GREEN UNIVERSITY OF BANGLADESH (GUB)

Geo-Location Based Blood Donor Searching System

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Declaration

We really do thus pronounce that this project report has been arranged by us under the supervisor of **MS. FEROZA NAZNIN**, Lecturer, Department of Computer Science and Engineering, Green University of Bangladesh, for the halfway satisfaction of the prerequisite for the B.Sc. degree from the Department of Computer Science and Engineering at Green University of Bangladesh. We likewise declare that this project report is unique and has not been submitted somewhere else.

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Certificate

This is to certify that the proposal entitled **GEO-Location Based Blood Donor Searching System** has been arranged and presented by **Saima Akter, Tanbirul Islam** and **Nazrul Islam** iin fulfillment of the necessity for the degree of Bachelor of Science in Computer Science and Engineering on July 21, 2022.

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Supervisor

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Acknowledgments

Any achievement requires the work of many individuals and there are no exemptions we first of all might want to say thanks to almighty allah for his grace which permitted us to finish this work we might want to thank our supervisor **MS. FEROZA NAZNIN**, Lecturer, department of computer science and engineering green university of Bangladesh, for her consistent direction and backing occasionally notwithstanding her bustling timetable. Her ideas support persistence consideration analysis and exertion for adjustment and improvement from the start to the furthest limit of the exploration work have made the fruition of the venture conceivable. We are particularly grateful to our companions for their ethical help.

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Abstract

Finding blood donors are the most widely recognized clinical necessity at current circumstance. As we know that blood can't be manufactured and must be obtained as a gift from individuals. The most common way of finding donor becomes dreary in certain circumstances as this process of finding donor becomes untrustworthy and inaccessible in the emergency situations.

To survive the above frame this application is presented. In this application, the interaction is improved on searching the donor based on the area expected by mentioning users or blood seekers. The search result shows generally accessible enrolled donors through application who given their all location and other information to the system. This application working incorporates where the blood seekers or patients enter into application and can see all available donors in their area. The User's current location is distinguished while the users take entry into the application from its latitude and longitude value using GPS. If the patient/user has need to find any donor in a particular area, the patient can make choose the blood type and location and click the search button. The rundown of all donors is recorded in determined areas. It likewise incorporates a button appearing "request all" after list items are shown or the seeker can contact the donor individually. Because, system will show the contact information of desired blood donor. The patient can make contact directly with donor or can request the blood via system.

The main aim of our system is to provide an efficient application to the blood seekers or the patients to find the donors on their nearest location when need the blood and we hope that our application will decrease the problem of getting donor on delay and will be minimize the number of deaths due to the lack of blood.

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Chapter 1

Introduction of The Project

1.1 Introduction

Blood is the fuel of life and it is notable that blood ought to be bonded to the people who need it during emergency freely. Numerous situations require the quick accessibility of a blood donor. During these difficult times, a Geo-location based web application that gives an ideal choice to distinguishing donors depending upon the user's/patients desired location and submitting request will be invaluable.

The application is essentially intended to save time and make the method of searching blood donor as straightforward as could be expected. The application allows to the users/patients to submit a request for donor or make direct contact with the donor by utilizing the application. The users can enters the details of the blood mentioned and the chose area, and the system is shows the all recorded donors of the particular blood group and location stored in the application utilizing GPS.

After search user can be contacted with donor individually or can request to all funded donor by clicking select all and sending a "broadcast request". Donor will get a notification via e-mail and mobile SMS. If the requested has been approved then the seekers also get a notification message.

1.2 Motivation

Blood Donation is a highborn demonstration and one of the most representative commitments one individual can make to save a human life. One unit of blood can be life-saving something aside for patients who are engaged with a road accident or who will have significant medical surgery or a patient who needs long-term blood treatment or chemotherapy. Patients with weakness and thalassemia need to go through standard blood transfusions. More often than when a patient needs blood the donor is the patient's friend or relative. In worst scenarios, there is possibility that the patient's blood group doesn't match with friends or relatives and makes a mess and they need to look for a donor or blood in the blood bank. Usually, blood bank stores blood from donors when they are available to donate blood. But there is a greater possibility that the donated blood stored in blood bank for a long time because of not seeking this blood from patients. Medical science say that, it is totally prohibited to us the blood that has been donated before 30 days or past. So that in this situation patients need to search the blood donor to get the fresh blood.

