Blood Tracker : Online Blood Bank Management System using Android Application

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Abstract

Blood is a fluid that carries oxygen *and* is considered as a connective tissue which carries other elements because it has matrix. Now, as we know the importance of blood, the role of blood is not only to carry the oxygen to the tissues but also it takes away carbon dioxide from the tissues through heart and the vascular system. An average blood donation volume is limited to 470ml /person and it is only 8% of the volume of an adult. In the hospital, most of the cases, when blood is a requirement for blood it couldn't be provided on time causing uneven things. Even if the donor is available in the hospital, patients are unaware of it, and so are the donors due to lack of communication and other assistance. In order to resolve the communication gap among the hospitals, blood banks, donors, and receptors such a system is important. The system mainly compromises of things which includes price variations along with stock handlings, increase in blood types which may lead to increase in human blood infrastructure and categories to be managed. This project is developed with an aim where users can view the knowledge of nearby hospitals, blood banks and also the three important perspectives which includes the hospital, blood bank and patient/donor. In this system we've provided security with authentication where users have to login if already registered or as a brand-new user must register per their form of perspective. This project requires internet connection so as to fulfil the necessities. The system will confirm that just in case of need, the blood is made available to the patient. This paper is targeted on Online Blood Donation Management System which is an android application with supporting mobile application aimed to function a communication tool between patients (who need blood) and donor.

Keywords: Online Blood Donation Management

1. Introduction

The numbers of persons who are in need of blood are increasing by large numbers day by day. As blood is one of the important constituents of the physical structure.[1] So to help those who are in need of blood, "Blood Tracker" is utilized effectively for getting the small print of blood donors having the identical people and within the identical city. With the assistance of "Blood Tracker" those who are having the thought of donating blood can get registered in "Blood Tracker" giving the desired details. "Blood Tracker"

application is obtainable to everyone easily. A person who likes to donate blood possesses to convey his entire details i.e., fill within the registration form and might create a username with a password by which he can modify his details if the tiniest amount bit there are any changes in his information given before. Through "Blood Tracker", a user can register as a donor and can also register for blood donation camp so we'll help them to rearrange the blood donation camps as per their need. One can give entire details i.e. fill within the registration form and hospital may register for bank with entire details so as to help further.

This application also helps those who are in need of blood by giving them certain information of the donors by searching, if the littlest amount bit there don't seem to be any donors having the identical group and within their own city they're visiting tend the addresses with phone numbers of some contacted people in major cities who represent a club or a corporation with freed from cost. As there's a situation where whether or not the donor is on the market within the hospital, patients are unaware of it, and then are the donors. [1] During this application the needy people can find the small print of blood banks as per their location nearest to them. If anyone finds any difficulty in getting blood from the contacted person, we'll give them the contact details of Admin, he can contact the person via phone who is in need of blood. Such a personal gets help from us which saves his life. The foremost aim of this method is to induce an e-Information about the donor/receptor and organization who have an interest in donating/receiving blood.[6] Using this application, someone who is truly curious about donating blood can register himself with an analogous way and even if any organization wants to register itself with this site they can also register here with an ease. Moreover, if any general consumer wants to create request for blood there arises situations where the donor still because the receiver cannot connect one another being within the same hospital, city, town still. In the hospitals, most of the time when there is need of blood, it is because of emergencies which may sometimes result in difficulties. The main motto of this system is to reduce the gap between the donor and the receptor and help them with an ease. So, if someone needs blood, they may take the help of this method. In this application admin is the one who has the rights regarding the addition, deletion, and modification designed to mainly store, process, retrieve and analysis information concerned with the manager or the admin and inventory management along the bank.

