Android Blood Bank

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Abstract: Blood is a saver of all existing lives in case of emergency needs. The task of 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 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 blood bank management system. Donor 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 list of blood banks in your area. A large number of 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.

Keywords: Blood bank, Android, Blood transfusion, Database, Donors, Acceptors, Administrator, Geographic information System.

I. INTRODUCTION

The blood is specialized bodily fluid that delivers necessary substances to the body's cells such as nutrients and oxygen. Blood banking is a cache or bank of blood or blood components, gathered as a result of blood donation, stored and preserved for later use in blood transfusions. In addition to this, the blood type of patients also needs to be determined for compatibility sake for a blood transfusion. It is possible in some situations that the patient is unable to get the required amount of blood at right time due to lack of interrelationship in form of a networked database among the blood banks which leads to the lack of knowledge of updated record of all blood donors. Today mobile and mobile based applications have become a part of our day to day life. With the revolution in mobile computing many great features were added to the field and the mobiles got smaller, faster and better as the decade passed. This Android application is developed to easily search for blood in nearby areas for emergency. In this Android app one will get clear access to blood in real time and right place.

II. LITERATURE SURVEY

(i)Literature Review:
The Optimization of Blood Donor Information and Management System by Technopedia.
Blood is a saver of all existing lives in case of emergency needs. P. Priya, V. Saranya, S. Shabana, Kavitha Subramani[1] has proposed an extended web application to timely update the information regarding the donors, acceptor and patients where the administrator access the whole information about blood bank management system. Also the proposed work has security, to protect the contact details of the donors in web application where it can be misused by third parties. It also maintains the amount of each available blood groups, if the stock of a particular blood group is lower than the required amount then the proposed method notifies the donor to donate blood. In addition to web application, an android mobile application is proposed to search the donors who are available nearby during the emergency cases such as accidents. The web based android application is readily scalable, efficient and adaptable to meet the complex need of blood bank who is key facilitators for the healthcare sector.

A Survey Paper on E-Blood Bank and an Idea to use on Smartphone.
Blood is an important aspect for all living things. It proves to be a lifesaving component in case of emergency requirement. None of the online blood bank offers the direct contact between donor and blood bank. This is the major drawback of the existing system. Existing systems are time consuming; require more manpower and it is costly.

Tushar Pandit, Satish Niloor, A.S. Shinde[2] has introduced comparison between existing system and improved system. The new idea will improve the existing system and it will move from conventional desktop system to mobile system. E-blood bank is an integrated blood bank automation system. The main purpose of E-blood bank is to interconnect all the blood banks of the state into a single network, validation, storage and circulation of various live data and information by using computation technology. The data which is stored on the computing devices will help the public for easy access to the blood

availability status in blood banks on fingertips so that he can place a request or notify particular blood group in nearby blood bank save a valuable life.

Blood Bank Management Information System in India.
Vikas Kulshreshtha Research Scholar, Dr. Sharad Maheshwari[3] has introduced the review of the main features, merits and demerits provided by the existing Web-Based Information System for Blood Banks. Blood is universally recognized as the most precious element that sustains life. It saves innumerable lives across the world in a variety of conditions. A blood bank is a place designed especially for the storage of blood and blood products. The term ''blood bank'' typically refers to a division of a hospital laboratory where the storage of blood product occurs and where proper testing is performed to reduce the risk of transfusion related events. Large coolers hold these products at a constant temperature and they are available at a moment's notice. The blood bank management information system offers functionalities to quick access to donor records collected from various parts of the country. It enables monitoring of the results and performance of the blood donation activity such that relevant and measurable objectives of the organization can be checked. They are providing the efficient search who needs the blood in their own city as fast as possible.

(ii) Existing System:
Blood Connect:
Blood cannot be manufactured in factories; it can only come from generous donors. To cater to this demand, Blood Connect was launched on 1st April, 2010 (as a project under NSS IIT Delhi) with an unparalleled objective of solving the problem of blood shortage in India.

According to WHO data, India faces a shortage of 3 million blood units. This shortage can easily be eliminated if only an additional 2% of India's youth donates blood. To make this possible, Blood Connect acts as a channel connecting voluntary blood donors with those who need blood.

It is a youth-run organization and provides free help and specially works to target the poor and the needy. Since its inception, the organization has grown a lot in terms of working for this cause. Blood Connect has developed a 360 degree solution to the problem of blood shortage.

