Blood Bank Management Donation and Automation

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ABSTRACT: This project is mainly used to spread the awareness about blood donation. Many people don't know about the importance of blood donation and some people are aware about it but they are not known about the chances when and where they can donate. It needs the hospital management to blindly search through network for a blood donor during emergency cases. For example: In earlier days if a person need O+ve group blood then we would send messages through phones but it is a late process and it reach to some extent only. This is the major problem. By using this application the people can search for the required blood group very easily through internet, if the required donor is available we will contact with that person directly. All these tasks will be done with in short span of time. If the required donor is not available we can place required blood group and our contact number in the emergency request which is displayed on home page.

Keywords *–Blood bank management*

1. INTRODUCTION

The population of the world is multiplying with each coming year and so are the diseases and health issues. With an increase in the population there is an increase in the need of blood. The growing population of the world results in a lot of potential blood donors. But in spite of this not more than 10% of the total world population participates in blood donation. With the growing population and the advancement in medical science the demand for blood has also increased. Due to the lack of communication between the blood donors and the blood recipients, most of the patients in need of blood do not get blood on time and hence lose their lives. There is a dire need of synchronization between the blood donors and hospitals and the blood banks. This improper management of blood leads to wastage of the available blood inventory. Improper communication and synchronization between the blood banks and hospitals leads to wastage of the blood available. These problems can be dealt with by automating the existing manual blood bank management system. A high-end, efficient, highly available and scalable system has to be developed to bridge the gap between the donors and the recipients and to reduce the efforts required to search for blood donors.

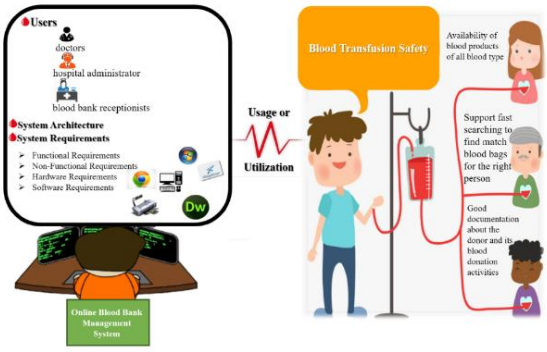

Fig.1: Example figure

Blood transfusion safety remains an important public health concern in Oman. Theavailability of blood products of all blood types and the provision of its safety ensure public trustof its excellent healthcare system. However, lack of availability of these blood products andprovision of unsafe blood products still impact morbidity and mortality in the Sultanate. Throughthe use of online blood bank management system, blood transfusion safety is expected to beenhanced or improved. Risks on improper blood donors' documentation, and misplaced recordscan be minimized

or totally avoided. Also, processes involving blood bag collection, storage, andinventory will be systematized and organized, hence, improving the healthcare management.

For hospitals, a blood bank known as blood collection center, also is an area in whichcollected blood bags are stored and preserved for future use in blood transfusion services. Bloodtransfusion is a medical operation where a patient requires blood or blood products as a lifesaving measure. . In an article1 published in Times of Oman in 2014, it was reported by Ministryof Health (MoH) that the total amount of blood donated annually in Muscat is approximately25,084 units. MoH further reported that its Department of Blood Services is functioning at fullcapacity to meet the demands in the Sultanate. Most blood banks are still running manual system in its processes. As such, there is a lackof efficiency because it is still paper-based in collecting information about donors, inventories ofblood bags, and blood transfusion services. The lack of proper documentation may endangerpatients' health due to the possibility of having contaminate blood bags. Contamination happenedwhen there is an incomplete donors' medical history record and the blood bags' shelf life is notmonitored properly. Hence, a web-based blood bank management system might be needed toaddress these issues and problems encountered to ensure blood transfusion safety

2. LITERATURE REVIEW

A Study on Blood Bank Management:

'Blood Bank Information System' will be an information management system which helps to manage the records of donors and patients at a blood bank. The system will allow the authorized blood bank officer to login using a secret password and easily manage the records of the blood donors and the patients in need of blood.The key features of the system will be the following: Centralized database architecture. Access to the system secured by login. Search facility for finding blood donors based of various search criteria. Search facility for finding Patients (acceptors) based of various search criteria. Easy addition and updating of donor's details. Easy addition and updating of details of acceptors.

