WB),or of specific components directly. Today in the developed world most blood donors are unpaid volunteers who donate blood for a group supply. Donor can also have blood drawn for their future use. Today mobile based application has become a part of our daily life. With the revolution in mobile computing many features were added to the field [1]. This android application is developed to easily search the blood donor nearby at any emergency. Those who have registered in this app, their location, contact number and blood group along with other details with be displayed. The proposed work aims at servicing the persons who seek donors who are willing to donate blood and also provide it in the time frame required. This application allows donor to register their detail and along with their picture and previous date of blood donation (if within the three months' criteria). The application is monitored at all times so that the misuse of the user's privacy is maintained by the admins. The registration of the users must be confirmed by the admins for it to get updated in the database which prevents users from registering multiple times [1]. Direct involvement of the donor and the seeker saves time and life as sometimes the required blood may not be available in the blood bank and also the seeker has to purchase the blood required in the time of emergency.

II. Existing systems

In existing there is no proper care about the people who donate blood to patients [1]. In case if the donor has or had any medical problem and comes toward to donate blood to the patient then it may lead to threat. Hence medical history of donor should be updated. Medical histories would be like:

- A person who have anemia should not donate blood
- Donor who having diseases that are transmissible through blood are not request to donate blood.
- People who are unweighted for height from their height should not donate blood.
- Pregnant women or recent child birth women should not donate blood.

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Thus the above following reason are not updated in existing system. This type of information are not provided in existing system this may lead to dead in person. The donor and patient's body condition will not match at all the time. Here it contains two aspects (1) volunteer's location (2) the distance between the user location and volunteers. In most of the existing systems the donated blood may not be used and may expire after certain amount of time causing the wastage of blood [1].

III. PROPOSED SYSTEM

The proposed method is to create an android application in which the blood donors are available easily at required time. The donor who are all register in this application are show while searching for blood donation. The purpose of this application is donate blood while in case of emergency. The application also provides various information about donating blood and who are all willing to donate blood can register through this application. During the operation of the project, it was observed that availability of such information via Mobile Apps would help reaching a wider range of people [3].

A. System Functionalities:

Blood donation application update information about the blood donation camp.
The system provides authorized features so that the private and confidential data are only view by the authorized user.
The system will keep record of every donor.
By this the communication of various devices has improved, hence people can communicate anytime from anywhere through mobile. The purpose of this application is to develop blood donation services/camp and keep record of blood donor which is easy to distribute blood throughout country. The system contains a mobile phone with android os. The advance system is used to store information about the blood. Blood donation application mainly contain admin, donor,patient, database and application.

B. Types of Bloods:

Although all blood is made of the same basic elements, not all blood is alike. In fact, there are eight different common blood types, which are determined by the presence or absence of certain antigens Since some antigens can trigger a patient's immune system to attack the transfused blood. The donor blood type must be determined before the transfusion of blood [1].

TYPE	YOU CAN GIVE BLOOD TO	YOU CAN RECEIVE FROM
A+	A^+ , AB	A^+ , A^- ,O^+ , O^-
O+	O^+ , A^+, B^+ , AB^+	O+ , O-
B+	B^+ , AB^+	B^+ , B^- ,O^+ , O^-
AB+	AB+	EVERYONE
A-	A^+ , A^- , AB^+ , AB^-	A- , O-
O-	EVERYONE	O-
B-	B^+, B^-, AB^+ , AB^-	B- , O-
AB-	AB^+, AB^-	AB^- , A^- , B^- , O^-

- Group O can donate red blood cells to anybody.It is the universal donor.
- Group A can donate red blood cells to A's and AB's.
- Group B can donate red blood cells to B's and AB's.
- Group AB can donate to other AB's but can receive from all other.

C. Proposed System Architecture:

- **ADMIN**: The admin will add the details of the willing donors through surveys and data from various organizations. The admin will also keep track of the registered user and verify whether the user is fake or not. If the registered user is fake, then we can remove the user and we can also hide the registered user if the user is not eligible to donate.

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- **ACCEPTOR**: In case of emergency they can request for blood in which it gives information about the donors present in that city. After getting the information they can contact the donor.

