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Research Paper

EMERGENCY BLOOD SERVICE USING ANDROID APPLICATION

Priyanga V[1], Ashwin Infant S[1], Indhuja G[1]* and V Nirosha[1]

*Corresponding Author: **Indhuja G** ✉ *Indhu1209@gmail.com*

Emergency Blood Service using Android is an application that can be installed in any Android mobile phones and can be used at the time of emergency when someone is in need for blood. The project proposed will reveal the identity of the users only at the time of donation of blood. The authentication is not provided for the application usage and hence the application can be accessed from anyone's mobile at the time of emergency.The identity of all the users of the application are hidden. Anyone can easily access the application from anyone's mobile. Hence even a stranger can become a helping hand at the time of emergency. The location of the users can't be updated all the time. Hence the location of the requestor is also found at the time of emergency. The users willing to donate blood can acknowledge the request.Misusing the numbers of any user of the application is totally avoided since even the user who is requesting for blood cannot view others details. The details of the donor will be provided to the requestor only at the time of emergency. Updating the location is also not needed since the application tracks the location.

INTRODUCTION

All donations to charity make a difference, whether they consist of money, clothing, or simply a couple of hours spent voluntarily. While every contribution is equally important, nothing is comparable to the donation of human blood. In spite of the remarkable achievements of medical science today, there is no factory that manufactures blood. It is only in human beings that human blood is made and circulated. For those who require blood for saving their lives, sharing from other fellows is the only means. Hence, donation – rather voluntary donation is the only way of accumulating blood at safe storage to meet emergency requirements for saving lives.

To a great extent, donating blood is regarded as a gift of life since giving our blood to other people we often save their lives. Therefore, every healthy individual should be ready to donate their blood in case of necessity or urgency. It is rather important therefore that every individual is aware of blood donation basics and fully comprehends the vital importance of the whole process. Often, the amount of donated blood, even few milliliters, can save other person's life.

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[1] Department of Information Technology, SNS College of Technology-Coimbatore, Tamilnadu, India.

Blood donation should therefore be perceived as mutually supportive process everyone should be aware of. Our knowledge and spreading it to others can reap many benefits in the long run. Most importantly, we should never remain indifferent to others needs. In spite of the availability of the potential blood donors not more than 5% of the total Indian population donates blood. Advancement in medical science has increased the blood demand. Also blood-donors usually don't come to know about the need for blood. These reasons motivate us to develop a more efficient system that will assist the present blood donation system.

EXISTING SYSTEM

The existing system is to create a website with an android application is developed so that the blood donors are available easily within the required time. The purpose of website is to update the relevant information regarding the donors who have already donated blood in various hospitals, so that when it is needed for any others they can view other donors where it can be accessed through this website. The proposed system functionalities are described as follows:

1. The Blood donor app notifies the latest news or information about blood donation camp details.

2. A better connection via the mobile application at places where there is slow internet connection. The appointment fixed by the volunteers are reserved for

the day and session that they want or free to make blood donation.

3. The system provides authenticated and authorized features to the current system

where private and confidential data can only be viewed by authorized

user.

4. The system provides the recording function for every process of the blood in order to keep track of the blood stock accurately

DISADVANTAGES OF EXISTING SYSTEM

1. The blood donors need to update their location manually if they change their location. Because some mistakes such as contacting someone near the past location may occur or in some cases someone in the current location of the same blood group might be in emergency and the user who did not update their information might not be notified.

2. The persons whoever requests for blood will get all information about all the donors. There is a chance for the misuse of phone numbers later.

3. After receiving the contact details of all the donors, it is the job of the recipients to make a call to all the donors directly and request them for the donation of blood. He may refuse. Willingness of the donor are not known before getting the number.

4. A lot of time is spent on calling the donors and there is a more chance for contacting the wrong donor.

PROBLEM DEFINITION

Traditionally the blood requesters are dependent on hospitals and blood banks to fulfill their requirement. This makes the system slow and less efficient. Hence a mobile application will be more convenient for the donors to know the

information about the recipients and to donate blood at right time.

FEASIBILITY STUDY

A feasibility study is concerned to select the best systems that meet performance requirements. These entities are an identification description, an evaluation of candidate systems and the selection of the best system for the job.

1. Economic feasibility

2. Technical feasibility

3. Behavioral feasibility

4. Operational feasibility

Economic Feasibility

Economic analysis is the most frequently used method for evaluating the effectiveness of the candidate system. More commonly known as cost/benefit analysis, the procedure is to determine the benefits and savings that benefits outweigh costs, and then the decision is made to design and implement the system. Otherwise, further justification or alterations in the proposed system will have to be made if it is to have an enhancement to approve.

