

Optimization of Blood Donor Information and Management System

K. Yamini, R. Devi

M. E(CSC), SVCET, Thirupachur, India

Asst. Professor, SVCET, Thirupachur, India

ABSTRACT: Emergency situations, such as accidents, create an immediate, critical need for specific blood type. In addition to emergency requirements, advances in medicine have increased the need for blood in many on-going treatments and elective surgeries. Despite increasing requirements for blood, only about 5% of the Indian population donates blood. In this paper we propose a new and efficient way to overcome such scenarios with our project. We have to create a new idea, just touch the button. Donor will be prompted to enter an individual's details, like name, phone number, and blood type. After that your contact details will appear in alphabetical order on the screen; the urgent time of a blood requirement, you can quickly check for contacts matching a particular or related blood group and reach out to them via Phone Call/SMS through the Blood donor App.

I. INTRODUCTION

1.1 Background

Blood safety and sufficiency are major challenges in Kenya and other sub Saharan African countries forcing many countries to rely on family replacement donors (FRD) (Kimani et al., 2011). The issue of blood quantity being kept in hospitals is because donors only give blood when someone needs it or when there is a major blood donation appeal due to an accident that has injured a big number of people who need blood. It's only in 1994 that Kenya saw the need to set up a national blood service in line with World Health Organisation (WHO). They managed to have many satellite branches in the country and have been collecting blood, storing, screening and distributing it to hospitals in need. WHO did a survey of blood donors worldwide to check which countries donate blood more than the other using income as a category to use to distinguish people, Kenya falls very low, in 2008 less than 5 people donated blood per 1000 ("Blood safety and availability", 2010).

One of the main challenge Kenya National Blood Transfusion Service (KNBTS) faces to meet the national blood needs is inadequate advocacy and public education. The population needs to be educated in the need of donating blood as often as possible to not only save peoples life but also to have a chance to know if someone has a disease or not. Just like many other countries, Kenya continues to lose lives due to inability to raise enough blood to meet the needs of needy patients. Many people opt to donate blood when there is a dire need to help a relative or in the case of a disaster. However, such efforts often come when it is too late, leading to loss of lives. "People need to be sensitized and educated on the importance of donating blood.

II. PROBLEM STATEMENT

Kenya's health-care system has little more than half of the blood supply it needs for which is often the result of urgent cases being taken care of ("Blood Supply in Kenyan Health System Dangerously Low", 2010). Blood comes most of the time from school-aged children, patients' relatives, and even from patients themselves. Today's Kenyan population is estimated at 41 million people and only 130,000 units of blood collected annually in Kenya. The demand for blood in Kenya is currently 200,000 units a year against a collection of 130,000 units leaving a shortfall of 70,000 units (6,300 blood donors) on average a year (Blood link foundation, 2008). The emergencies are there, blood is sometime needed, it is expensive in terms of money and time to try to contact past blood donors who might have donated blood again in a different hospital or a blood drive carried out by an organisation. A pool of regular blood donors might be existing in

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 6, June 2016

different hospitals or different blood collectors but those donors are not in one shared database. A mobile application might help to reach the donors faster and get responses for their availability. A rewarding system called “crowning” will help rewarding the donors and try to make them donate as often as they can.

Objectives

- i. To identify and review the current systems used to appeal for blood donation.
- ii. To design a system to improve the limitations of the current systems.
- iii. To develop a mobile application.
- iv. Test the mobile application.

The researcher has developed a mobile application that has proven that it can be used as a tool to appeal to blood donors in an effective and direct way. Android mobile application was chosen as the platform of development because of the effectiveness and precision location has. The blood donors' mobile application operating system is Android, it needs to be installed but the hospitals or blood collectors have a web application they can view on devices of different screen sizes. The main users of the mobile application are blood donors or potential blood donors. Ton the application and can respond to the appeal. The back end of the system is the part where information is pushed to users. The following are the functionalities the mobile application has: check in, maps and respond to request using the application. The back end has the following functionalities: list responses, put blood collection point location on a map, send SMS and notification in the application. The information the system has can be given to the hospital information system which can encrypt important information regarding the blood donors. The researcher collected for the application only information a mobile application user can provide without any issue of confidentiality. The mobile application was tested in Kenya and can be customiz

