

Blood Donors and Receivers Management System

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Abstract - Life is the most priceless and valuable gift anyone can receive. It is crucial that anyone experiencing a health problem receives the necessary care as soon as possible. This project's primary goal is to meet the urgent blood needs of those who seek it. To accomplish this, we'll use an Android application that makes it simple to request blood. Users of this project can examine information about registered blood donors, including their name, address, and other personal facts, as well as information about their blood type and other medical details. The project also features a login page where users must register before viewing anything. Thus, using medical information and blood group information, this tool aids in quickly choosing the appropriate donor online. The major goal of creating this application is to drastically cut down on the amount of time needed to find the ideal donor and the necessary blood supply. Thus, this application quickly gives the necessary information and aids in hastening decision-making.

Key Words: Blood Bank System, Blood bank, Blood Types, Patient, Donor, Acceptors, Android Mobile Application, proposed framework, Administrator

1. INTRODUCTION

The requirement for the blood is essential for treatments in Hospitals and other medical centers especially during emergencies. To save the life there is a need of blood for every individual [1]. This initiative, which is based on Android, will be crucial in helping to save human lives.

This application's major goal is to cut down on the amount of time needed to find blood donors in an emergency. It has all the necessary components to offer a channel of communication between blood donors and recipients. Users will benefit from this in that they will be able to utilize GPS to find local blood banks and volunteer blood donors, then request blood in an emergency.

Users will be able to examine information about various blood banks, the blood that is available in their repository, information about registered users who need blood in an emergency, and information about blood donors who want to donate when needed. The backend database will be used to store all the personal data of blood donors.

This paper is organized as follows: In Section II Framework of Blood Donors and Receivers Management

System is discussed. Layout for the android application is explained, in Section III Methods and Materials, in section IV Result has been discussed and in section V. At last, the conclusion is stated in the final part.

FRAMEWORK

System Architecture

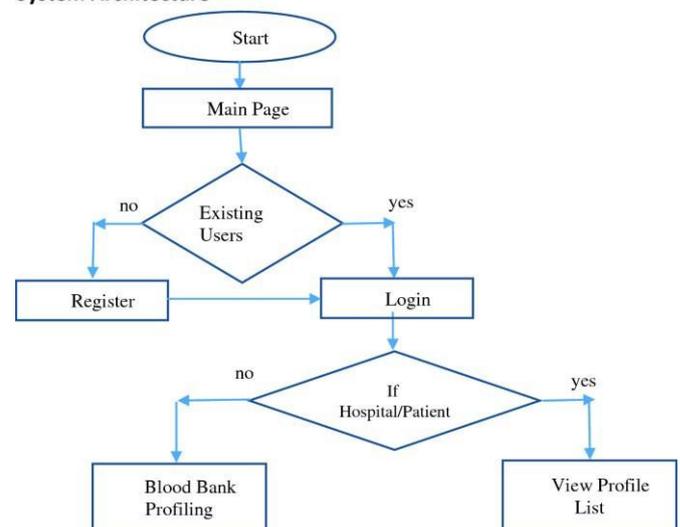


Fig. 1 Frame work of Blood Bank Management

If the user already exists we use the credentials to Login else register and then Login. If the Patient is receiver then go to blood bank checklist to receive the blood. If it is a donor then supply to the receiver.

METHODS AND MATERIALS

Our first objective was to make the application as easy to use as possible in order to accelerate its spread among the broadest segment of society and increase the likelihood that donors will be available across the entire nation. To do this, we focused on Android, which is the most popular operating system in Algeria..

Therefore, we used Android Studio [2] as a primary development environment for developing the application and the Kotlin [3] programming language in addition to the Firebase real-time database [4].

A. Android Studio

It is an IDE, a development interface. It is a kind of work desk for a developer. There you will find our project, its folders, the files in it, and everything you need to finish creating the application. The best thing about Android Studio is that it has been created by Google [5].

Among other things, it has some tools that will greatly facilitate the applications development, such as being able to preview the applications on different smart phones and tablets to know how the code that we are editing is looking, and how it looks in the different types of screen that exist. Although Android applications are written in the Java/Kotlin language, the truth is that afterward, they have to be compiled so that a single.apk file remains. This last step is very simple with Android Studio. Let's say that the new IDE is now much more familiar and easier to use than the SDK that Google had before [6].

In short, thanks to this valuable tool, the work of programmers who have become interested in this fascinating world has been much easier. There are still things to fix and errors to debug but let's remember that Android Studio has not been created for a long time, but it is promising and that it will become an indispensable tool for all those who wish to enter the wonderful world of Android Operating Systems [5,6].

II. ALGORITHM OF PROPOSED BLOOD

BANK APPLICATION

This application's result is a notification and response from the blood bank regarding the need for blood. The main blood bank will keep track of the number of blood packets for each blood group in a database. The technology will alert the authorities if any of the counts drop too low, and a blood camp might be set up to meet the need for blood. Similar to how the larger blood bank operates, the smaller blood bank may also notify the central bank when there is a shortage and make blood accessible. Below is a description of the proposed work's algorithm. I and P are inputs with character data.

The major steps are-

User Registration : In this Phase, user has to undergo the registration process where one should fill the details like name, blood group ,age, contact number ,his/her medical forms.

Request Blood: in this phase user who is in need of blood needs to request blood by giving their details like contact number, address. Once the user requested, the list of nearby donors will be displayed and are notified.