The model revolves around 4 focal points:
- Ensuring continuous, sufficient blood supply to blood banks
- Improving awareness
- Helping those in need
- Establishing a network of youth

E- Blood Bank:
This application helps you find people donating blood in your area. You can contact them through phone number or email address.

You can see the location of user in map and if register yourself with App, you can get push notification in case your blood group matches with the need of blood. You can find nearby hospitals and access them.

Features:
- Find donor with your specific blood group and with your respective states and cities.
- Send notification: This will help you know who all are having the same blood group in your local area.
- Find nearby hospitals in maps.
- Provided helpline numbers in case of emergency.

III. PROPOSED SYSTEM

One has to download the application. After downloading the application, registration form appears. For registration basic details like name, address, contact, date of birth, blood group, email id, emergency contact etc are needed. If the person has already registered, then he/she has to login. If he does not remember his password he can click on 'Forgot password' button which sends SMS containing his username and password to the registered number.
The user gets various options on screen:

- Blood banks
- Blood camps
- Search donors
- Organize blood camp
- Search nearby places
- Requirement for blood
- Request for blood
- Speed dial
- Medical first aid
- Profile update

Block diagram
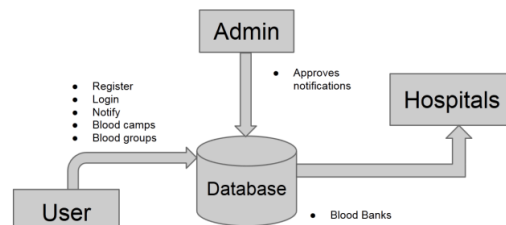
The user can search for blood banks and blood camps. He can view other people who have already registered and he can search donors by location or type. He can organize blood camps by specifying the venue and date of the activity. This information is added in blood camps. By using GPS 'Search nearby places' searches nearby hospitals and also gives the direction to the hospital. The user can also request for required blood by giving any small description. This request is submitted to admin who accepts or rejects the request. Accepted request is published by admin. The registered user gets notification of this published request. This information about the

request is added to 'Requirement for blood' option. The user can also check various first aid details. He can update his own profile.

IV.   METHODOLOGIES

Android Studio:
Android Studio is the official integrated development environment (IDE) for Android app development, based on IntelliJ IDEA. Android Studio is designed specifically for Android development. It is available for download on Windows, MAC OS X and Linux, and replaced as Google's primary IDE for native Android application development. Android Studio offers flexible Gradle-based build system, code templates to help you build common app features, rich layout editor with support for drag and drop theme editing, built-in support for Google Cloud Platform, making it easy to integrate Google Cloud Messaging and App Engine and much more.

Android Studio features a new and improved interface design perspective where you can view the interface you are working on and its related components.

Android Studio provides a number of user interface tools to assist you with creating layouts, implementing style themes, and building graphic or text resources for your app.

The Android build system is the toolkit you use to build, test, run and package your apps. The build system can run as an integrated tool from the Android Studio menu and independently from the command line.

PHP:
PHP is a server-side scripting language designed for web development but also used as a general-purpose programming language. It is used to create dynamic Web pages, or Web pages that update and display information depending on the user's activity. PHP code is interpreted by a web server with a PHP processor module, which generates the resulting web page: PHP commands can be embedded directly into an HTML source document rather than calling an external file to process data. . PHP can be deployed on most web servers and also as a standalone shell on almost every operating system and platform, free of charge. There are four major advantages when using PHP: accessibility, compatibility, simplicity and extensive community support. Because PHP is open source, access has no restrictions. Programmers interested in using PHP only need to download the scripts, without paying a single cent.

Session support in PHP consists of a way to preserve certain data across subsequent accesses. This enables you to build more customized applications and increase the appeal of your web site.

PHP is designed to work well with the web, and so things like accessing the GET and POST and working with

HTML and URLs are built-ins in the PHP language. This makes it really concise and straightforward to make a website.

Any text editor can be used in order to code PHP such as Notebook++, jEdit, Emacs, Bluefish, or even just Notepad. Since PHP does not use a lot of a system's resources in order to run, it operates much faster than other scripting languages. When used with other software, PHP still retains speed without slowing down other processes.