Blood Donation Management System:

This paper is focused on Blood Donation Management System which is a web application withsupporting mobile application aimed to serve as a communication tool between patients (who need blood) andblood donor. To become members of the system, donors need to create their profiles by providing fundamental 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 applicationalways updates the location of a donor. As a result, the system can automatically find a registered donorwherever he/she goes. Visitors can search

blood donors from the home page by blood group and the placewhere blood is needed. The system will show the available donors along with their phone number, emailaddress and mailing address through arranging them by nearest place and blood donation expire date. Visitorscan send message to all donors through email but a member can send message using email and mobile phone. An appointment will be created only whenever a donor confirms that he/she will donate blood. Then the systemwill alert the donor before 12 hours of donation. Blood donors can also be searched from the mobileapplication, but this is only accessible for registered members. The goal of this paper is to reduce thecomplexity of the system to find blood donors in an emergency situation.

Web Based Blood Donation System:

In web based blood donation system; it is mainly used for maintaining the stock record of the blood. In today's system first it is manual system and also it when person requires the particular type of blood and if that type is not available in that blood bank then it is time consuming to arrange the blood from other blood bank it may affect the patient health because time is very important in accidental cases. So in web based blood donation system is best for checking whether particular type of blood is available in stack or not and also it gives the location weather that available.

Blood Donation and Community: Exploring the Influence of Social Capital:

Previous social research on blood donation has found that altruistic personality traits are associated with a higher likelihood of donation. However, such research does not adequately explain why campaigns appealing to altruism have had limited success in significantly increasing blood donation rates. Using the concept of social capital, this study conceptualizes blood donation as a social phenomenon that is embedded in the context of community. It reports on the activities of Canada's national blood donation agency in two cities with substantially above-average rates of blood donation. Data were gathered through in-depth interviews with staff and selected donors and non-donors in each city and from ethnographic observation of blood collection and donor recruitment activities. These activities eschewed conventional appeals to altruism, instead emphasizing how individuals could meaningfully enhance their profiles in their community and workplace through blood donation. This study offers valuable insights into the influence of social capital on blood donation.

Real-Time Blood Donor Management Using Dashboards Based on Data Mining Models:

This study uses data mining modeling techniques to examine the blood donor classification and extending this to facilitate the development of realtime blood donor management using dashboards with blood profile and geo-location data. This enables decision makers the ability to manage and plan the blood donation activities based on key metrics. This capability provides the ability to plan effective

targeted blood donation campaigns. The scoring algorithm implemented for the dashboard also helps in the optimized deployment of budget resources and budget allocation determination for blood donation campaigns.

An Android Application for Volunteer Blood Donors:

There is an expectation that the blood will always be there when it is really needed. Blood donor volunteers constitute the main supply source in an effective blood supply chain management. They feed blood stocks through their donation. In an emergency situation, if the stocks are insufficient, the only source of blood supply will be the people who come to the health center and donate the blood on a voluntary basis. It is certain that time is a very important component in such situation. For this reason, the health care center should call the nearest available donor in order to ensure to get the service as quickly as possible. A smart phone application is developed to facilitate the identification of the nearest available blood donor volunteer and the communication with him/her in the emergency situations where the blood can't be supplied through the blood banks' stocks. In this paper this application will be presented.

3.METHODOLOGY

In earlier days blood requests are carried through messages from one people to other people. That communication will be in the form of messages through mobiles or through word of mouth. It is a late process and some requests can't succeed to some extent. By this many people lives may get under jeopardy.

Disadvantages:

1) Communication which happens whenever need for the blood arises is not effective, then people lives may get under peril.

2) Human resources may not work in the brisk way if any emergency request heaves up.

Proposed System In this system people can explore for the required blood group very easily through intranet, if the requisite donor is available we will contact with that person directly. All these tasks will be done with in short span of time. If the required donor is not available we can place required blood group and our contact number in the emergency request which is displayed on home page.

Advantages:

1) Through this web application we can save the time, we can efficiently get succeed in implementing all the requests within short span of time.

2) Through this site general user can place emergency request also.

Blood Donors Symbiosis is basically an idea to spread awareness about blood donation. Its a common fact that, many people do not know about the importance of blood donation and equal number of people who are aware about it, are unaware about the chances when and where they can donate. This website serves to 5 kinds of people. The unaware people, people who are willing to donate but do not know when and where to donate, hospital managements who blindly search through network for a blood donor during emergency cases, blood donation camps and doctors who want to spread awareness.