Technical Feasibility

Technical analysis center on the existing computer system (Hardware, Software, etc) and to what extend it can support the proposed addition. This involves financial considerations to accommodate technical enhancement. If the budget is a serious constraint, then the project is judged not feasible.

Behavioral Feasibility

An estimate should be made of how strong a reaction the user staff is likely to have toward the development of a computerized system. It is

common Knowledge the computer installations have something to do understandable that the introduction of a candidate system requires special effort to educate, sell and train the staff on new ways of considerations business.

Operational Feasibility

Operational feasibility is mainly concerned with issues like whether the system will be used if it is developed and implementation. It considers the resistance from users that affect the possible application benefits.

PROPOSED SYSTEM

The scope of this proposed system is to create a mobile application to contact the right donor, who not only has the relevant blood group as of the recipient, but also is ready to donate blood based on the request. It is easy for the acceptors to pick the most appropriate donor from the list of donors. All the process are done at the backend and the work of the acceptor, who is in need of blood at the emergency is only to enter the blood group.

At the end of the process, the recipient would get the contact details of the willing donors. Blood is important for everyone to survive. Transfusion of blood can be done if someone loses blood and they are in emergency. Though a lot of person can have same blood group, finding a person who is readily willing to donate blood is a major challenge. Blood donation camps and blood banks collect blood and sends to those who are in emergency. Since many blood donation camps and blood banks are present, some may have a lot of blood of one group and the other group may be scarce. Hence to overcome all these donor-to-recipient direct contact can be made. The acceptor is the one who is in need of blood and the requestor is the one who acts on behalf of

the acceptor and request for blood. Occasionally the acceptor can also act as requestor. The users who are willing to donate blood at the time of emergency and respond to the requestors are donors. Since everyone has a mobile phone, it will easy for the recipients to contact the donors very easily. The proposed system focuses on it and the interactive User Interface makes it easy for the acceptors to contact the most needed recipients hiding the backend processes.

Google Cloud Messaging (GCM)

Google Cloud Messaging (GCM) is a free service for sending messages to Android devices. GCM messaging can greatly enhance the user experience. The application can stay up to date without wasting battery power on waking up the radio and polling the server when there are no updates. GCM allows you to attach up to 1,000 recipients to a single message, letting you easily contact large user bases quickly when appropriate, while minimizing the work load on the server.An instant messaging app can be implemented using push notification mechanism provided by GCM where server sends messages to a device so that it need not poll the server continuously for messages which drains battery power. The latest Google Cloud Messaging APIs that comes with Google Play services is used instead of the deprecated GCM helper libraries. So to test the app a real device having Google Play Store application is installed, or an emulator with Google APIs running latest version of Android. GCM requires a server-side implementation in addition to the client implementation in the app. The client app, actually posts messages to your server which in turn sends data to the GCM server that is responsible for delivering the message to a specific Android device. Servlets and JPA to implement the server and use free quota provided

by Google App Engine (GAE) to power our server. There are several steps that need to be done before we could use GCM in our application.

1. Upon successful registration GCM server issues registration id to android device.

2. After receiving registration id,device will send registration id to our server.

3. Our server will store registration id in the database for later usage

   A) Whenever push notification is needed, our server sends a message to GCM server along with device registration id (which is stored earlier in the database).

   B) GCM server will deliver that message to respective mobile device using device registration id.

FRAMEWORK

The modules of the proposed system are

1. Registration Module

2. Requisition Module

3. Retrieval Module

4. Acknowledgement Module

Registration Module

The Registration module is used to register a new user in the application. The user is prompted to enter all the required details to trace him such as Name, Phone Number, Location, Blood Group, etc. The details entered by the user is added to the table in the database. A large number of users from various locations can install the application and use it. The user whoever registered can act as both donor and the acceptor.Authentication is not needed for the application because an acceptor or a requestor or a third party can access the application. The acceptor cannot spend time

for entering the user name and the password at emergency. The requestor or the third party may not know the username and password.

Requisition Module

Only the users who had already registered in the application can request for blood. During requisition, the user is expected to enter the needed blood group and the location alone. The requests of the user are considered and they are submitted to the server. The details are entered by the user in the front end and is submitted to the server for the retrieval of data.

Retrieval Module

The requests submitted to the server are processed by the server and the contact details of all the donors are shortlisted. Messages are sent to all the shortlisted donors that there is a requirement for blood of relevant blood group. The GCM helps in sending notifications to the donors and to send back to the recipient.

Acknowledgement Module

The donor who receives the request from the recipient acknowledges to the server confirming the willingness to donate blood. When the recipient gets the acknowledgement from the donor along with the donor details, the recipient contacts the donor directly and requests for blood personally.

CONCLUSION

This project aims to create a android 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 app. They will be able to register as donors and thus receive an SMS from their local clients who needs blood to donate blood in cases of need.

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