MySQL:
MySQL is an open source relational database management system (RDBMS) based on Structured Query Language (SQL). A relational database stores data in separate tables rather than putting all the data into one large repository. The tables are linked by defined relations making it possible to combine data from several tables upon request. MySQL runs on virtually all platforms, including Linux, UNIX, and Windows. Although it can be used in a wide range of applications, MySQL is most often associated with web-based applications.

MySQL is very easy to us. With only a few simple statements, you can build and interact with MySQL.

MySQL is scalable as it can handle any amount of data, up to as much as 50 million rows or more.

MySQL is very friendly to PHP, the most appreciated language for web development.

MySQL supports large number of embedded applications which makes it very flexible.

V.   IMPLEMENTATION

Admin Panel:
After successful authentication, the admin can add, update, delete and view blood banks and blood camps. He can check profiles of registered users. He has the option to change his own password. He has the right to accept/reject users' request and if accepted he will publish the requests. He may log out from the system whenever required.

Login Module:
The first page is login page as shown in Figure, where admin enters his login details correctly to proceed further.
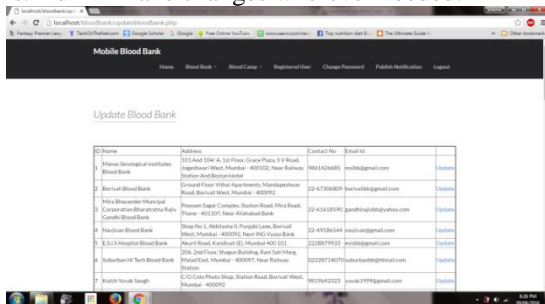
Add blood bank:

After authentication of admin, he can add blood bank by entering blood bank details like name, address, contact no, email and available blood group. When this information is submitted, validation is performed and then the blood bank details will be added successfully in the database
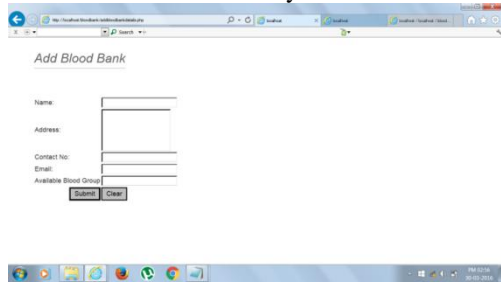

Update blood bank:

When any of the information of blood banks has to be changed in the database, admin updates the information. A page appears which already has all the details of blood banks. Admin make changes wherever needed.

Delete blood bank:

When any of the blood bank is to be deleted from the database, the admin deletes the information by clicking on the delete button and a page appears showing details of other blood banks.
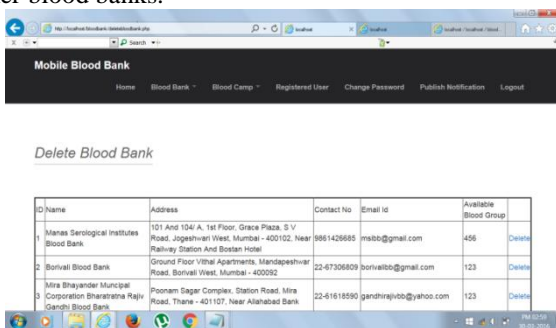
Change password:

Admin can set new password whenever he wants.
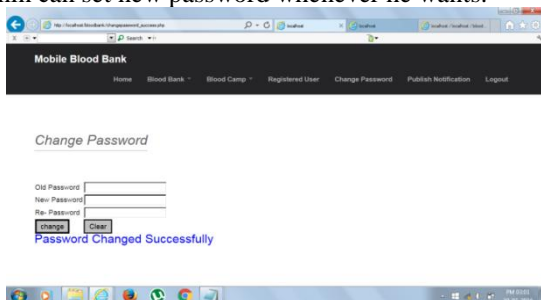
Publish notifications:

Admin can publish notifications
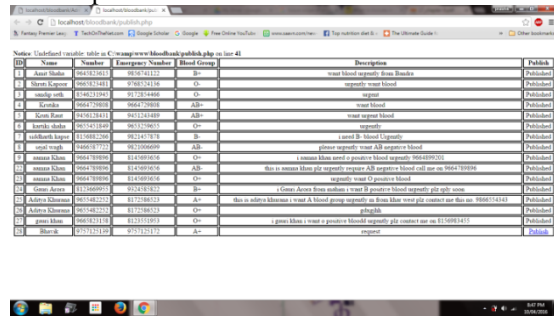
User Panel:

