**BLOOD DONATION MANAGEMENT SYSTEM**

Blood Donation Management System will be a web application aimed to serve as a communication tool between patients (who need blood) and blood donor. To become a member 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.

The system will show the available donors along with their basic information. An appointment will be created only whenever a donor confirms that he/she will donate blood.

Moreover if any general consumer wants to make request to have blood online. As soon as any update occurs in the blood database, the changes are reflected in all the interfaces used. It is designed to overcome the drawbacks of existing system. If someone needs blood, first of all he searches it within his family members, then nearest hospitals and blood banks. If they cannot manage blood in these ways, it is really hard for them to contact other people to collect blood in a short time.

Existing blood donation system is manual which cannot upload and download the latest update and there is no use of web services and remoting and there is no proper coordination. It consumes lot of manpower for better results.

**PROBLEM DEFINITION** (For Existing system)

* It is time consuming: The system will allow donor to complete pre donation registration, health history and book appointment online at home or at work, by this it saves time spent in the waiting and registration room.
* It consumes lot of man power for better result: In terms of seeking for blood, the clinic can easily send request to available blood donor with a particular blood type in the same region, when the donor is notified, he/she can book appointment for donation online.
* Report takes time to produce: Retrieval of data takes lot of time, and percentage of accuracy is less takes time to produce reports. Donor’s donation and health history can be updated and retrieved easily, this system remove procedures that cause data redundancy.
* Tracking is difficult using manual process: Donors can easily be tracked by blood type or by location, the system makes the blood management much easier and flexible.

**System Functions**

* Donor registration and blood collection
* Blood requisition/issue
* Discard accounting, User access control & Detailed donor database
* Maintain and update unique donor identification
* Correlation and cross referencing between files
* Search for donors by blood group, sex, location, telephone number.
* Exhaustive report formats and registers
* Interface with grouping and testing machine
* Sends various auto-SMS for alerting donor and reminding location and time
* Adequate security to protect users potential information

USER

When registration is completed, a user becomes a donor who will be able to open an account providing fundamental information with email ID and Password. Every donor will have their own e-mail address and password with which they will login to this site. After they logged on, view his own profile. He can change and retrieve his password.

ADMIN

Administrator will collect information about the blood donor like contact and address details for registration. Before uploading their details, the Administrator will give unique username and password to each donor. The administrator searches various donors details based on normal or map based search. The administrator can view the account information and can also view the suggestion (feedbacks) given by different users of this site.

*Admin*

*Userr*

*Donor*

System Management

Search Donor

Make Request for Donation

For Donation

Donation & ELIGIBILITY INFO

Update donor details

Login Page

Send Message

**PRIORITIZATION USING ANALYTICAL HEIRARCHY PROCESS (Saaty’s Scale)**

AHP is a mathematical model developed to support the decision theory.

One of the main challenges that organizations face today is the ability to choose the most correct and consistent decision. In the current day competitive business world, the process of evaluating project priority has become an important decision making criteria. When multiple objectives are important to a decision maker, then it may be very difficult to choose the project. In such cases, the use of the multi criteria decision making approaches plays a significant role in taking optimal decisions.

AHP is a kind of multi criteria decision making introduced by Saaty. It uses a multi-level hierarchical structure of objectives, criteria, sub-criteria, and alternatives.

The data are derived by using a set of pairwise comparisons. These comparisons are used to obtain the weights of importance to the decision criteria, and the relative performance measures of the alternatives in terms of each individual decision criterion. If the comparisons are not perfectly consistent, then it provides a mechanism for improving consistency.

STEPS OF APPLYING AHP

The application of AHP begins with a problem being decomposed into a hierarchy of criteria so as to be more easily analyzed and compared in an independent manner

We then use the saaty scale of relative importance to determine the comparison matrix

* **Determine the Priority Matrix (eigenvector)**
* Calculate the Total of Each Column
* Calculate the Eigenvector by calculating the mathematical average of all criteria(The values found in the Eigenvector have a direct physical meaning in AHP; they determine the participation or weight of that criterion relative to the total result of the goal.)
* The next step is to look for any data inconsistencies, the objective is to capture enough information to determine whether the decision makers have been consistent in their choices
* Ci= summation(eigenvalue\*Total-number of element)/number of element
* Lastly, calculate the consistency rate CR=CI/RI where RI is determined by the number of evaluated criteria

 If the value is less than 10%, the matrix can be considered to be consistent.