The main aim of this project is to maintain all the data regarding the blood donors, different blood groups available in each bank and which helps them to manage the system in a better way.[2]

2. Existing System

This project acts as an awfully important role in saving the lifetime of the one in need of blood and which is additionally its main aim. This method is developed so as that users can view the information about registered blood donors like name, address, and other such personal information along with their details of blood group and other medical information of donor. So as to cross verify and also safety purpose a donor or a receiver must provide their details together with certain documents which can include Aadhar card, pan card or guardian's information for a minor cohort. The project consists of a login page where the user should register so only, he/she can view the availability of blood and will also register to donate blood if he/she wishes to. Also, the donor or receiver are presupposed to provide their blood reports and a few other health related documents for security purposes. This project requires internet connection to access the main points and thus there may sometimes be a drawback of internet failure. [3] There's style of research work

that has been done to integrate the data required to check the supply of blood, health sector, and social media.[1] In existing systems, the given people and quantity is saved for within the Firebase database, where altogether the little print of the bank data has been stored. The results contain the essential information of the blood banks that have that specific people, ordered by the geographical proximity. In spite of the obtainability of the potential blood donors but 10% of the general Indian population donates blood. Advancement in natural science has increased the blood demand and it's found that blood-donors usually don't come to grasp about the requirement for blood. These causes inspire us to grow a stronger system which will assist the present blood donation system.

3. Limitations of the Previous Systems

In the previous systems searching was in dire straits donors within the majority of cities but not for each city. Many a times the contact person's details were received but weren't sufficient again and again. Due to lack of connectivity these services can't reach the agricultural, village areas. Data connection isn't economically viable to poor citizens. Therefore, the applications were also not available in offline systems.[7] Also, sometimes it absolutely was difficult to get in touch with the hospitals in emergency situations. There was no centralized database of volunteer donors. So, it became really tedious for one to travel searching for blood just in case of emergency. The only option in such situations is to manually looked for donors, match and then make phone calls to every donor. Details regarding the donor, hospital or even donor details were available within the applications but weren't sufficient.

4. Proposed System and its Advantages

Features

All the records and data received or used are computerized and are now persistent. Manual calculations are automated. Access to all or any sorts of records made it easy. This technique will reduce the complexity to create the supply of blood sufficient. It'll even be feasible to analysis what number users have donated similarly as hospitals who have registered and asked for blood units.

Advantages of Proposed System

This system is User-Friendly as anyone can use it easily and interactive.

- This system helps to avoid wasting time to visit hospitals and to fill out blood donation forms. It is time saving with no complexities.
- It's a knowledge Security and backup facility and has easy navigation through records provided.
- Records/Information are easily approachable with 24 x 7 availability.
- It's a vital to higher component design to urge better performance at peak time. Creates and manages new users easily.
- Provides security to data through authorization.[3]

User Registration

During this phase the user needs to first go through the registration process where in he has to fill his details like name, registered address, contact number, blood type, age where he/she should fill his medical information within the form. [4]

Request Blood

This is the second innovate which the user who needs blood needs to request blood by giving his/her details like required people, contact number of the user, current location of user (which are going to be fetched by the applying automatically), once requested, the list of the nearby donor's will get displayed and also are going to be notified.

Donor

This is the third innovate which the blood donor will get the notification of the blood request of the nearby blood request or (user) and the contact details of the request or are going to be displayed on the applying. Apart from this, the donor may donate the blood anytime as per his/her convenience on their will, by using the applying.

5. Stakeholders

Stakeholders are the folks who are accountable for the success of the organization. Stakeholders are the most source of information/knowledge to provide feedback and contribute to the development of the organization further.

Following are the stakeholders of the organization:

(1) Admin

Admin manages donors & System User. He/she can add or remove any user from the system anytime whenever required and also carry out other necessary actions required.[5]

Each member is a donor & system user and Blood Tracker are given with a user id and password, which helps to identifies him/her uniquely. Using the admin module, one can change donor details, also delete donors or change the password as per the need.