Form Validation: The form is validated and if there is any error, a prompt message is given. If all the details are correct, a person is registered successfully.
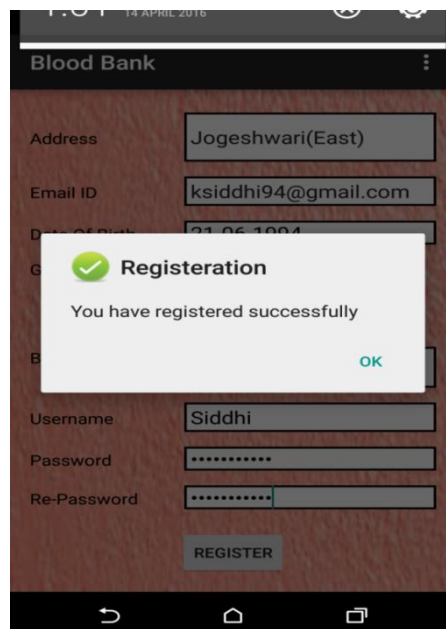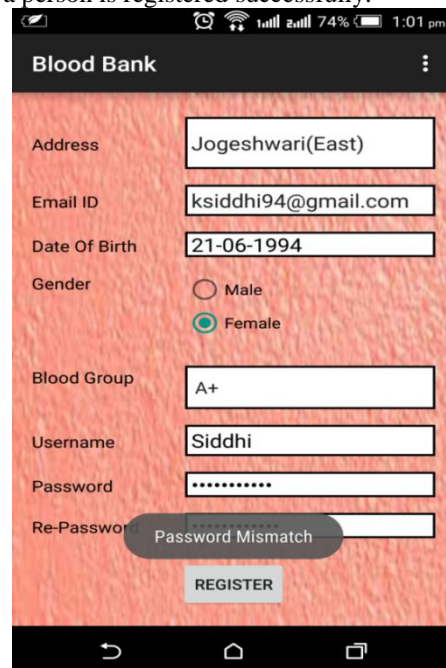
The user can see the location of searched place or hospital on map
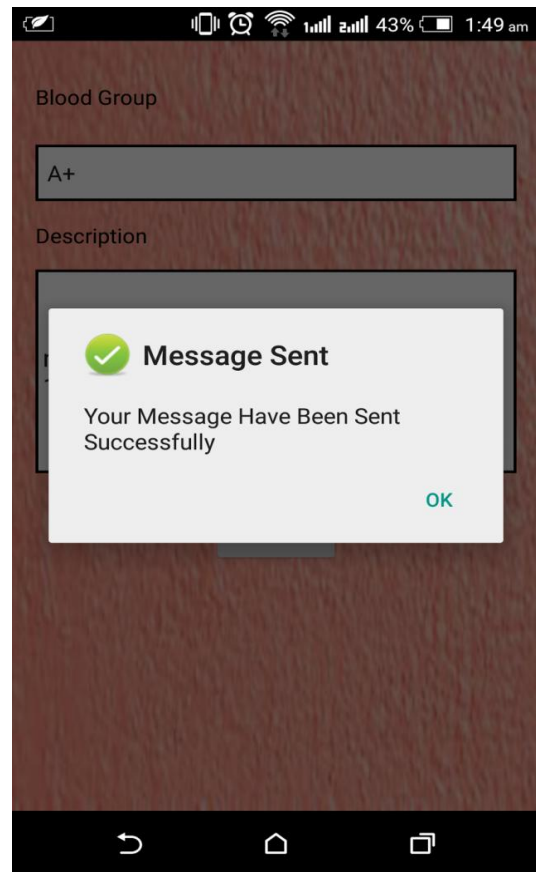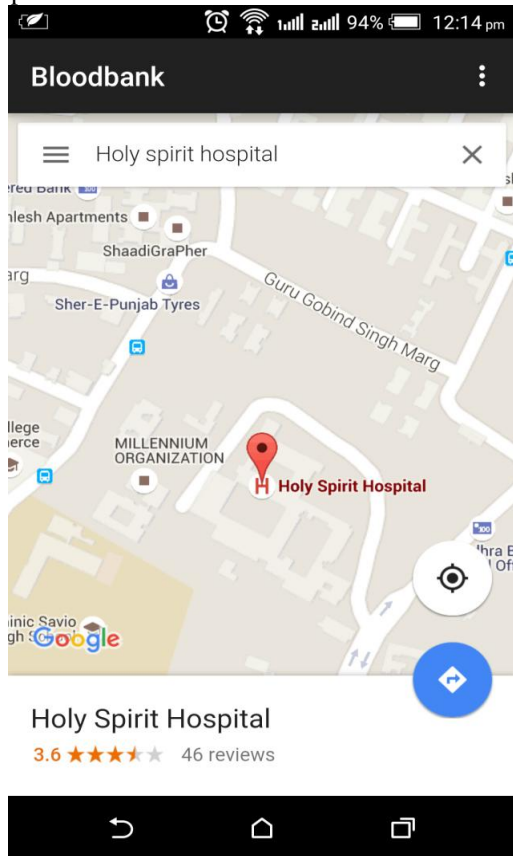
When the user requests for blood by adding description and blood group required, the message is successfully sent to admin.

