***Developing a System to Provide Blood Donors’ Information Quickly for Better Nursing of the Sufferers and Improving Health Service***

Project Proposal

for

System Analysis and Design

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**Introduction**

This is a desktop application that handles the interaction between donor and donee in a blood bank. This application will ensure that the donor can donate blood with ease and the donee can search for the potential donors in his/her area and contact the donor using the donors’ information maintained by this application. The donee will also have the option of searching the location of nearby blood centers.

Emergency blood transfusion is a very frequent scenario. A sudden road accident or fire incident, excess bleeding, or any kind of surgery in a medical procedure may require a huge amount of blood transfusion on very short notice. Also currently, the renowned blood bank organizations in Bangladesh such as Red Crescent Society, Shandhani, and a few others handle the donors’ information manually so finding donors becomes a cumbersome process. Blood transfusion is one of the most sensitive and vital issues in the field of the health sector but its importance is quite neglected in our country. Till today, the renowned organizations depend on the classical system for the whole process. Hence, it becomes quite difficult to extract the current statistics and logs which is very essential to evaluate the current situation, constraints, and demands of the health sector.

Mainly, two types of users will be in the system. First, the volunteers who want to donate blood for the people in need, free of any charge. Then the others who need a blood transfusion for various medical procedures. For example, patients diagnosed with blood cancers, thalassemia, leukemia, and any major and critical medical procedures such as open-heart surgeries, transplants, C-section, and many more.

**Goals and Objectives**

Our system aims to make the process of finding donors easier for someone in an emergency moment. There will be a database of such donors where we will have some basic information that will help a potential donee to search for his potential donors. This means we are also helping them find potentially safe blood sources, reducing the risk of STDs and other diseases that can be transmitted in the concerned process. We will also help the potential donees with locations and information about some blood centers where they might get help and consultation about blood-donation.

We would also make sure that one donor can not donate blood after a threshold period of time for ensuring the health safety of both the donor and the donee. We would try to maintain the health records of the donors and a health expert of the concerned field will be able to scrutinize the records and set flags if necessary.

In terms of statistics, 35% of the blood demand of Bangladesh was fulfilled by voluntary donations in 2020[1]. This means the rest came from professional blood donors. Annually more than 8lakh blood units are collected[2]. Now the officials are trying to increase the number of voluntary blood donations and make the percentage around 100 by the end of 2022[3]. Our project is just a small approach to uphold this effort on such a large scope.

Adding another aspect of the project is that thalassemia is very common in our country and 7% percent of the population acts as a carrier of this disease and around 7000 new babies are born every year with this disease[4]. These patients need 1-2 bags of blood every month. Also, a major reason for maternal mortality in our country is hemorrhage[5]. Emergency blood transfusion can significantly decrease this ratio(currently 173 per 100,000 live births) drastically.[6]

A very useful aspect of the system would be that we would maintain records of donating blood components also. The trivial systems out there do not maintain any component-wise records. Only after the COVID-19 situation, some are trying to maintain such records for plasma only but for cases like blood-cancer, leukemia, dengue, and others we need to maintain records for donors component-wise. The components-wise records maintained in our database will also provide a new dimension to the users in our system.

We would handle the information through a Relational Database Management System(RDBMS) that will ensure efficient and secured handling of donors’ as well as donees’ information. Our system will manage some credentials(registration and login) and flags(such as a flag for active donors and inactive donors, amateur and paid donors) for the users for the safety of the information and the blood donation process itself. An intuitive and simple UI of the application will allow smooth interaction of the users with the system. We would use any flexible programming language to make a functional structure and also, a simple yet useful UI for the system.

**References**

For concept and motivation:

1. http://bloodman.org (ICT Division funded project)

2. https://www.redcrossblood.org

3. https://americasblood.org

For informations:

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4. https://www.thals.org/#:~:text=These%20patients%20need%201%2D2,born%20with%20thalasse mia%20in%20Bangladesh.

5. https://diversityhealthcare.imedpub.com/an-analysis-on-maternal-healthcare-situation-inbanglade sh-a-review.php?aid=17211#:~:text=However%2C%20the%20distribution%20of%20key,countri es%20including%20Bangladesh%20that%20cluster

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