An Efficient Android App for Blood Donation Process

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Abstract - Emergency situation such as accidents create an immediate critical need for blood. Despite of increasing requirements for blood, only about 5% of the Indian population donates blood, this paper proposed a new and efficient way to overcome such scenarios by just touch the button process. Donor need to enter an individual's details, like name, phone number, and blood type. It allows checking quickly for contacts matching a particular or related blood group and reach out to them via Phone Call/SMS or via the social networking sites through the Blood donor App. Blood Donor App provides list of donors at your city/area. Since majority of them will carry a mobile phone, it ensures instant location tracking and communication. The location-based app will help users easily find donors of matching blood groups at the particular location and access their contact details for instant helps. If people do not have android mobile then they can come to know about the needy people who are in need of blood through social networking sites.

I. INTRODUCTION

Blood performs two major functions. Firstly, transport through the entire body for oxygen and carbon dioxide, food molecules, wastes, hormones, etc. And secondly, defend a body against infections and other foreign materials. All the WBCs participate in these defences. Primarily Blood cell consists of three different cells namely RBC, WBC and PLATELET. Each of them has specific structure and particular function to balance human body.

The ever-increasing number of trauma patients, particularly those who are involved in road accidents, major surgeries, patients for long-term blood therapy, and chemotherapy for malignant diseases, such as those with sickle cell anaemia and thalassemia has increased the demand for blood in many countries. Studies have high lightened the need to invest in awareness and motivations on blood donation through campaigns so that current donors will continue donating blood and non-donors will be encouraged to begin donating. It is essential for healthcare systems to have a constant balance between supply and demand of blood products. At present, the source of donated blood will be a combination of involuntary donors they may be relatives, friends or workmates and a voluntary non-remunerated donors usually through campaigns. If there is need of blood, the donor with the required blood group is identified and notified of the requirement. There are two critical aspects of these dashboards that will be covered in this paper. Firstly the ability to have real-time data that identifies the donor profiles based on their patterns of donor ship. Secondly making up the profile to a demographic level both summary and detail level. The project includes algorithm which auto-search accurate location of the donors, identifies the donors who are available nearby to the location of requester and notifies them. In case identified donors are not available or not willing to donate blood at present then the scope of detection is increased. This project consists of an application which is present on the donors' and receivers' android-phone.

II. PROBLEM DEFINITION

In spite of the potential availability of the blood donors not more than 5% of the total Indian population donates blood. Advancement and surgeries in medical science has increased the blood demand. Also blood-donors usually don't come to know about the receivers in need of the blood. These reasons motivate us to develop a more efficient system that will assist in exploring information to people about the present blood donation system. As the existing android application lack the concept of broadcasting posts in social media, this application overcomes the drawbacks by introducing the concept of sharing posts and messages in social media.

III. FRAMEWORK

The framework for this project is classified into three main domain naming as the donor, the receiver and the diagnostic centre. Each domains have common fields as registration, login, donor, receiver, diagnosis centre, profile, my health and social media like Facebook and WhatsApp This project toast a new idea of social media attachment.

A. Registration

Registration process includes the registration of new user. It could be registration as a donor, registration as a receiver or register as a diagnostic centre. This process requires the email address and the basic information to be fulfilled so as to complete the profile. User's profile includes the additional information such as medical history, blood group, gender etc. Diagnostic centre validate and keep the record of blood.

B. Login

Login process is the authentication technique for the pre-existing users to get access to their profiles. These profile is the unique identity for the user it could be donor or receiver. This process verify the email id and the password for the user and act as the gateway for the user to connect with the profile.

C. Profile

Profile is the home for the users which holds the database of that particular user, once the user gain the access from the authentication process he/she can directly link to their respective profiles. Glimpse of each donor profile is been displayed to the receiver's profile so as to provide the receiver an appropriate donor and vice-versa.

D. Donor

Donor is one who donates the blood. Donor needs to register themselves to the app before donating the blood.

E. Receiver

Receiver is one who receives the blood from donor. Receivers need to register themselves for receiving the blood. After the registration is over, the receiver will be allowed to access the donor list and see all the donors present in given location with the required blood group.

F. My Health

My Health holds the medical reports of the donor .It displays the current and past medical status updated by donor to the receiver.

G. Diagnosis Centre

Diagnosis centre is a centre where all the blood of registered people will be verified. Once the blood is verified, it will be approved otherwise it won't be. Blood which is having any problem would not be preferred to donate.