Having said that, to find a blood donor out of family members or friends is not so easy. Currently there are some blood donation applications to find the blood donor for patients. But it is a long procedure to get a donor. Because in current systems we can find the blood donor randomly. They might be too far from patient's location and there not any privilege to make direct contact with donors. Patients have to request for blood and system will approved the request and then patient can get the donor contact information. Therefore patients falling in risky situation only because of net getting the donor on fingertips. Sometimes patients are dying because of delay of blood donation.

Also there are some other problems. These are, we know that a donor can donate blood after 120 days of last donation. In some time donors can to remember their last donation date. So that they can't make sure weather they are available or not available to donate. In some serious cases the donor take attempt to donate blood when they are not available, but they don't know the exact date of their last donation date. It can be a greater health risk of a donor.

So, to overcome these type of problems our application is proposed. To remove the delay of blood donor patient can search donor by a particular blood group in their nearest location by using GPS. They can see how many donors in their nearest location and can make direct contact with donor by phone or email. It will help to get donor easily within short time. Our system is providing another privilege to donor that they can update their donation date. So that system will automatically notify them when they are available to donate blood. It can be helpful to maintain a good health for the donors.

1.3 Aims and Objectives

Aim: The main aim of this project to make a Geo-location based blood donor searching system that will decrease the delay of blood donation and also decrease the death percentage who are dying for shortage of blood.

Objectives: As we mentioned that there are many existing blood donor searching system where patient can search the donor and get the blood. But we wanted to provide a better blood donor searching system which can help patients to find the donor in short time. Along with the aim of time saving, we have some other objectives as well. Therefore, our objectives of this system are:

- Use GPS system for searching blood donor in the particular area within short time and send notification to them.
- Donor's eligibility checking.
- Give an automatic availability notification via Mobile SMS and Email to blood donor after 120 days from last blood donation date.
- Email, SMS and notification sending facility.
- Manage all blood donation history.
- Advance blood donor booking system.
- Save time while seeking the blood donor.

- Post many types of blog which will be helpful for blood donor and patients.
- Blood donor can manage their profile and provide regular update.
- Inspiring to the voluntary organizations.

1.4 Scope of the Project

In our proposed system our working scope is to provide a unique and standard blood donor searching system for the patients. Especially in emergency situations as like accident and delivery cases.
Our working scope is provide donor registration, mobile phone verification, GEO location based donor searching, automated notification, donor availability, direct contact with donors. We have successfully able to provide these all features in our system.
Besides, we also have many more scope like AI integration, deploy mobile app, live donor tracking and so on. These feature is not providing at this moment but we will deploy these all thing day by day in nearest future.

1.5 Problem findings and feature will provide

There are many donor searching portal from around the world which help users to find a blood donor by searching the given location information. However, all of them are providing only manual searching system and many of them are not allowing then patients to make a direct contact with donors. There are some services all of them have in common:

- Search donor manually.
- Make blood request to system admin and system admin will approved this request and send to donor.
- Searching bay given all location information.
- Update donor profile.

- Need Registration for blood request.

Those are the services of most blood bank and donor searching systems and they are provide in different way. No doubt that currently these are the top blood bank and donor searching applications. However those are build for emergency blood support to the patient and they are working well. Our "GEO-Location based blood donor searching system" will build the same experience but some updated and impressive technical feature will be carry for our country people.

Better UX: Our system will provide a user-friendly UI and give a seamless experience to the user so that they can operate it so easily.

GPS Searching: Our system will provide GEO-location based donor searching using the GPS technology. After that the patients will find the blood donors in their nearest location. It will save time and life as well.

Donor's eligibility checking: Our system is launching a new feature that is a donor will be unavailable for 120 days (4 months) after the last donation. Because according to medical science, a donor can donate blood in every 120 days. So that our system will tracking this time period and notify the donor when they are eligible to donation.

Manage all blood donation history: Our system is taking all history of donation blood and patients records for future needed. So that a donor can see their donation history at a glance.

Donor's Profile Management: The donors can update any kind of information of their profile along with their location. So that patient will be able to see their current location and contact information.