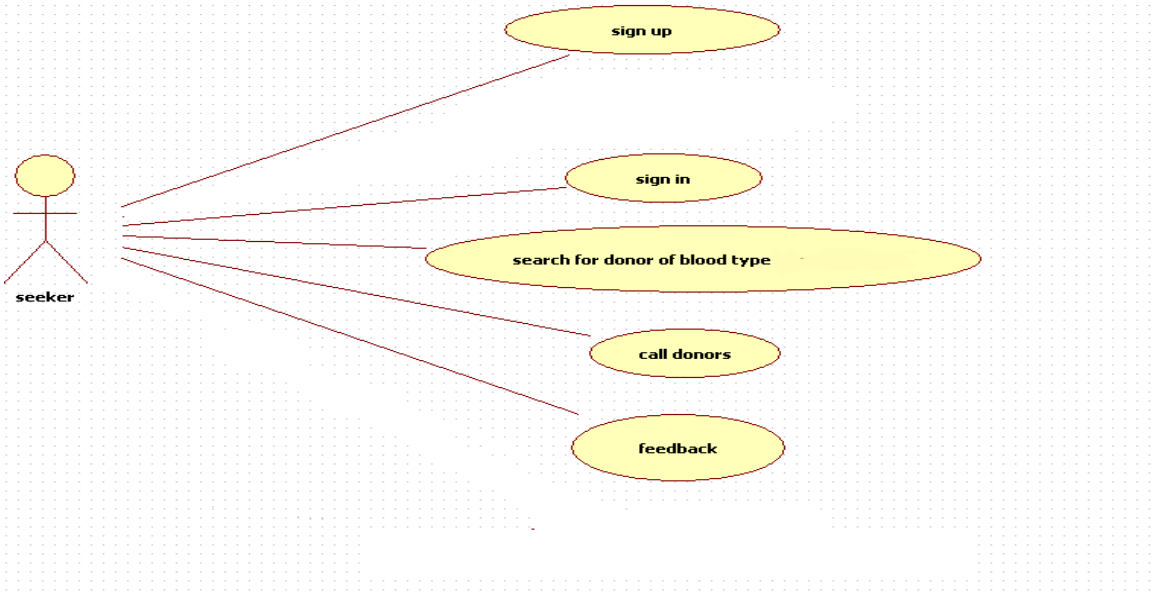

Fig 1: Use case diagram for Acceptor
Fig 1 shows the use case diagram of Acceptor/seeker. The following actions shown in the fig can be performed by them.

- **DONOR**: The donors will register their details in the application and whenever the blood is required they will be contacted by the acceptor within his/her specified city.

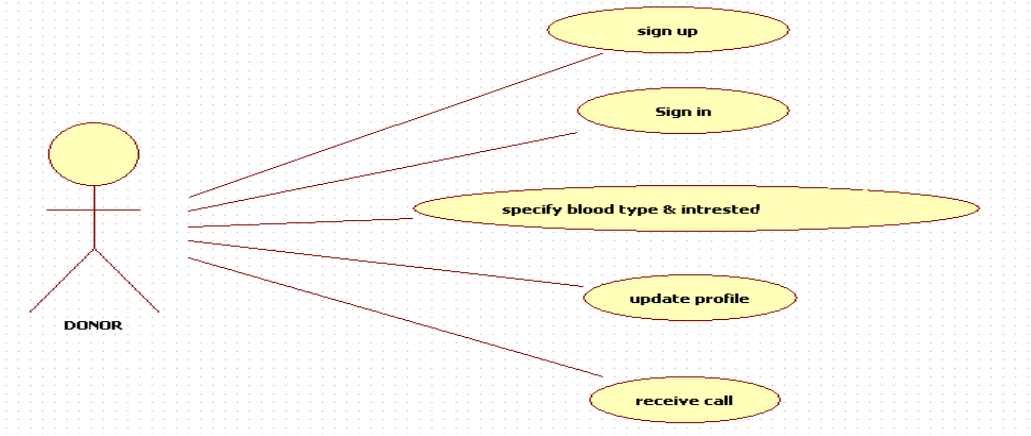

Fig 2: Use case diagram for Donor
Fig 2 shows the use case diagram of donor. The following actions can be performed by donor.

