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## SMART BLOOD DONOR FINDER ANDROID APPLICATION

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**Abstract:** Blood is an emergency need for some situations. The problem is that finding the right donor at the right time is a very difficult task in an emergency situation. We want to build an application for donors who can help each other during an emergency. This application timely updates the information with respect to the donors where the decision maker accesses the entire information about the blood bank system. Donors will be prompted to enter an individual's details, like name, phone number, and blood group. In the urgent need of a blood requirement, you can quickly check for blood banks or hospitals matching a particular or related blood group and reach out to them through the App using geofencing and filtering techniques. Blood bank details displayed on the user screen to select proper requirements for the user. If blood is unavailable at blood banks then users search for donors in a nearby area. A large number of blood donors are drawn in using an Android application. Since almost everyone conveys a mobile phone with him, it ensures present location tracking and communication. Only a registered person, with the disposition to donate blood, will be able to access the service. In this application we are using the GPS technology that will be used to trace the way to the blood bank. The user will get the route to reach the desired location and he won't have to ask manually, therefore time can be saved.

**Index Terms** - Component, formatting, style, styling, insert.

### I. INTRODUCTION

In today's rapid processing scientific world technology has become a very important aspect of life. Today's generation is more dependent on advanced technology than any other aspect. Today, most people use advanced technologies in their daily life like the Internet, Smartphone. So, the idea mentioned in this paper will make the process of blood bank less time consuming by gathering all information of donor and receiver. In these applications there will be modules for donor, Receiver, and blood bank. Donor and receiver must register himself to use this improved system. For the Receiver, no need to call in every blood bank to check the blood availability. In the improved system only the admin can check. Blood banks will send notification to donors regarding Donation camps or Emergency donation. The development of a Blood Donation System depends on android-based application. System has an admin which acts as a server to match donors and patient pairs compatible by using rule-based knowledge. All Clinic Systems should have a patient or receiver and donor information control matcher system. Donors add their details in the system, so users identify the proper donor. Blood details and hospital details are also added by system, so their data and blood availability are also available for users. Login and registration are also provided for users, donors, and blood bank systems. After adding all data by donors and blood banks the data is available for users to further use. Google map is integrated in an android application, so users find the donors using geofencing technique. User input data as blood group and distance to find nearby donor. And all the donor data such as blood group, hemoglobin, age, health status is available for users. User can directly contact the donor through an android application.

### II. LITERATURE REVIEW

This project aims to create a web application known as cloud application for android mobiles. The sole purpose of this project is to develop a computer system that will link all donors. The system will help control

a blood transfusion service and create a database to hold data on stocks of blood in each area as data on donors in each city. Furthermore, people will be able to see which patients need blood supplies via the website. They will be able to register as donors and thus receive an SMS from their local clients who need blood to donate blood in cases of need. The website will help develop public awareness amongst its visitors of the hospitals' need for blood to supply the appropriate donors. Blood is a saver of all existing lives in case of emergency needs. The task of a blood bank is to receive blood from various donors, to monitor the blood groups database and to send the required blood during the need to the hospital in case of emergencies. The problem is not an insufficient number of donors but finding a willing donor at the right time. We want to build a network of people who can help each other during an emergency. This application timely updates the information regarding the donors where the administrator accesses the whole information about the blood bank management system. Donors will be prompted to enter an individual's details, like name, phone number, and blood group. In the urgent time of a blood requirement, you can quickly check for blood banks or hospitals matching a particular or related blood group and reach out to them through the App. Blood bank App provides a list of blood banks in your area. Many blood donors are attracted using an Android application. Since almost everyone carries a mobile phone with him, it ensures instant location tracking and communication. Only a registered person, with willingness to donate blood, will be able to access the service. In this application we are using the GPS technology that will be used to trace the way to the blood bank. The user will get the route to reach the desired location and he won't have to ask manually, therefore time can be saved. We have proposed an efficient and reliable android blood bank application. The service provided by the proposed system is needed and valuable to the health sector where the quality of blood is considered for the safety of the patient. The donor will get himself registered through these improved systems. In case of emergency requirement, the blood donor can place a request. The wireless internet technique enables the flow of data to work more rapidly and conveniently.

### III. ALGORITHMS

#### 1. Haversine Algorithm

The Haversine formula is a popular algorithm used to calculate the distance between two points on the Earth's surface, given their latitude and longitude coordinates. It considers the Earth's curvature and provides accurate distance calculations. You can use this algorithm to calculate the distance between the user's location and the locations of potential blood donors in your database. Haversine algorithm is commonly used to calculate the distance between the user's location and the potential blood donors. It is an algorithm that accurately calculates the distance between two points on the Earth's surface, given their latitude and longitude coordinates. The Haversine algorithm considers the Earth's curvature, which affects the distance calculations. It considers the spherical shape of the Earth and provides a more accurate estimation of distances compared to simpler geometric formulas like the Pythagorean theorem. Haversine formula • Haversine formula to find nearest blood bank and donor. • The Haversine formula calculates the distance on spherical earth using latitude, longitude, and radius of earth. • Following is Haversine formula: let = lat2 – lat1 (1) long = long2 – long1 (2)  $d = 2R \cdot \arcsin(\sin(\text{let}/2) + \cos(\text{lat1}) \cdot \cos(\text{lat2}) \cdot \sin^2(\text{long}/2))$  (3) Where: d = distance between the user and blood bank or donor. R= radius of earth. The above is the haversine formula with the help of which we can calculate the straight-line distance, where longitude and latitude are spherical coordinates. These spherical coordinate points are retrieved from Google API.

