

# A Proposed Model for Establishing An Information System for the Blood Bank (To be Applied in the Misr University)

by

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## ABSTRACT

This work presents designing an information system that can facilitate reaching to the blood groups and derivatives through data base including information about the numbers and types of blood groups and derivatives as well as information about the donors. The present study aims at the hospitals and the Ministry of health, where there is no system that facilitates calculating the numbers and types of blood and indicating its availability. Therefore, the study is geared to developing an online blood banking website that is expected to help blood banking, and develop an online Blood Donation Information.

**Keywords:** OBB,BB,BBS,MS,IS,MUST,BMIS,OBBS,IT,MIS.

## 1. Introduction

The entire information system project development has to keep in mind the distributed client server computing technology. The Blood Donation Agent is to create an e-Information about the donor and organization that are related to donating the blood. The Information System has been designed to perform around the Storage or number of stored units, showing all its movements in real time. A storage of blood components can have different input resources and output such as issue for other branches or for transfusion and withdrawal blood that is not in good condition. Modern medical care, including surgery and medical treatment for many diseases, is not possible without the use of blood products. A shortage of blood products means that someone may not get prompt. Adequate care for those undergoing major surgery, and for others suffering from blood loss are to be considered carefully. Blood transfusions are also used to treat severe anemia resulting from other causes such need calls for introduction of a blood reservation concept called blood banks where the collected bloods are stored until needed. Therefore, this study tries to develop online blood banking (OBB) which will link all private banks of hospitals within one city with

clear access to blood samples in real time and at the right place, and consequently solve non-availability of blood resulting from lack of information. The benefit of developing the (OBB) is to link all blood banks within a wide geographical location to enable the user to share information in a more effective manner. The information system will automatically update the information related to the stored blood. This research serves humanity by preventing many disasters associated with non-availability of blood when needed.

## 2. Proposed System

The online blood bank keeps the name of the donor who is donating blood as a unique id .

The system provides statistics on blood availability within blood banks, registered donors for specific area from the hospitals and blood banks.

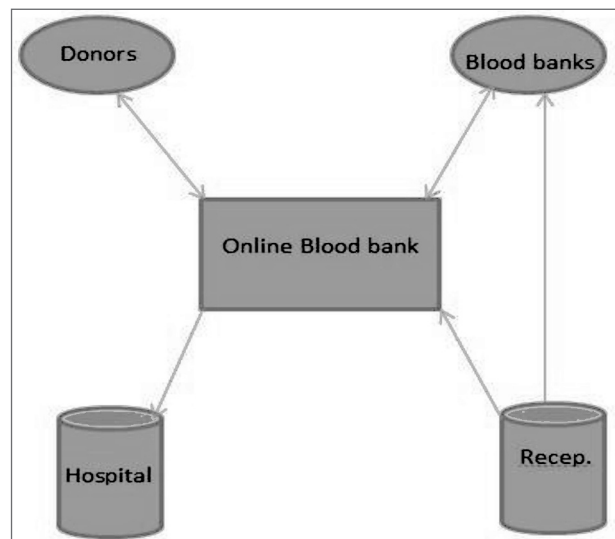


Fig. (1)  
System Architecture

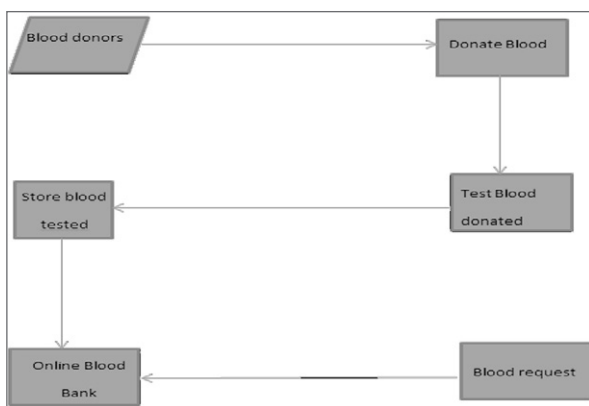


Fig. (2)

**Model of the Online Blood Bank**

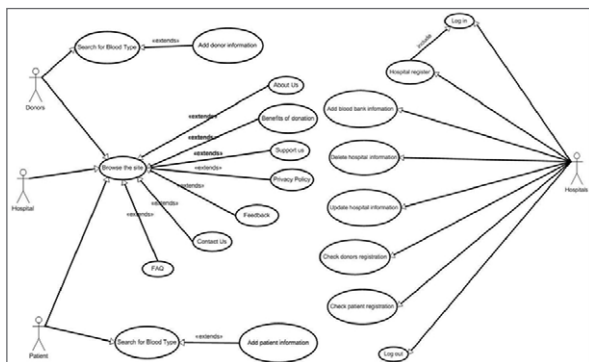


Fig. (3)

**Case Diagram**

**3. Research Questions**

The questions are as follows:

- How can the inventory management in BB be guaranteed?
- How can we develop a BBS?
- How can the information technology contribute to following up the different types and derivatives of blood groups through an information system that can ensure saving the lives of patients?
- In what ways can overall inventory management in BB be guaranteed?
- How can we develop an OBB system capable of handling excessive blood collection and inventory management?
- What is the usability of the developed prototype?