(2) User

Using this module one can create an account, when he/she creates his/her account and gets a user id and password which identifies him/her uniquely. So here the someone can easily search another user for blood and can also refer his friend to become a donor/receiver. Donors can also get information like when they can donate blood or when they will be able to donate blood.[5]
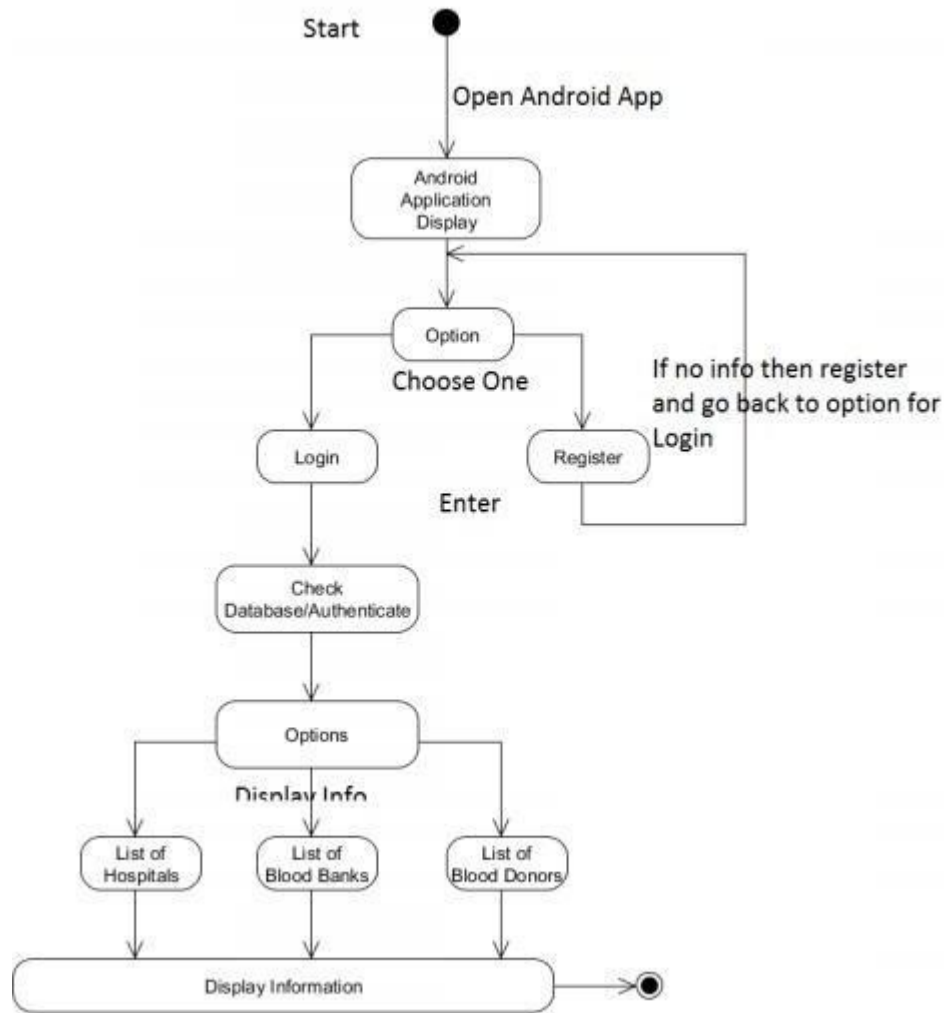
Figure 1: Flow Diagram of the System

When a user starts the application (refer Figure 1) he/she needs to choose one in every of the choices login if they need already registered as an alternative register if a brand- new user. Then they will check the choices like list of hospitals, blood banks, donors, etc. And obtain the desired information from the applying. If one wishes to donate blood then he can provide his details through which the receiver can contact. If someone needs blood, they will check the supply of blood and ask the admin regarding the identical.[8]

List of Tables with Attributes and Constraints
Users & Admin Tables

Fields	Datatype	Description
Name	String	Holds the name of user, donor, hospital, admin ,etc
email	String	Holds the email of user
U-id	number	States users id
password	String	Holds of the password of the user
gender	String	Holds gender of the user
Contact no	Number	Holds contact of the user
Blood group	String	Holds blood group of user
Location	String , number	Holds location of user
DOB	Number	Holds Date of birth of user
Update stock	Number	Holds amount of blood stock
Address	String	Holds address of user
City &state	string	Holds amount of blood stock