7 Limitations

The accuracy of the location displayed on the map was beyond the scope of this Project. Once a registered donor has donated blood and checked in only the administrator of the back end can validate the information that the user has checked in. In terms of security the researcher build the system with a hospital system or blood collectors system in mind where other information of blood donors can be stored and encrypted. This system does not cover the security part of the blood donor's health information or blood test results information. Only Android was used as a mobile operating system to test the applic

III. SYSTEM ARCHITECTURE

3.1 INTRODUCTION

Design is a multi- step that focuses on data structure software architecture, procedural details, algorithm etc... and interface between modules. The design process also translate the requirements into presentation of software that can be accessed for quality before coding begins. Computer software design change continuously as new methods; better analysis and borderunderstanding evolved. Software design is at relatively early stage in its revolution.

Therefore, software design methodology lacks the depth, flexibility and quantitative nature that are normally associated with more classical engineering disciplines. However techniques for software designs do exit, criteria for design qualities are available and design notation can be applied.

2 DESIGN STRUCTURE

3.2.1 INPUT DESIGN

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy. Input Design considered the following things:

- What data should be given as input?
- How the data should be arranged or coded?

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 6, June 2016

- The dialog to guide the operating personnel in providing input.
- Methods for preparing input validations and steps to follow when error occur.

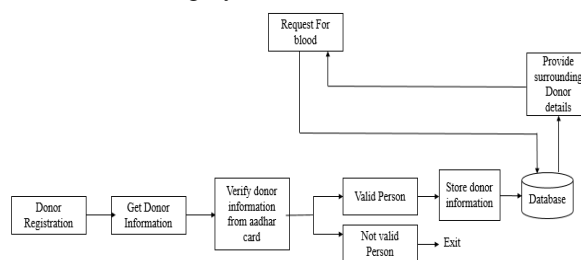
3.2.2 OUTPUT DESIGN

A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user. Efficient and intelligent output design improves the system's relationship to help user decision-making.

The output form of an information system should accomplish one or more of the following objectives.

- ❖ Convey information about past activities, current status or projections of the future.
- ❖ Signal important events, opportunities, problems, or warnings.
- ❖ Trigger an action.
- ❖ Confirm an action.

Fig. System architecture.



5.1 PROJECT MODULES

5.1.1 REGISTRATION

- Who are the persons interest to give their blood or organ, or else both.
- They have to register the details with adhar card.

5.1.2 VALIDATION

- Server to check the person they are valid to donate the blood or organ etc..
- Server will reply the donors to accept or reject their request based upon their ID proof.

5.1.3 CLIENT

- Who are the person need the blood or organ they are request to the server.
- Server accept the request check the database and give the surrounding area donor deta

IV. CONCLUSION

In today's world of information and communication where person can order the pizza online with the surety of getting it in 30 minutes, where person can book the movie ticket online, where person can book his holiday trip online, where person can make his train reservation online, then why not person can get the information of the blood group, just in one click. Today the world is become a Global village where everything is online. There are so many web based solutions provided in the market for the comfort of the people. But without blood human being s nonliving, just by providing the web solution of blood bank management information system is just one more step in order to serve the mankind.



ISSN(Online): 2319-8753
ISSN (Print) : 2347-6710

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 6, June 2016

REFERENCES

- 1.Ministry of Health and Family Welfare,National AIDS Control Organization Government of India. Name, Voluntary Blood Donation Programme , 2007.
- 2.MedlinePlus, U.S.National Library of Medicine, NIH,USA.Blood Transfusion and Donation ,<http://www.nlm.nih.gov/medlineplus/bloodtransfusionanddonation.html>, 2011.
- 3.The Armed Services Blood Program (ASBP) ,<http://www.militaryblood.dod.mil/About/default.aspx> 2011.
- 4.Shyam Sundaram and T. Santhanam, "Classification of Blood Donors using Data Mining", Proceedings of the Semantic E-Business and Enterprise Computing , 2009, pp. 145-147.