BLOOD DONATION MANAGEMENT SYSTEM

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Abstract - Blood Donation Management System is a android application that enables individuals who want to donate the blood to help the needy. It also enables blood donation camp organizers to record and store data for people who want to communicate with donors and it also provides centralized database. In proposed system the one organizer can see upcoming blood donation camp of other organizer and can decide the best suitable time for organizing the Blood Donation Camp in order to receive good response. The system is developed by using Android and Firebase. We are using Waterfall Methodology to develop the system. The system targets two types of users: the individuals who want to donate the blood and the organizers who want to manage blood donation management camps. The main objective of developing the system is gather all donors under a single roof, and encourage to donate blood.

1.INTRODUCTION

A **blood donation** occurs when a person voluntarily has blood drawn and used for transfusions and/or made into pharmaceutical medications by a process called fractionation (separation of whole-blood components). Donation may be of whole blood, or of specific components directly (the latter called apheresis). Blood banks often participate in the collection process as well as the procedures that follow it [1].

There are many reasons patients need blood. A common misunderstanding about blood usage is that accident victims are the patients who use the most blood. Actually, people needing the most blood include those: Being treated for cancer, undergoing orthopedic surgeries, undergoing cardiovascular surgeries, being treated for inherited blood disorders [2].

There are many private sectors as well as NGOs who organize Blood Donation Camps. One can donate the blood in Hospitals also. The safest blood donors are voluntary, non-remunerated blood donors from low-risk populations. The World Health Organization's goal is for all countries to obtain all their blood supplies through voluntary unpaid donors, in accordance with World Health Assembly resolution 28.72, which was adopted back in 1975[3].

The aim of developing Blood Donation Management System is to create an efficient system for the donors, where they can get ideas about ongoing Blood Donation Camp timing, and also can get ideas about the future blood donation Camps in order to plan a date for donating blood as per their convenience.

2. PROBLEM STATEMENT

People who need blood are increasing day by day. People who have diseases like anemia or people who have gotten into accidents and run out of blood need constant supply of blood to sustain their life and there is not enough blood available for them. It is not that people do not want to donate blood, but because they have no idea where they can donate. It is important for the people who are excited to donate, but yet are very busy, to be sure where and when they can donate [4],and therefore We are designing a system which contains all the information regarding blood donation camps ongoing in a particular area so that people who want to donate blood will get information regarding these camps.

Our System is a mobile application which aims to serve as a communication tool between Blood Donation camp Organizers and blood donors [4],[7]. To become a member of the system, donors need to create their profile by providing the information like name, blood group, email address, password, and exact location from "Google Map". In order to find out the exact location of a donor, Google Map is integrated with this application. The mobile application always keeps updating the location of a donor. As a result, the system can automatically keep showing the nearby Blood donation Camps to the registered donor wherever they go, and donors can easily get the idea of nearby blood donation camps. Also, users can get information regarding the type of blood which is available and information of past as well as future events.

3. RECOMMENDED SOLUTIONS

The basic solution is to create a centralized system to keep a track on the upcoming as well as past Blood Donation Events. The recommendation solution is as follows:

- Donors will save the donor card digitally.
- The Programmer Officer will be able to predict the feasible date in order to get the maximum response.
- An Emergency button is introduced in order to guarantee the safety of Donors.
- The call will be dialed automatically to the ambulance once the donor meets an accident.
- A centralized system is designed in order to keep a record of the past and upcoming events.

4. METHODOLOGY

We will use the waterfall model. The following steps are as follows:

- Identify and formulate the problem.
- Determine the system objectives and its scope.
- Identify the requirements, objective, and preferences.
- Design a model and system of working (Sequence Diagram)
- Determine project plan
- Determine the feasibility of plan
- Determine the hardware and software required

Role of the organizer:

- **Create an account and login** : The Organizer should create it's account and save the id given to him. The user would be logged in the device once the account is created.
- **Add event**: The organizer should add the event organized by themselves. It should include all the details of the events like date, venue and time.
- **View Upcoming and past events:** The organizer can view the upcoming as well as past events in order to plan the further events accordingly

Role of the user:

- **Create an account and login:** The Organizer should create its account and save the id given to him. The user would be logged in the device once the account is created.
- **Register for the event**: The user can register for the event. The data won't be stored in the database but registration for the events sets a reminder which would remind them for the event.
- **Uploading donor card:** The user can also upload its donor card after donating blood which would help them to store the card digitally and keep a track of history of the user.

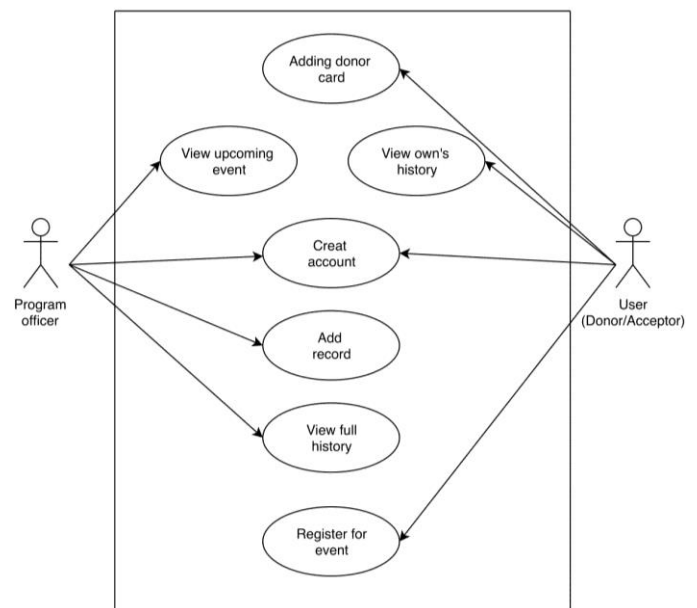The diagram for the model is given below:

Figure 1: Use-Case Diagram for the system

Implementation:

The language used in the implementation stage are as follows:

I.   Android: Android is used for developing an application for interface (XML) and backend (Java).

II.   Firebase: Firebase is used to store the data in the database.

5. RESULT

The results of following study are:

I. It will overcome the traditional manual system and therefore fewer human errors.
II. one can easily get the information regarding blood donation events in their surroundings.
III. App manages all the records regarding how much blood and what type of blood is collected in a certain event.
IV. Donor can easily get access to his/her account with a single click.

6.COCLUSION

Blood is the most essential thing to save a life. By donating blood, we can save many lives. It is also important to remember that any one of us may need blood at some point in our lives, making blood donation **is** an essential duty of our citizenry. In today's world where people are busy with their lifestyle and those who are eager to donate blood but are not able to, can plan to donate blood by sitting at home just by one click with our application [4]. This application will make revolutionary changes to the medical system as people will be able to donate blood and serve mankind. It can also help people to know about the benefits about blood donation and that their small contribution can help one person to save his/her lives as soon as possible in a quick and well managed manner.

7.AFFIRMATION

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