When the user updates his profile by giving proper details, the information is added successfully.

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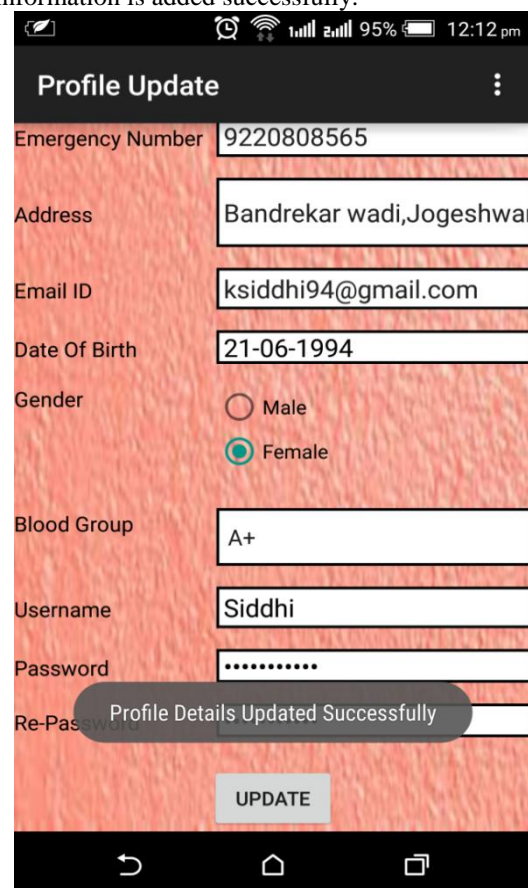
VI. RESULTS AND DISCUSSION