**4. Research Objective**

The objectives of the study are to:-

- Identify the reality of management systems, blood bank, and the need for an information system for management, and access to a range of administrative and technical

models that can be relied upon in the management of information systems in blood banks.

- Reach a set of principles and requirements that can be relied upon when building an information system to manage the branches of the blood banks.

Among these principles and requirements to achieve answering these two main questions are:

- Having easy and rapid access to blood groups and their derivatives of the branches of circulating blood banks in the country.
- Ensuring abundance of blood bags and derivatives of various factions in all branches of the blood bank with adequate quantities.
- Maintaining the validity of blood bags by selecting the appropriate amounts for each branch of the blood banks.

**5. Objectives of the study**

1. To identify ways by which excess collection of blood can be controlled and overall inventory management can be guaranteed.
2. To develop an online internet blood banking capable of handling inventory management.
3. To determine the usability of the developed prototype.

The main objective of the study is to create an electronic blood donor management

information system in order to assist in the management of blood donor records, planning and sharing information in a more confidential, convenient and secure way using modern technology.

Therefore, this research aims to:

- Identify the reality of MS, BB, and the need for an information system for management, and access to a range of administrative and technical models that can be relied upon in the management of information systems, in blood banks.
- To reach a set of principles and requirements that can be relied upon when building an information system to manage the branches of the blood banks.
- One of these principles and requirements is the easy and rapid access to Blood groups and their derivatives of the branches of circulating BB in the country.
- The abundance of blood bags and derivatives of various factions in all branches of

the blood bank with adequate quantities.

-To maintain the validity of blood bags by selecting the appropriate counts for each branch of branches of the blood banks.

#### **6.Importance of the study**

The design of such a model will help patients who suffer from particular problems with

blood, as well as in cases of major accidents and critical cases where the time factor is of

great importance through the organization and automatic control of IS in BB.

This study is important to blood donors because it aims at addressing problems of security,

secrecy and confidentiality of blood donor records.

It also attempts to monitor delays, errors, inconsistencies in medical records and timely

access to historical records, all of which have a farfetched impact on planning and decision-

making.

The study is expected that will result in the following benefits:

1- It will ease the control and distribution of blood in various parts of the country based on hospitals demands.

2- Automated data acquisition and quick access to medical records by the legal users of the system will be assured.

3- It will continue to improve on the planning and decision-making process by providing to management timely, secure and confidential medical reports related to blood donation.

4- It will improve medical service delivery due to timely and easy generation of management exports by the relevant entities.

5- The study will benefit MUST management, which will find it easy to strategically plan, coordinate and take decisions concerning BDR activities.

6- MUST counselors will be able to keep confidentiality of the donor's results and disseminate blood results to donors with ease.

7- The automation of the data collection process will simplify the work of the data clerks.

#### **7. Results of the Study:**

The most significant results of this study are:

1- Managing the records of donors, BB centers, and re-

ipients.

2- Reducing human error when employees keep the records.

3- Each hospital or BB center can register on the website and make its own account that contains information about the hospital: the blood types needed and the blood types available.

4- Encouraging voluntary blood donations.

5- Making it easier for donors to find the appropriate recipients for whom to donate blood by searching in the website by blood type; a list of BBS that need that blood type will appear.

6- Making it easier for recipients to find the appropriate donors by searching in the website by his blood type.

7- Developing a BMIS to manage the records of blood donors.

8- Educating the community on the benefits of blood donation.

9- Collecting donor's information easily and efficiently.

10- Increasing the number of donors by increasing the facilities provided to them.

11- Providing fast and easy accessible system for patients and donors.

12- The system is able to handle emergency situations and the BB centers will have enough blood for all patients by receiving the required blood.

#### **8. Conclusions**

This research aimed to develop an OBBS to be made use of to overcome the problem of shortage in the amounts of blood in the BB, and by connecting the branches of the bank through the internet to make it easier for them to share the available amounts of blood. This service is considered a humanitarian one. In the world of IT where the entire world is becoming a global village, where end user can get the information while sitting at home by only one click. In fact the government has taken a step in order to transform the system. MIS helps to make the system paper less. All the money transaction is made possible because of the MIS. The researcher believes that developing the management information system for the blood bank brings revolutionary changes in the system. It is a small contribution of the researcher in order to serve mankind. It can save lives by educating the public about the benefits of blood donation, encourage them to donate, and manage the records

of donors and people who need blood, to help the people who need blood to find the appropriate donors as soon as possible in quick, perfect, and a safe way with less effort. Therefore, the results from this study can be used as a basis, a stepping stone, a roadmap or a starting point for future research and studies related to this topic.

ABB	Description
OBB	Online Blood Bank
BB	Blood Bank
BBS	Blood Bank System
MS	Management System
IS	Information System
MUST	Misr University For Science & Technology
BMIS	Blood Management Information System
OBBS	Online Blood Bank System
IT	Information Technology
MIS	Management Information System

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