Blog Post: There are a new feature of our system that is there will be section of blogs. People around the world can read these blogs and get aware about health and know about the advantages of donation of blood.

1.6 Research Questions

The question depends on a comprehension of the users' origination's, feelings, and contemplation's. Moreover, the mission and vision explanation give the audience an exceptionally clear feeling of what's on their brains. Here are the questions, which should be replied in a consistent order.

1. What are the functions of this project?

Answer: The project is Geo-Location Based Blood Donor Searching System. In this system the patients can find the required blood donor in their nearest location by using GPS technology. Besides that, they can booked donors for advance situation like surgery, Pregnancy delivery and so on.

2. Why will people use this?

Answer: In one word, our system will save a lot of time as well as the life of a patient. Because in current system, it's not easy to finding a blood donor on your fingertips. Therefore, don't find the donor within short time it's a risky situation for the patients. So, to find a blood donor within short time people should use our system.

3. How the people get benefit from these services?

Answer: The main goal of this project is to help the people in emergency cases. Our system can help to save a life by arranging a blood donor in the nearest location. The biggest benefit of our system is get blood in short time in emergency situations.

1.7 Project Outline

• Chapter- 2: Initial Study

• Chapter- 3: Literature Review

Chapter 4:System Requirements Analysis and Diagram Design

Chapter 5:System Interface Design and Implementation

Chapter 6:Test Case

Chapter 7:Conclusion and Future Work

Chapter 2

Initial Study

2.1 Introduction

Blood is one of the main components of human body, it tends to be characterized as liquid in the body that convey oxygen from lungs to the rest part of the body. We have 4 to 6 liters of blood in our grown-up body rely upon size. This framework is proposed to find the closest blood donor in instances of crises and in quickest way. This exploration additionally is take care of the blood the executives' concern where the blood can't be save for quite a while and cause blood donation center require blood whenever.
GEO-Location based blood donor searching System is meant to develop an Internet based solution for search blood donor all over the country. It is exceptionally normal situation that many individuals dies because of not getting blood in crisis time. This project is expected to give a protected and fast method for tracking down a blood donor and give blood. This system will be formed into a framework that will help the blood donation centers, intentional associations, blood givers and patients to effortlessly team up and do free blood donation.

2.2 Background Study

Right now the world relies upon technology and everybody from the youthful to the old appear to be profoundly involved. Because of the fast improvement of technology, it

assume a huge part in the cutting edge life of individuals and it significant components in the present society. One of the ongoing technology is GEO location. A GEO location based system is a deeply grounded technology in this period which is solid innovation. It distinguishes the ongoing geolocation of an objective. Utilizing GPS empowered smartphones to gather route information is moderately new advancements, however quickly propelling method utilized in research. Blood donation is one of the most commitments towards the general public. Millions of individuals need blood transfusions every year. Some might require blood during a medical surgery. Others rely upon it after an accident or on the grounds that they have a sickness that requires blood parts.As per World Health Organization (WHO), expressed that to full filled the blood interest, 4.6% out of the populace ought to approach as a donor yet just 2.25% who selflessly be as a donor.

However there are numerous voluntary associations and groups are working in our country to serve blood at whatever point get blood demand. There are some web-based blood donor searching through entries additionally which are predominantly founded on the fundamental hunt framework on ABO blood gathering like http://infoblood.org/ which provide the users to look through the particular donor no location based searching, https://badhan.org/ permits district wise donor searching, http://www.bdrcs.org/ donate-blood red Crescent blood donation society has a little data set with no search choice and finally, http://www.blooddonorsbd.com/ has the blood group wise and region wise donor searching.

Yet, there is no concentrated GPS based blood donor searching system in our country. Presently it is basically impossible to legitimize whether a donor is sufficiently fit to give blood or on the other hand in the event that a donor is giving blood after least 120 days of past donation. Additionally, it is absolutely impossible to give automatic notify the close by accessible blood donors about a crisis blood donation demand. Voluntary associations and volunteers generally attempt to deal with the necessary blood which may at times cause death for getting late. Our system will make the entire interaction all the more simple, solid and viable and furthermore guarantee the wellbeing of donor's medical problems. Thus, this kind of system has a sound demand in current market.

