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# Smart Blood Bank Management System

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**ABSTRACT:-** As medical science is to be a concern, it has developed many advanced techniques that are related to medical stream. Anyone can google it and get the proper solutions on it or there are many systems that are being developed to help the people around here. And as far as the availability of blood is concerned it became a major issue to get blood at the time of emergency. To overcome this problem the proposed system is developed to inform the availability of blood and a needy person can get it on time and one's life can be saved. And to develop this proposed system we need a huge database related to blood donors or blood banks from where blood can be easily available. Hence, we have chosen the website system to develop this system so that it can be available anywhere, anytime. And it could be usable at the time of emergency. The software is developed with the latest technology like HTML, CSS, JavaScript, Python, etc. So, the system becomes easy to get blood on time.

**KEYWORDS:-** Online Blood Bank Management System, Blood Bank Management, Blood Donation, Web-Based Application.

## INTRODUCTION

The Blood Banks plays vital roles in medical life. The major concern of blood bank is to make sure efficient and effective collection and maintainance of quality blood stock as well as identification of past donors. Most of the blood banks are still working on paper based system and it has become need to use present technologies for easy use and fast growth or awareness about blood donation and availability of required blood to patient [1]. The Smart blood Bank system provides the platform giving the information about the person who wants to donate blood and the availability of blood according to receiver's needs.

### *Why smart blood bank management system will be in a great demand?*

In India there are more than 5% of the total population donates the blood [4]. 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 assist in exploring information to the people about the present blood donation system. Also due to lack of availability of required blood type, death rate is increases. The measure incidents can be controlled by such a Smart Blood Bank Management System which will provide the data of the nearest blood bank and the blood donor.

Most of the blood banks are still working on paper based system in collecting Information about types of blood availability in banks or information about donors. The misuse or lack of paper documentation may lead to various dangerous problems. Hence blood bank management needs a web-based system which is user friendly and useful. There are few existing system but they lack the information about donors who are interested in donating blood as well as information about Blood Availability in Blood Banks. The proposed system overcomes the drawbacks by



introducing the concept of sharing Blood Bank contacts which are nearest to person's location and the availability of that particular type of blood for which user is in need so that he/she can get demanded type of blood in less time and efforts. The proposed system helps or promotes various blood donation campaigns by informing earlier about it to past donors via SMS. The proposed system also detect the location of hospitals or blood banks which is nearest to patients, it can help to find required type of blood in time. This cause awareness in the society whereas people are not well aware about the importance of the blood they donate and the life saved by them by doing such a life saving act.

## II. CHALLENGES

The major challenges faced by Blood Banks, in general, due to lack of a comprehensive IT solution are [5]:

- Absence of centralized Information and Knowledge Management
- It is not possible to identify Professional Donors. The donors who repeatedly donate blood usually in exchange of money or other remunerations are termed as Professional Donors. Mostly, such donors donate blood multiple times even within the minimum donation eligibility period. This results in reduced quality of blood, making the receiver vulnerable to infections etc.
- In emergency cases, the process of searching records in registers and contacting suitable donors was highly inefficient.
- Notifying about blood donation camps to registered donors is time consuming.
- There is no provision to view real-time stock reports. Manual search through registers was required for obtaining details about a donor or blood type.
- Continuous monitoring of Standards and quality checks is not possible for each donation in the blood banks.
- Due to large number of samples being processed simultaneously, the chances of typographical errors and incorrect entries are high.
- The manual system of blood collection and requisitions has long waiting time in queues, which in turn leads to delay in issue of blood. In addition, the manual record keeping results in inefficient utilization of man-power at the blood banks.
- The process of manual record keeping limits the effectiveness of monitoring mechanisms.
- Lack of efficient tracking facility for soon to expire blood stock. Moreover, transfer of such bags to other blood banks is also not possible due to lack of information about requirement at other places.
- The maintenance of records during non-peak hours is a major challenge as there was shortage of staff that is responsible for maintaining elaborate manual registers.

## III. ADVANTAGES

- To provides the required type of blood group which is nearest to the user/receiver in a short span.
- To provides a platform to donors who are willing to donate blood.
- To send a notification to past donors via SMS if any type of blood group is required.
- To promotes the blood donation campaign organized by a particular organization. (Blood banks, hospitals, colleges)

## IV. APPLICATIONS

A product feature is functionality that has a corresponding set of benefits for the user. User must gain benefits after using different functionalities. The proposed system also has various functionalities. That provides user benefits with easy access and less time consumption.

The proposed system includes following features-

- Donor Management - this feature contains the all details about past donor as well as donor who want to donate blood.
- Receiver's Management - this contain history and data about receiver.
- Location access for nearby Hospitals - when receiver is in need of blood for his person this feature provides location of hospital which is near to him and less time consumed.
- Blood campaign notifications- provide the details of camp such as its allocation, place and time duration via SMS to past donors.
- Blood banks location management [2] - this supply to track the locations of blood banks in particular area.



**V.CONCLUSION**

If the receiver wants a particular type of blood group, he/she has to make a request for blood. The system check availability of required blood, if requirement is satisfy then blood is donated to the requester. Anyone has to donate blood, the donor has to add a request for donating blood and also donor donates blood from blood campaigns which are organized by blood banks and hospitals.

**VI.FUTURE SCOPE**

At the present phase, collecting, analysing requirement and designing has been done. The next goal of system development is implementation, testing and deployment. After the proper coding system’s testing will be done. If testing is success then deployment of the system is occurred.

**TABLE: COMPARISON OF PRE-DEPLOYMENT AND POST-DEPLOYMENT SCENARIOS**

S.NO.	Activity	Pre-Deployment	Post-Deployment
1	Stock Availability	Telephonic/in-person visit by Patients, Hospital staff to each blood bank. Chances that the operator either does not know the exact stock or hides the stock details	a) Online availability of stock. b)Information from multiple Blood Banks is shown in consolidated manner.
2	Donor Repository	No centralized repository of donors. Tedious and time consuming process to search registers for volunteer donors having a particular blood group.	Centralized donor repository. One click search of registered Volunteer donors across multiple blood banks.
3	Enforcing and Authenticity Mechanism	a) NACO and NABH guidelines were manually monitored. b) Chances of typographical errors and lack of consistency due to manual entry.	a) The NACO and NABH guidelines are strictly enforced. b) Bar coded labels available on Bags synchronized with the database. This helps in reducing manual errors due to misplaced tags or entries.
4	Statutory Reports	Manual preparation of stock reports. Delay in dispatch or generation of reports,  No statistical analysis	Real time availability of statutory reports.  Easy to extract statistical information
5	Duplicity	Repeated entry in registers,  Result from Medical Equipments were entered manually in registers.	Once the information is captured, it is available to be used in other forms and reports without re-entry.  Generic Medical Equipment Interface for automatically mapping results from machines to blood samples and inserted into BBMS.
6	Efforts[3]	The staff was occupied in preparation of statutory reports and register entries.  Stock count, donor count were done manually	Online Reports reduce this effort.  Automatic and immediate availability of statistical data based on various parameters
7	Transparency	No provision to display the real time stock in Blood Bank.  In case shortage of blood in blood banks,	a) Comprehensive User Management and Access Policies, b) Transaction Log availability, c) Real Time information available through





		no mechanism to get other blood bank stock status	public portals
8	Accuracy	Donors Physical fitness was directly dependent upon Doctors Examination.  Chances of typographical errors were more	a) On the basis of keyed values system suggests donor fitness. This help in cases where a doctor is not available or a technician conducts the tests.

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