H. Social Media

For the efficient and effectiveness in the android app, this paper propose the use of social media for broadcasting the posts and emergency notifications. Currently this project successfully introduces the connection to Facebook and WhatsApp. The users post the message to WhatsApp and Facebook so that many people would come to know about the requirement of blood and it will be much more helpful.
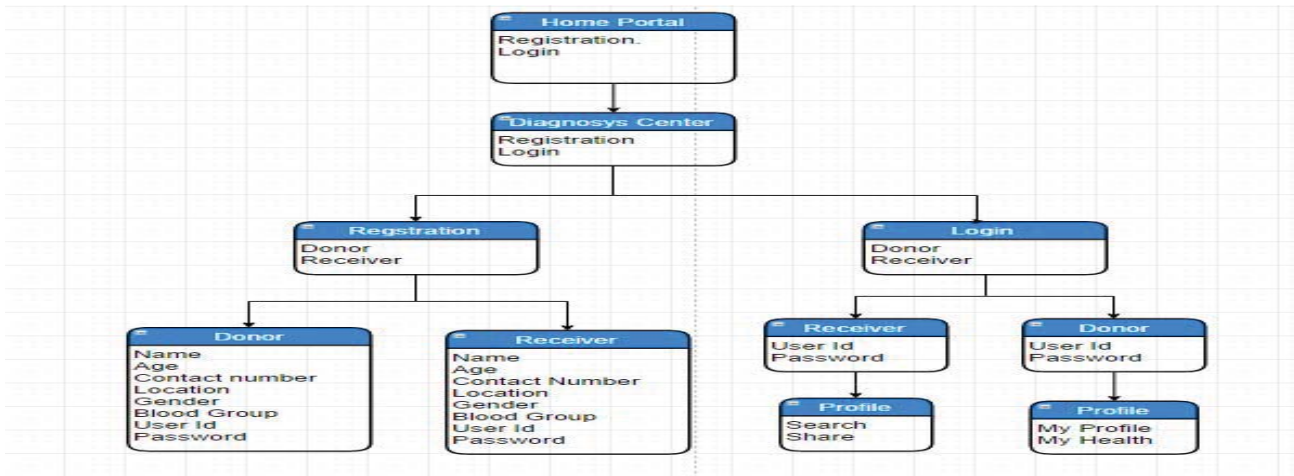
IV. FLOW DIAGRAM

Figure 1. Flowchart of Application Module
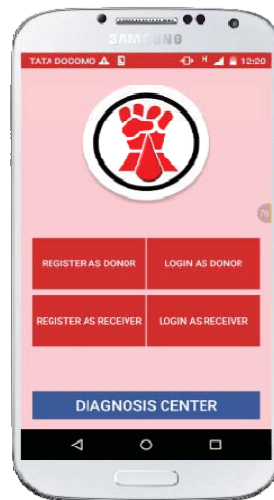
V. RESULTS

A. Screenshot of home screen

Figure 2. Screenshot of Homepage of Application.

This is the Home page, which help user to register as donor or receiver. Diagnosis centre verifies blood for receiver

VI. CONCLUSION

This project aims to create an android application known as An Efficient Android App for Blood Donation Process. Sole purpose of project is to develop an android application that will link all donors and receivers with app and social media. The application will helps to communicate people for blood transfusion service and create a database to hold the information about the stock of blood present in each area, and information of available donors in each city. Furthermore, people will be able to see which patients need blood supplies with the help of an application. They will be able to register as donors and thus receive an SMS from their local clients about the blood requirement and will be able to donate blood in cases of need. The application will help to develop public awareness amongst its visitors of the hospitals' need for blood in order to supply the appropriate donors.

VII. FUTURE ENHANCEMENT

In future, the above concept can be utilized for large scale blood donation management system. Further the application will be featured with the independent and manual location tracking of donor and receiver, verification of the donor can be done with more authenticated process. The message publication or the broadcasting of advertisement process can be introduced in all the popular social media rather than only on social websites like Facebook, WhatsApp, Television, Radio etc. The database management for this application relies on the Parse server that could be taken care by the proper database servers. The Database can be can be migrated to cloud servers which actually increases the efficiency of the project.

REFERENCES

[1] MedlinePlus, U.S.National Library of Medicine, NIH, USA. Blood Transfusion and Donation, http://www.nlm.nih.gov/medlineplus/bloodtransfusionan ddonation.html, 2011.
[2] http://www.militaryblood.dod.mil/About/default.aspx 2011.
[3] Saberton, P. J., Paez, A., Newbold, K. B., and Heddle, N.M., "Geographical Variations in the Correlates of Blood Donor Turnout Rates: An Investigation of Canadian Metropolitan Areas", International Journal of Health Geographic, Vol. 8, No. 56, 2009.
[4] Michael Chau, Eddie Cheng and Chi Wai Chan, "Data Analysis for Healthcare: A Case Study in Blood Donation Centre Analysis", Proceedings of Sixteenth Americas Conference on Information Systems (AMICS), 2010.
[5] World Health Organization (WHO), "Quality Management Training in Blood Workshop, 5-8 February ,2012
[6] American Journal of Engineering Research (AJER) 2014e-ISSN : 2320-0847 p-ISSN : 2320-0936 Volume-03, Issue-02, pp-105-108 www.ajer.org