**CHAPTER 1**

**Overview of the Current State of Technology**

In today’s generation computers grow fast and became a way of life in working, it is evident that nowadays we people know how to use computer. Most of the offices now use computers to connect other offices by the use of internet specially to those affiliated institutions and departments specifically the Philippine Red Cross. This government department supports blood banking program which is very essential at the time that blood is needed for treatment.

Nowadays, people struggles to find bloods for their patients at the time that blood is urgently needed. Lack of stocks, compatibility and long-distance blood banks that will waste their time and money for travelling yet un assured outcomes. Blood banks cannot accommodate all request due to the lack of blood donors and because of this problem some patients cannot recover to their diseases and result to even worst situation.

With the presence of Technology today, this research is intended to solve those problems with the help of Information Technology to design a web-based blood banking system that will help those people find blood urgently and minimize those existing problems. This system will be implemented through website that can be accessible anytime and anywhere as long as there is internet connection. This system is very significant because it will lead us to faster transaction and guarantee us faster blood seeking. With the help of this system, problems existing will be lessened, and because of this it will be easy now to find blood.

Thus, the proponents want to propose this research at the three red cross blood banks in misamis occidental including Ozamiz, Oroquieta and Tangub City chapter.

**Research Objectives**

The main objective of this project is to provide a reliable and accessible web-based blood banking system website that can be used in searching for blood in different Red Cross blood banks including Oroquieta, Tangub and Ozamiz Chapter. Specifically, it aimed to:

1. Introduce web-based blood banking system to the blood bank administrators and train how to manage it.
2. Lessen paper work to the administrator and introduce online record keeping
3. Connect and establish communication of data and records for the three blood banks included.
4. Provide real time blood records with information which depends to the specifications of blood seeker; and,
5. Design a user-friendly website that will be suitable for any people accessing it.

**Scope** **and Delimitations/Limitations of the Project**

The research will be conducted in the three blood banks in Misamis Occidental only. The environment will be limited in Red Cross Ozamiz, Oroquieta and Tangub City Chapters. The researchers will also delimit the study to the people of Misamis Occidental and nearby cities and municipalities who knows how to use and surf the net by the use of google chrome browser.

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**Significance of the Research**

The project Blood Seeker (*web-based blood banking system*) can be a big contribution in the field of Information Technology through this innovative project specifically in the field of web development. This project will be a big help to the society and to the beneficiaries that will use this kind of new innovation. This will give a faster and reliable system that can be accessible anytime that blood will be needed urgently. This project will benefit the people behind the kind of methods and tools used in this project in the development process. It will be a big impact to the society that Information Technology is very useful nowadays in terms of blood banking. Aside from it, the project will benefit the following:

**People**: This project will help people away from city blood banks to be keep in touch and see available bloods without spending time and money when blood is needed urgently.

**Administrators:** This project will help blood bank administrator to lessen their paper works and to make the operation more fast and convenient.

**Blood Donors:** This project will help blood donors to lessen hassle to multiple forms to be filled up just to donate blood.

**Future Researchers:** This project will be used by future researchers so that they can establish their own ideas for improving their system.