The steps also explained pictorially with the help of flow chart Fig.4.

It has been noted that the donation and registration processes have a significant impact on the entire procedure, but that only a small portion of questions are focused on enhancing these characteristics. For this step, a more appropriate analysis and additional research are required. The administration of the donor database has a significant impact on both the effectiveness of the whole process and the donors' motivation. By increasing the amount of donations, the system's performance could be enhanced. However, efficient database maintenance of registered donors is necessary.

Another crucial phase of this process is storage. An efficient storage management system must make sure that the blood being held or transferred is properly matched. It aids in maintaining blood in ideal storage conditions and prevents expiration and discharge. The current blood bank models often rely on the analysis of the normalized stock level to predict and eliminate outdated bags and blood scarcity. The efficiency could be improved with an integrated management strategy that includes blood data feeding.

II. RESULTS

The focus of this study is on creating mobile applications utilising readily available software for portable devices like smartphones. The created app is aesthetically pleasing and beneficial for users with limited device memory. Any version of Android can download this app. The primary benefits of the suggested application are:

Increased engagement and interactions: This makes it possible for the user to utilise the software swiftly without having to deal with pop-up ads or other distractions. The user can work on their own task while concurrently seeing the annual transaction data.

Instant Access: The opening and completion of the app only take a short amount of time. Instant access is available to this.

Increased security with existing systems: It keeps all the information in a database that is secure and can be viewed during the entire month without any issues *More efficient business process:* Customers can access immediate support and quick information via mobile apps whenever and wherever they need it. On their mobile device, all the necessary information is just a click away. When fresh information or updates are available, many new technologies, such as push alerts, may also be provided to their mobile phones.

III. SNAPSHOTS

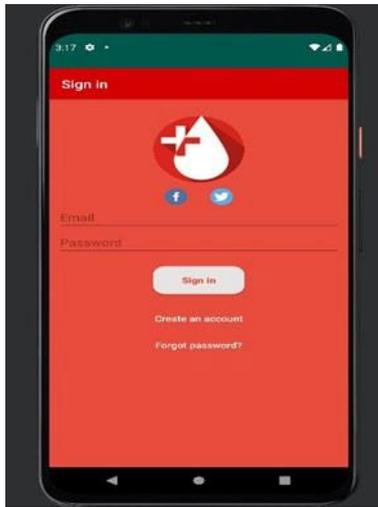


Fig 5. User needs to create an account

If account is already created then user can sign in by using his/her credentials.

The fields (fig. 5) are bound with proper validations described below:

- User needs to create an account.
- If account is already created, then login with user name and password.



Fig 6. Register your details like name, sex, Blood Group, Location, etc.

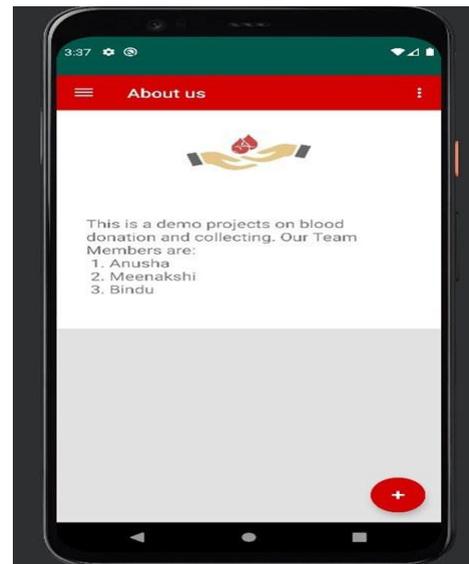
In the fields(fig. 6), the individual who wants to receive the blood should filled his/her appropriate details.

- There are four related fields which needs to be filled appropriately by the receiver.

In this fields, the individual who wants to donate the blood should filled his/her appropriate details.

- There are four related fields which needs to be filled appropriately by the donor.

Fig 7. Snapshot of About us. It also includes about our demo



project details.

This field (Fig. 7) tells about the application information.

- It also includes email-id of the developer.

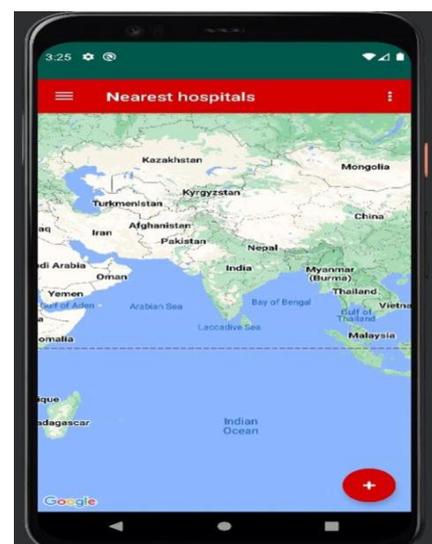


Fig 9: We can check the nearest Hospitals for blood supply

CONCLUSIONS

When compared to currently available blood bank apps, the suggested Android is easier to use and more user-friendly. The statistics of the existing interfaces reveal how many units of the necessary blood group are accessible. The blood group distribution and receipt month is displayed in the reporting area.

Thus, the suggested application will assist users in receiving timely information about the availability of blood nearby. With the aid of this application, anyone who want to donate blood may also do so. Anyone who needs blood should be able to get this service whenever they need it without the need for complex hardware.

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