Features:

- Complete blood donation awareness information online
- Registration for every individual who are willing to donate
- Special accounts for Blood Donation camps (NGO), and Hospitals
- Doctor's Talk
- Emergency requirements on home page

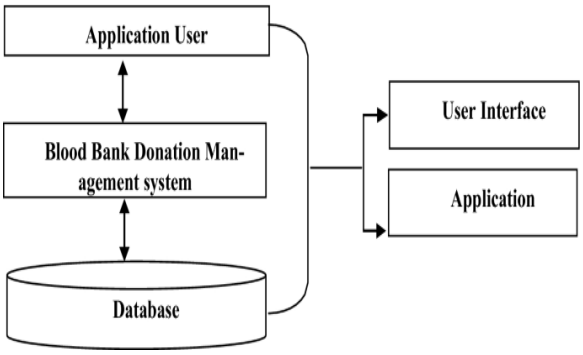

Fig.2: System architecture

MODULES:

The major modules of the project are

- Security and accounts
- Search
- Emergency Requests
- Doctors and Blood camp Front End
- Admin Control Panel

1. Security and Accounts Module:

This specification is provided with privacy to prevent access to the unauthorized user accounts. This can be enhanced with a Pretty Good Privacy to provide security to various accounts.

2. Search:

In this module, the user can get the details of donors according to particular blood group wise. Through this module we can get the information of required donor very easily.

The patients can search for the details of the blood banks.

3. Emergency request:

In this module the patients can request for blood, the request will be displayed on the home page of the website. So that any general visitor of the website can respond to the particular emergency request.

4. Doctors and blood camp frontend:

This module includes the doctor's homepage. Here the doctor can post the articles and spread awareness about the blood donation.

This module provides the information about when and where the blood donation camps are conducted.

5. *Admin control panel:*

Administrator plays a very vital role. In this module the Admin uploads the information of blood donation camps, blood bank details. And it also uploads the doctor's information. The admin has all rights to perform manipulations on information. And administrator creates the accounts for doctors, blood camp organizations and adds up those account details to the database.