**Operational Definition of Terms**

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| **Term** | **Definition** |
| SDD | (Software Design Description) is a written description of a software product, that a software designer writes in order to give a software development team overall guidance to the architecture of the software project. |
| System Architecture | is a conceptual model that defines the structure, behavior, and more views of a system. An architecture description is a formal description and representation of a system, organized in a way that supports reasoning about the structures and behaviors of the system. |
| System Design | is the process of defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirement. Systems design could be seen as the application of systems theory to product development. |
| UI | (User Interface) the means by which the user and a computer system interact, in particular the use of input devices and software. |
| Test Design | is creating a set of inputs for given software that will provide a set of expected outputs. The idea is to ensure that the system is working good enough and it can be released with as few problems as possible for the average user. Broadly speaking there are two main categories of Test Design Techniques. |
| System Requirements | often used as a guideline as opposed to an absolute rule. Most software defines two sets of system requirements: minimum and recommended. |
| UML | (Unified Modeling Language) is a general-purpose, developmental, modeling language in the field of software engineering, that is intended to provide a standard way to visualize the design of a system. |
| Deployment | the action of bringing resources into effective action. The implementation of the project within a specific client. |
| Diagram | a simplified drawing showing the appearance, structure, or workings of something; a schematic representation. |
| Test Plan | is a document detailing the objectives, target market, internal beta team, and processes for a specific beta test for a software or hardware product. The plan typically contains a detailed understanding of the eventual workflow. Software Testing portal. |
| Architectural Design | the process of defining a collection of hardware and software components and their interfaces to establish the framework for the development of a computer system. |
| Software | the programs and other operating information used by a computer. |
| Use Case Diagram | are usually referred to as behavior diagrams used to describe a set of actions (use cases) that some system or systems (subject) should or can perform in collaboration with one or more external users of the system (actors). |
| Blood Banking | refers to the process of collecting, separating, and storing blood. blood banks collect blood and separate it into its various components so they can be used most effectively according to the needs of the patient. |
| PRC | (Philippine Red Cross) is a member of the International Red Cross and Red Crescent Movement. The PRC was established in 1947, with roots in the Philippine Revolution against the Spanish Empire. |
| SRS | (System Requirements Specification) is a description of a software system to be developed. It lays out functional and non-functional requirements, and may include a set of use cases that describe user interactions that the software must provide. |
| Data Structure | is a particular way of organizing **data** in a computer so that it can be used efficiently |
| Database | is a computer software application that interacts with the user, other applications, and the database itself to capture and analyze data. A general-purpose DBMS is designed to allow the definition, creation, querying, update, and administration of databases. |
| User Interface Design | User interface design (UI) or user interface engineering is the design of user interfaces for machines and software, such as computers, home appliances, mobile devices, and other electronic devices, with the focus on maximizing usability and the user experience. |
| Maintenance | the process of maintaining or preserving someone or something, or the state of being maintained. |
| Process | A paradigm (methodology) for producing a project. Examples are the Waterfall Paradigm, the Unified Software Development Process  or Rapid-Prototyping. |
| System Reference | A document designed to be the foundation for all maintenance. It includes the SRS, SDD, Test Design, User Manual and information about the current state of the project. |
| User Manual | A user guide or user's guide, also commonly known as a manual, is a technical communication document intended to give assistance to people using a particular system. |

**CHAPTER 2**

**Review of Related Literature and Studies**

This chapter discusses the features, capabilities and limitation of existing research, algorithms, newspaper accounts, documents, letters, websites or software that are relevant and related to the study.

**Related Literature**

db net solutions. Web based applications have evolved significantly over recent years and with improvements in security and technology there are plenty of scenarios where traditional software based applications and systems could be improved by migrating them to a web based application. Most web based applications are far more compatible across platforms than traditional installed software. Typically, the minimum requirement would be a web browser of which there are many. (Internet Explorer, Firefox, Netscape to name but a few). These web browsers are available for a multitude of operating systems and so whether you use Windows, Linux or Mac OS you can still run the web application.

Encyclopaedia. In a browser-based Web application, JavaScript instructions are contained within the Web page that is retrieved from a website. Combined with the HTML code that determines the visual layout and the CSS style sheet, the HTML, JavaScript and CSS are executed via the browser. In addition, processing at the server side is often widely performed to access databases and other networks. The data for a Web application may be stored locally or on the Web, or in both locations. Web applications may also run without the browser. A client program, which is either installed in the user's computer or mobile device or is downloaded each session, interacts with a server on the Web using standard Web protocols. This is similar to the "client/server" architecture that prevailed in companies before the Internet exploded, except that today the server is often on the Internet rather than the local network. Just like browser-based applications, the data may be stored remotely or locally.

Cebu Daily News/Inquirer (2013) a total of 71 blood bags were collected during the grand bloodletting day conducted by Dedon, a furniture manufacturing company, in partnership with Philippine Red Cross on June 14 at their plant in barangay Canduman, Mandaue City. Fifty (50) employees braved the needles to save other’s lives. Cheryl Fuentes, donor requirement officer of Red Cross, thanked Dedon for spearheading the activity. She also acknowledged the employees as the main contributors of their blood donation cause. She said donating blood is to share a gift of life to the indigent people who cannot afford to buy blood. “This is a lifesaving program,” she said, referring to the grand bloodletting day, which Dedon has been holding every year since 2010.

According to Clin Diagn Res (2013) blood transfusion is an important concern for the society, as it is life saving for patients with bleeding disorders, accidents, surgeries, inherited/acquired hematological diseases etc. Voluntary blood donors are the cornerstone of a safe adequate supply of blood and blood components. The task of recruiting voluntary blood donors remains one of the major challenges for any blood transfusion service. One of the objectives of the National Blood Policy is to encourage research and development in the field of Transfusion Medicine.