D. Advantages of Proposed System:

- Easy way to find the donors
- Less time
- No need to search blood canters and no need to wait in queue
- Users can find their specific blood group
- User can find donors contact details
- User can communicate with donor by making call or message directly to the donors by using the details provided in the application

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IV. RELATED DIAGRAMS

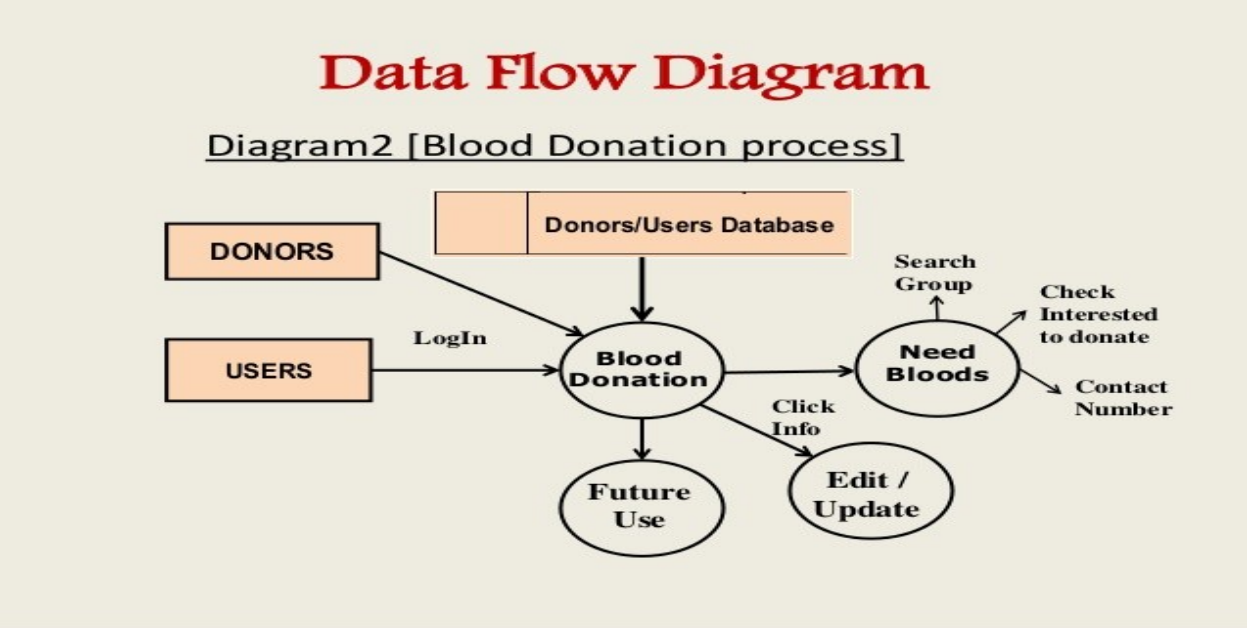

Fig 3: Dataflow diagram

Fig 3 shows Dataflow diagram of our project. The above fig shows various operation that can be performed.