4. EXPERIMENTAL RESULTS

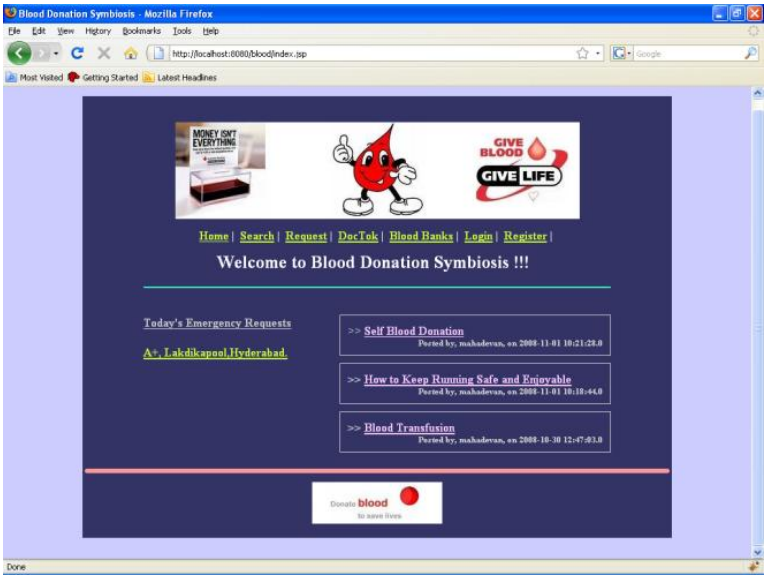

Fig.3: Main page

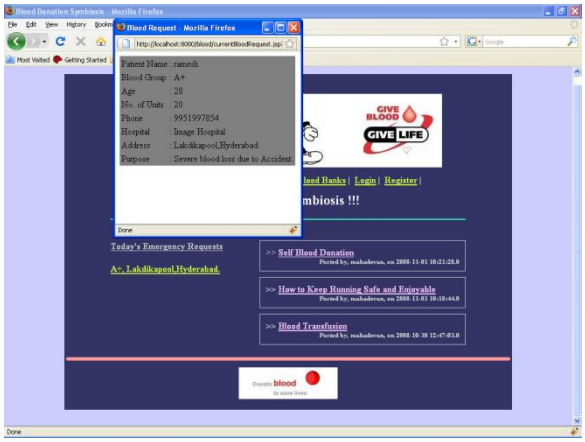

Fig.4: Today's emergency requests

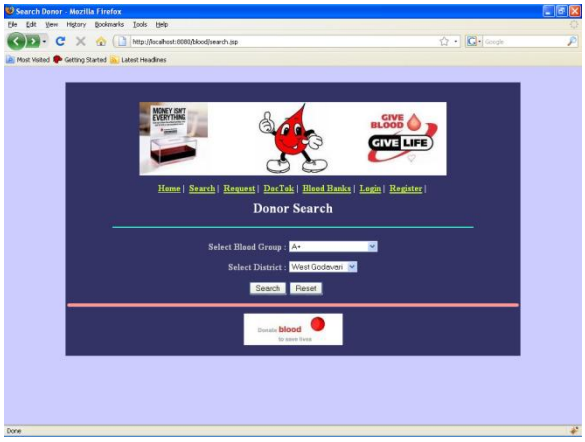

Fig.5: Donor search

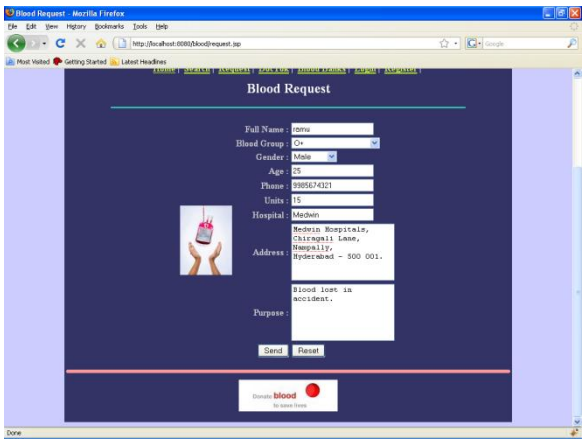

Fig.6: Blood request

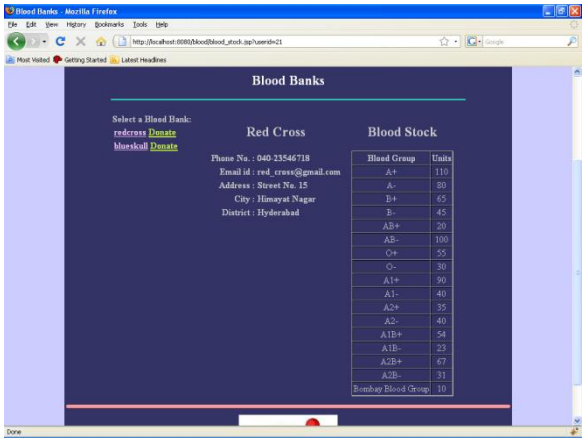

Fig.7: Blood banks

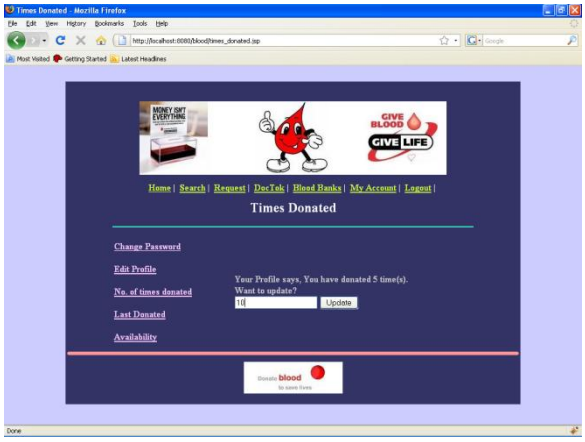

Fig.8: Times donated

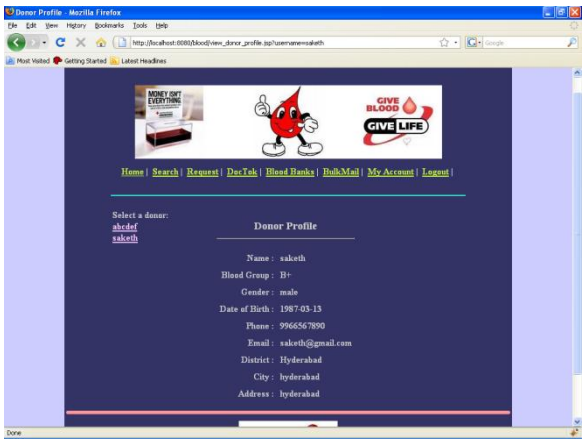

Fig.9: Donor profile

Fig.10: Users

6. CONCLUSION

The Blood donor symbiosis project has been successfully completed. The goal of the system is achieved and the problems are solved. This project is developed in this manner that is user friendly and required help is provided at different levels. The primary objective is to provide the interactive service to all the general users in this contemporary world. Different types of services are provided to all users like donors, doctors and for blood donation camps. This system certainly doesn't reduce the manpower but helps the development of the available manpower and optimizes the man power.

7. FUTURE WORK

1) A new feature like sending the details of blood donation camps as message to all donors can be added.

2) In future by using VOIP technology a feature of communicating directly with other donors in the case of emergency can be added.

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