Figure 2: Description of Fields and Data-type in the System

Database Table

List	Datatype	Description
Blood camp	String/int	Holds information about blood camp
Donor /user register	String/int	Holds information of user
Hospital register	String/int	Holds information of hospitals
Request blood	String/int	Holds information about users who need blood

Figure 3: Description of Fields and Data-types of Database in the System
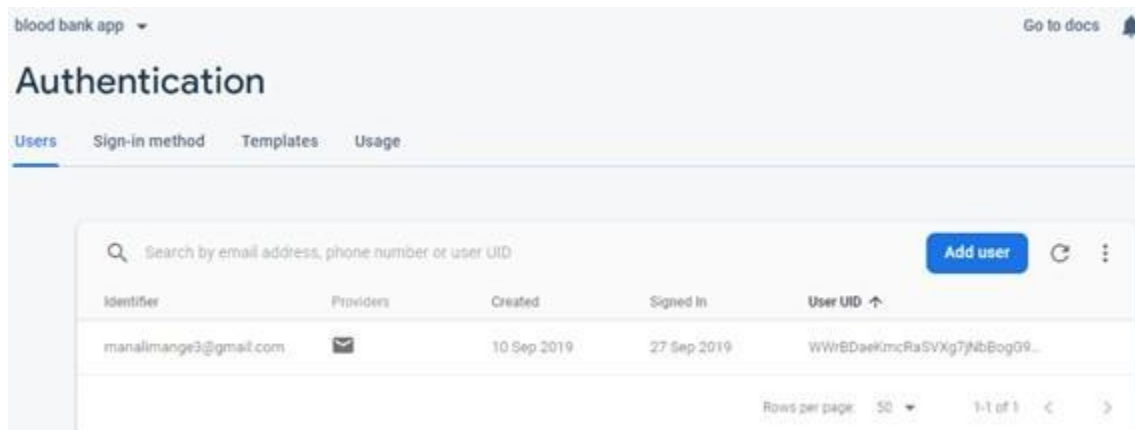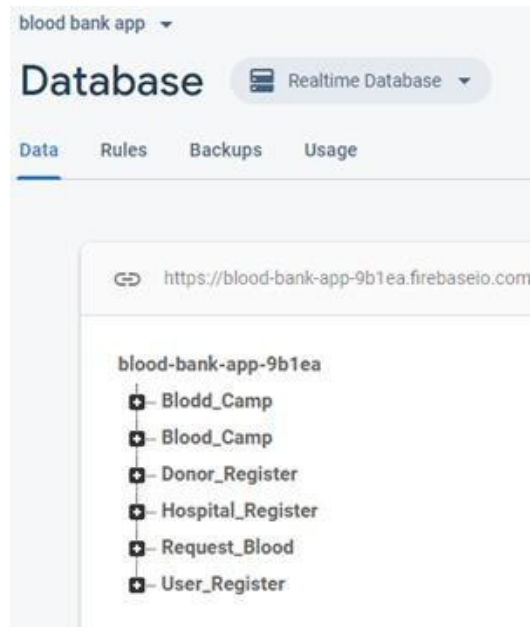

Figure 4: Authentication of the System

Figure 5: Real-time Database of the System

Figure 6: Database Entries of the System

6. Future Scope

- Some of the future scopes that can be done to this system are:
- To provide a stronger platform for the users to look at the closest blood donors, hospitals, and blood banks anywhere as well as anytime so that they can connect there easily.
- Providing the system with GPS, which is able to help blood seekers to seek out hospitals, blood donors, and blood banks nearer to the placement from where the request for the blood is generated to avoid wasting their time.
- Developing a very friendly design which will lead the user to every module very easily without any difficulty.

- Adding features to the system where the user can also sync the data for later use in case of no internet connection.

7. Conclusion

The proposed system provides an Android based application which is extremely useful at Emergency Services i.e. at the time of Blood Donation, insertion, etc. this method provides a more robust thanks to communicate with blood Donors. The system provides a more robust thanks to communicate with blood banks. It's also ready to maintain reports like stock, blood requirements, etc. It's easy to keep up the records through a database of the registered Donor's. It also provides us knowledge about the most recent technology utilized in developing android based applications.

Acknowledgment

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