Cebu Daily News/Inquirer (2011) Randal Angob, donor recruitment officer of the DOH-7, said their blood supply is way below the daily consumption of 150 bags of blood, thus the need to intensity their bloodletting campaign in schools. ” The 33 bags we have collected from MCC means a lot,” he said. Each bag contains 450 cc of blood. But he said they have yet to screen the blood. Gretzyl Zamora, one of the attending nurses and admired the students for donating blood, braving the needles. Richard Perez, the school’s coordinator for National Service Training Program (NSTP), said majority of the donors from the NSTP class were males. During the activity held inside the school campus, many volunteered to donate blood but were disqualified after failing to get the minimum six-hour sleep required for a donor.

**Related Studies**

Based on the researcher. The Online Blood Donation Management System is to create an e-Information about the donor and organization that are related to donating the blood. Through this application any person who is interested in donating the blood can register himself in the same way if any organization wants to register itself with this site that can also register. Moreover, if any general consumer wants to make request blood online he can also take the help of this site. Admin is the main authority who can do addition, deletion, and modification if required. Online Blood Donation Management System project is aimed to developing an online Blood Donation Information. The entire Online Blood Donation Management System project has been developed keeping in view of the distributed client server computing technology, in mind. The Blood Donation Agent is to create an e-Information about the donor and organization that are related to donating the blood. Through this Online Blood Donation Management System application any person who is interested in donating the blood can register himself in the same way if any organization wants to register itself with this site that can also register. Moreover, if any general consumer wants to make request blood online he can also take the help of this site. Admin is the main authority who can do addition, deletion, and modification if required. Online Blood Donation Management System project is designed such that it follows the view of distributed architecture having centralized storage of the database part. By using the constructs of MS-SQL Server and all the user interfaces have been designed using the ASP.Net technologies. The database connectivity is planned using the “SQL Connection” methodology. The standards of security and data protective mechanism have been given a big choice for proper usage. The application takes care of different modules and their associated reports, which are produced as per the applicable strategies and standards that are put forwarded by the administrative staff. (PROJECTSGEEK, 2013).

Online Blood Bank project aims at maintaining all the information pertaining to blood donors, different blood groups available in each blood bank and help them manage in a better way. The blood donors can register to this system by entering their profile information. It Aim is to provide transparency in this field, make the process of obtaining blood from a blood bank hassle free and corruption free and make the system of blood bank management effective. Features of Online Blood Bank, hence it is web based application it can be implemented everywhere. Management can organize Blood Donation Camp. Blood donors can register through online. Management can manage blood donor’s database by recording their physical and medical statistics. Inventory management in blood bank for storage and issuance of blood. User can send Blood request and they can check the donors list. Blood request from one branch to another branch. Displays information about expired blood. This supports multiple users. This system generates different types of report. This project is developed using JSP and all the record stores in the database. This project has SMS feature. The bulk SMS alert goes to all blood donors. WAY2SMS gateway imported in this system. The system works with MVC model. (Shiva Prasad, 2016).

The software system is an online blood bank management system that helps in managing various blood bank operations effectively. The project consists of a central repository containing various blood deposits available along with associated details. These details include blood type, storage area and date of storage. These details help in maintaining and monitoring the blood deposits. The project is an online system that allows to check weather required blood deposits of a particular group are available in the blood bank. Moreover, the system also has added features such as patient name and contacts, blood booking and even need for certain blood group is posted on the website to find available donors for a blood emergency. This online system is developed on .net platform and supported by an Sql database to store blood and user specific details. (Nevon Projects)

Based on the researcher. The BLOOD BANK MANAGEMENT SYSTEM is great project. this project is designed for successful completion of project on blood bank management system. The basic building aim is to provide blood donation service to the city recently. Blood Bank Management System (BBMS) is a Web based application that is designed to store, process, retrieve and analyse information concerned with the administrative and inventory management within a blood bank. This project aims at maintaining all the information pertaining to blood donors, different blood groups available in each blood bank and help them manage in a better way. Project Aim is to provide transparency in this field, make the process of obtaining blood from a blood bank hassle free and corruption free and make the system of blood bank management effective. (PhpTPoint)