Step 1: the difference between the latitude of any two blood banks or blood bank and user is calculated.

Step 2: to calculate the difference between the longitude of any two blood banks or blood bank and user.

Step 3: The straight-line distance is calculated

#### 2. Haversine in smart blood donor finder application

The algorithm takes as input the latitude and longitude coordinates of two points: the user's location and the location of a potential blood donor. It converts the latitude and longitude values from degrees to radians, as trigonometric functions typically work with radians. Using the Haversine formula, the algorithm calculates the differences in latitude and longitude between the two points. It applies the Haversine formula to these differences, along with the radius of the Earth, to calculate the central angle between the two points. Finally, it multiplies the central angle by the radius of the Earth to obtain the distance between the two points. The result is typically expressed in kilometers or miles.

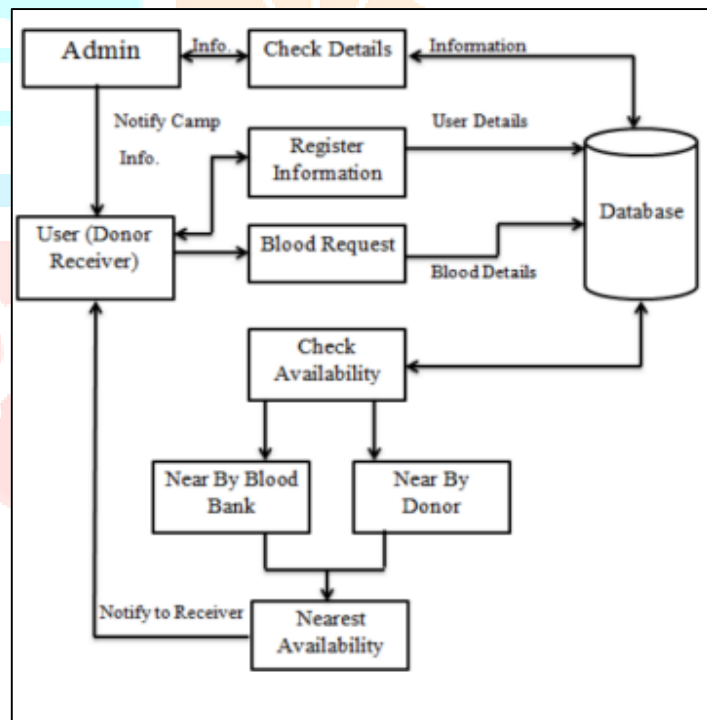
### IV. RESEARCH GAP

Many existing donor finder applications primarily focus on urban or densely populated areas. Research could explore how these applications can be optimized to reach and serve rural or remote communities where access to blood donation centers may be limited. Research could examine strategies to increase user

engagement, retention, and motivation to donate blood regularly. Research could utilize quantitative metrics (e.g., number of donations facilitated, lives saved) and qualitative feedback from users and stakeholders.

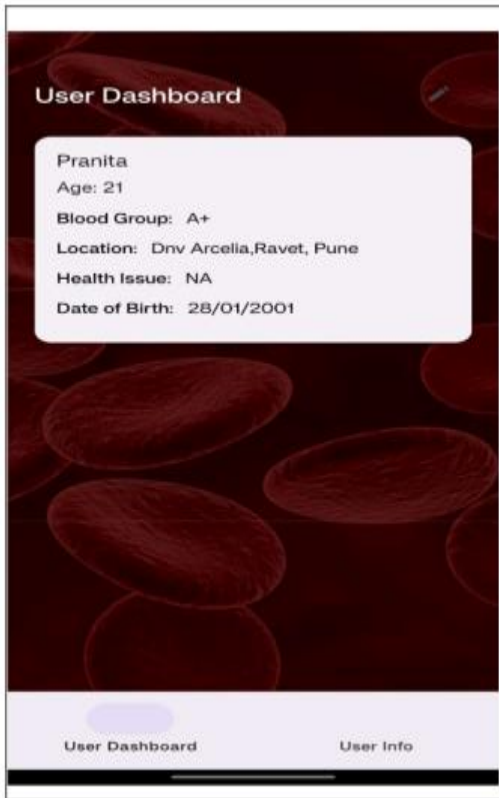
### V. PROPOSED SYSTEM

We have proposed an efficient and reliable smart blood finder application. The service provided by the proposed system is needed and valuable to the health sector where the availability of blood is considered for the safety of the patient. The donor will get himself registered through these improved systems. In case of emergency requirement, the blood donor can place a request. The wireless internet technique enables the flow of data to work more rapidly and conveniently. The most significant results of this study are: Manage the records of donors, blood banks, and recipients. Each Blood bank can register on the website and make its own account that contains information about the blood bank. Encourage voluntary blood donations. Make it easier for donors to find the appropriate recipients to whom to donate blood by searching on the website by blood type. Ease the distribution of blood in various hospitals. Hospitals, donors, and recipients can add their own comments in the feedback section about the website. Educate the community on the benefits of blood donation.