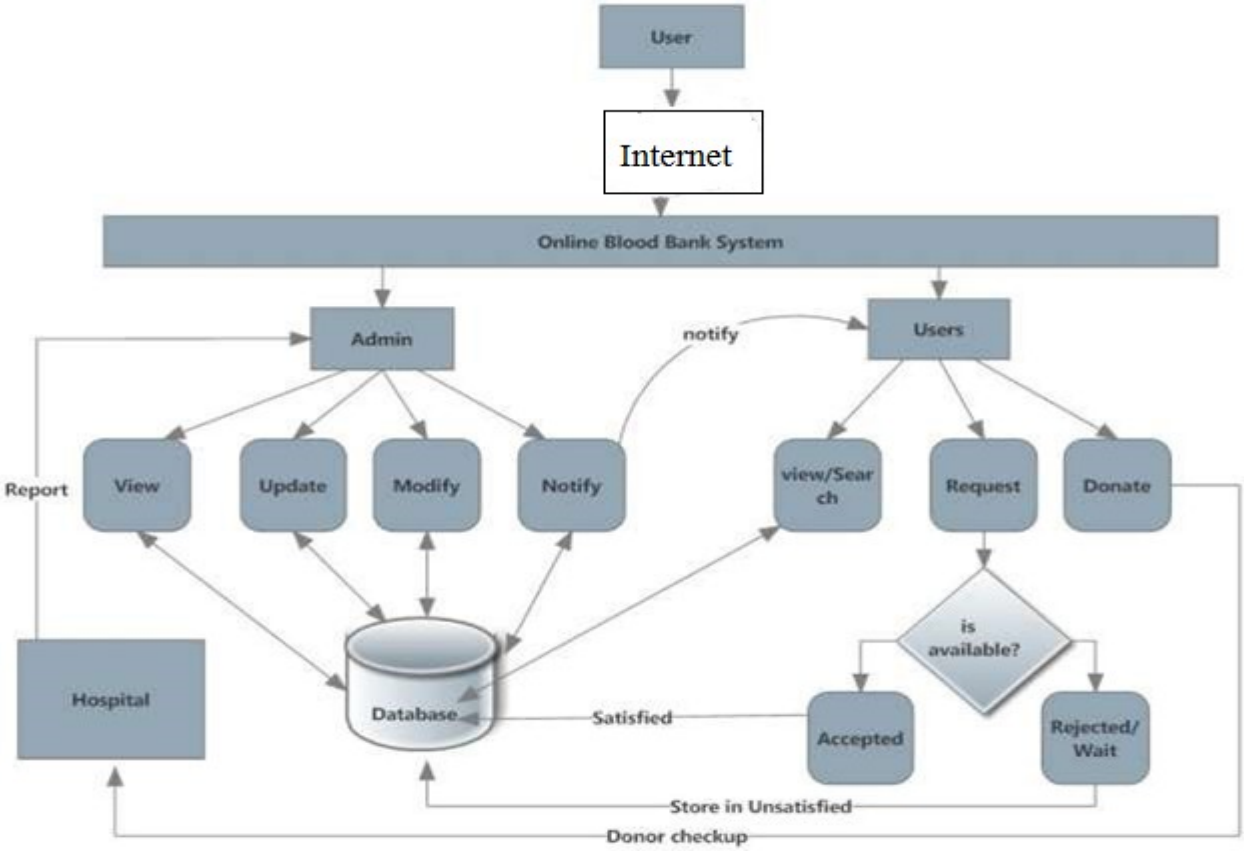

Fig 4: Architecture diagram

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Fig 4 shows the Architecture diagram. Our project contains two parts 1) admin and 2) users.

V. TECHNOLOGIES USED

A. My SQL database:

- MySQL is a database system used on the web
- MySQL is a database system that runs on a server
- MySQL is ideal for both small and large applications
- MySQL is very fast, reliable, and easy to use
- MySQL uses standard SQL
- MySQL compiles on a number of platforms
- MySQL is free to download and use
- MySQL is developed, distributed, and supported by Oracle Corporation
- MySQL is named after co-founder Monty Widenius's daughter: My

The data in a MySQL database are stored in tables. A table is a collection of related data, and it consists of columns and rows [8].

B. PHP:

- PHP is an acronym for "PHP: Hypertext Pre-processor".
- PHP is a widely-used, open source scripting language.
- PHP scripts are executed on the server.
- PHP is free to download and use [8].

What is a PHP File?

- PHP files can contain text, HTML, CSS, JavaScript, and PHP code
- PHP code are executed on the server, and the result is returned to the browser as plain HTML
- PHP files have extension "php"

C. CSS:

- CSS stands for Cascading Style Sheets
- CSS describes how HTML elements are to be displayed on screen, paper, or in other media
- CSS saves a lot of work. It can control the layout of multiple web pages all at once
- External stylesheets are stored in CSS files[8].

D. Android:

Android is a mobile operating system developed by Google, based on a modified version of the Linux kernel and other open source software and designed primarily for touchscreen mobile devices such as smartphones and tablets. In addition, Google has further developed Android TV for televisions, Android Auto for cars, and Android Wear for wrist watches, each with a specialized user interface. Variants of Android are also used on game consoles, digital cameras, PCs and other electronics.

Initially developed by Android Inc., which Google bought in 2005, Android was unveiled in 2007, with the first commercial Android device launched in September 2008. The operating system has since gone through multiple major releases, with the current version being 8.1 "Oreo", released in December 2017.

Android has been the best-selling OS worldwide on smartphones since 2011 and on tablets since 2013. As of May 2017, it has over two billion monthly active users, the largest installed base of any operating system, and as of 2017, the Google Play store features over 3.5 million apps [8].

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Fig 5: **HTC Dream**
Fig 5 shows an android device.

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