Admin Panel:
Blood Camp details added successfully.
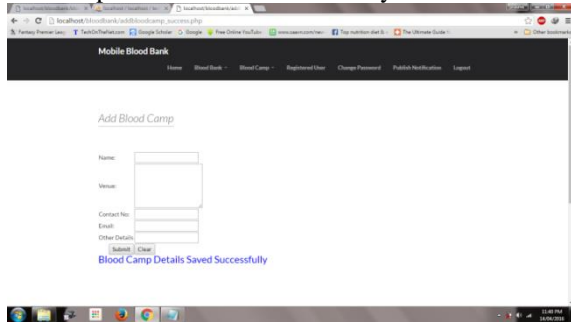
Blood Bank Panel: Blood banks can add the details of quantity of available blood in their banks.
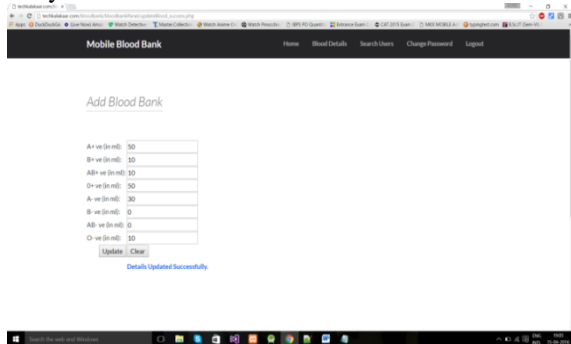
User Panel:
Organize Blood Camp:
The users and hospitals can organize activities like blood camps by specifying venue and date.
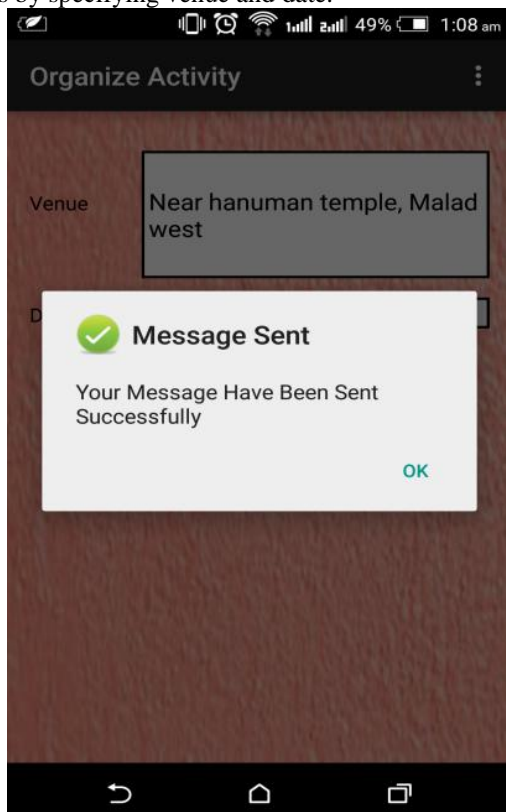
Speed Dial:
In case of emergencies like accidents, the user can contact or call on an emergency number by clicking on 'Speed Dial' option
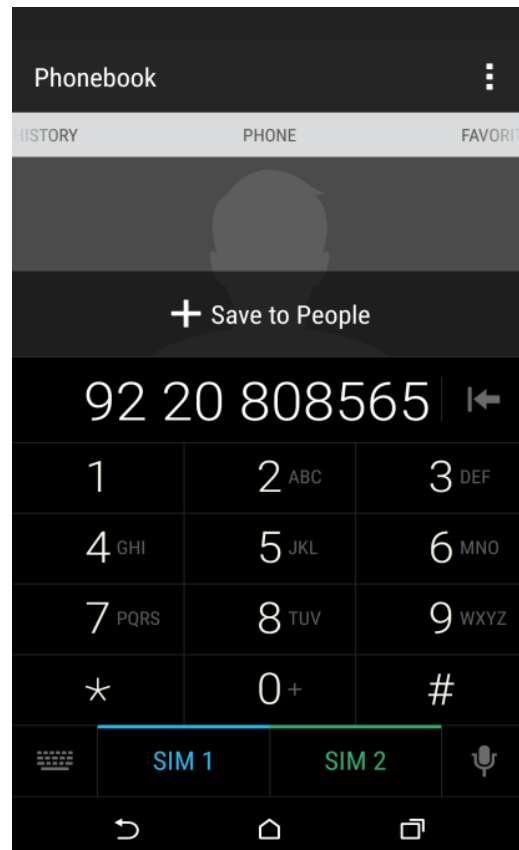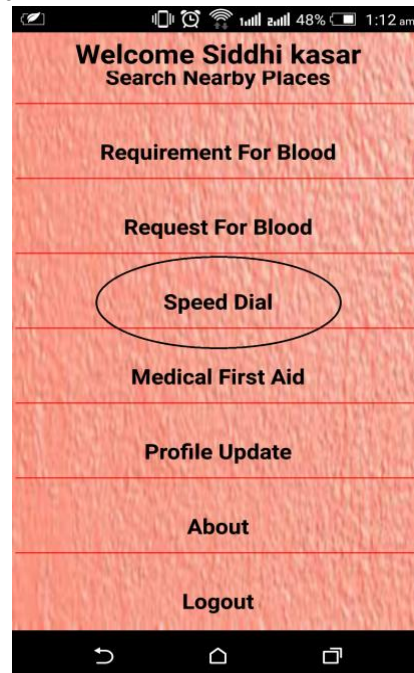
Request for Blood:
The registered user can submit request to admin for blood by giving blood group type and small description. Admin accepts/rejects the request and the accepted request will be published by admin.

ACKNOWLEDGEMENT

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VII.   CONCLUSION

We have proposed an efficient and reliable android blood bank application. The service provided by the proposed system is needed and valuable to health sector where a quality of blood is considered for the safety of the patient. The donor will get himself registered through these improved system. 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 future work of the system is to develop this application in iOS platform.