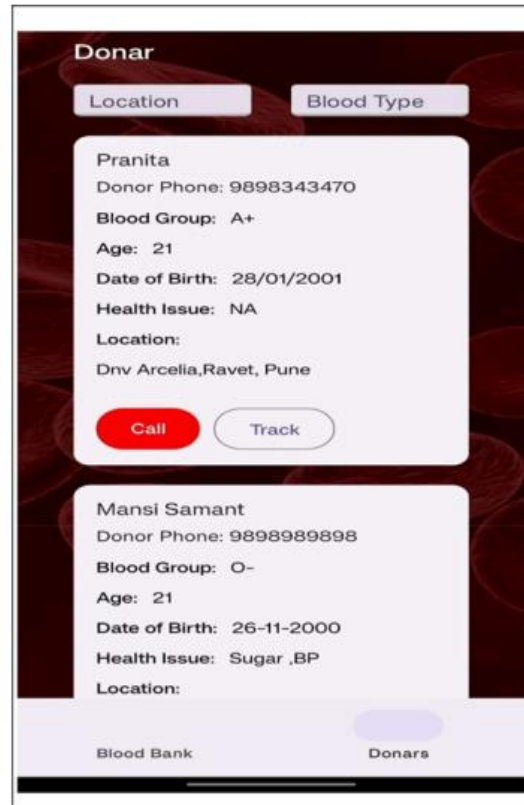


1.architecture diagram

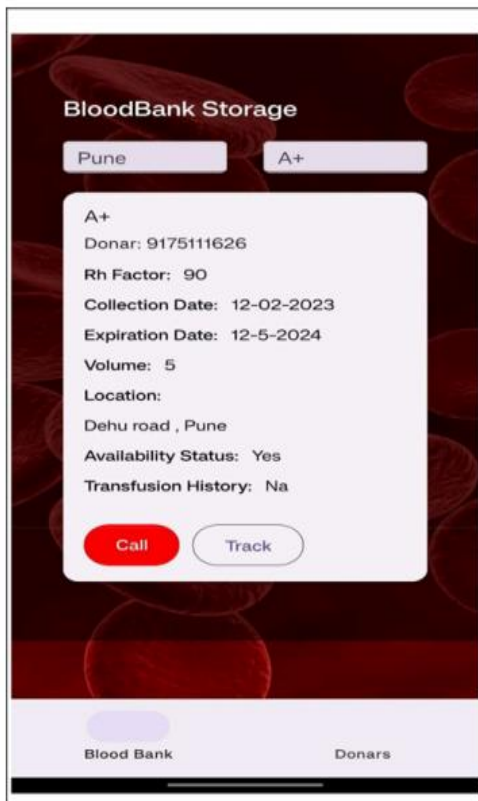
# VI. RESULTS



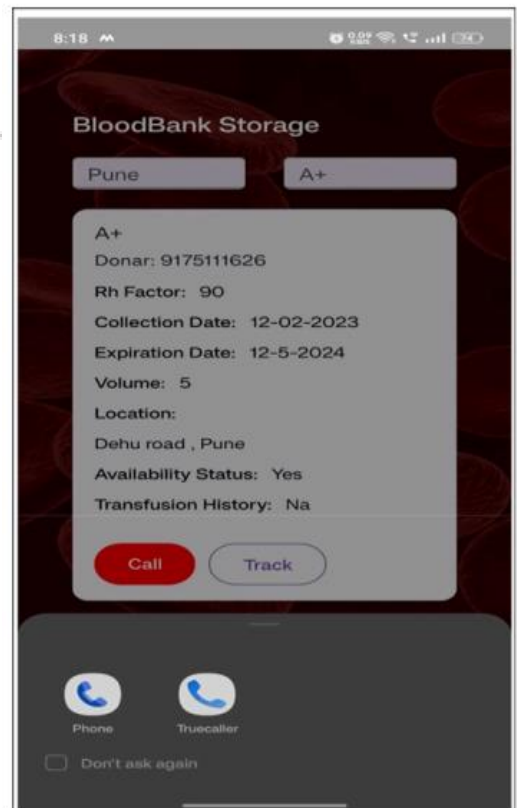
1.user dashboard



2. nearest donor



3.nearest blood bank



4. contact feature



## VII. CONCLUSION

The goal was to achieve the system which will reduce the time required for collection of donor information. Our proposed system provides an easier way for the one who needs blood. Proposed system focused on providing the blood as immediately as possible by checking the nearest blood bank and nearest donor. Also, the donor donates the blood when such donor needs the blood the discount is given to such donor. Thus, the proposed system provides appropriate information in less time as compared to traditional methods of searching blood banks and donors which included practices like man-to-man communication, hoardings, and paper pamphlets and hence, clubs with today's high demanding blood requirement.

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