2.3 Description of the proposed system

GEO-Location Based Blood Donor Searching System is a web-based application that assists with finding the current location of the blood donor. Utilizing this system, individuals can look and demand for blood donors in their closest area, blood donors can see notification and blood requests and furthermore see their donation history, system can legitimize the donor's eligibility to give blood, deal with donor's serology reports and add the last donation subtleties of the donor.

GEO-Location Based Blood Donor Searching System is a web-based application that assists with finding the current location of the blood donor. Utilizing this system, individuals can look and demand for blood donors in their closest area, blood donors can see notification and blood requests and furthermore see their donation history, system can legitimize the donor's eligibility to give blood, deal with donor's serology reports and add the last donation subtleties of the donor.

Moreover, individual blood Donor can manage their profile. As like they can change their own information, contact number, area, add donation history, etc. Thus, patients can search and find blood donor effectively by using our application.

2.4 Feasibility Study

In General, Feasibility study is an evaluation of the practical usability of a proposed project plan or technique. This is finished by dissecting some feasibility factors.

2.4.1 Operational Feasibility

Since, this feasibility worry about the convenience, usability and required functionalities of the proposed system. The proposed GEO-Location Based Blood Donor Searching System has appropriate validation and verification for user's inputs, exceptionally simple and smooth route system, and location based searching through user's choice, simple request option which will make the system a lot more straightforward and easy to utilize. System Administrator, blood donor and blood searcher can undoubtedly gain

admittance to the entrance with legitimate credentials and play out their assignments productively.

2.4.2 Technical Feasibility

This feasibility test chides, the users of GEO-Location Based Blood Donor Searching System can undoubtedly deal with their activities as opposed to past manual interaction. We are going to use IIS for deployment, MSSQL database server, Asp.Net Core utilizing entity framework, Microsoft office for documentation reason. The system is planned and created utilizing most recent and famous web technologies that ensures that the system is viable to run in any internet browsers with low-level Internet connection. Our system has an entrance control order to keep up with secure admittance to the system information. Web based application is stage autonomous and its picked advancement stage and assets are reasonable and cost effective so it will be technically feasible.

2.4.3 Research and Market Analysis

This segment incorporates the market and user's interest along with the ratio of seekers and donations. In Bangladesh, most maternal death happens because of the absence of blood in crisis situations. As per WHO (World Health Organization), just 40% of required blood is gathered every year in Bangladesh and 80% of women who die during pregnancy, bite the dust for blood (WHO, 2017). Then again, street accidents, fire, and risky heart diseases are common scenarios in our nation and this large number of cases require an enormous measure of blood for the victims.

A survey has been led by "Access to Information (a2i), ICT Division, Bangladesh" to figure out issues in getting blood donors in Bangladesh. Information has been gathered from 430 respondents in various metropolitan and country areas of Bangladesh. Besides, top to bottom meetings have been led by medical clinic authorities, blood donating associations, public and private associations, and volunteers who work for different blood donating associations.

This study discovers that patients need blood for delivery cases (76%), medical surgery (55%), kidney diseases (33%), thalassemia (37%), and sickliness (41%). Around 48% of blood seekers report that they expect around 19-24 hours for dealing with each bag of blood. The seekers additionally report that they gather blood from family members (77%), blood donating associations (33%), and blood donation centers (26%). Around 26% of donor's report that they need to pass in excess of 6 km for blood donation. Previously and during blood donation, donors faced a few issues like transportation issues (38%), adapting to crisis cases (32%), incompetent staff (29%), health-related issues (15%), and extended cross-checking process (35%).

There are various individuals who desperately wanted to donate blood, but can't find the confidence because of these problems. In any case, they can't donate blood because of the absence of accessible communication with blood seekers. Keeping up the database of donors, preparing staff, and involving the latest technologies and machines for blood donor searching and blood donation process can remove this kind of problem in donor searching as well as donation.

In the current era, there is colossal demand for the GPS system and automated systems for managing the blood donor searching and donation. This system can automatically send messages emails notifications to the important blood donors after a blood request is created. Thus, the "GEO-Location Based Blood Donor Searching System" will be a new and compelling stage for the people of the country.

2.4.4 Findings of the Research and Market Analysis

Findings from Blood Seekers and Blood Donors:

Blood Seekers:

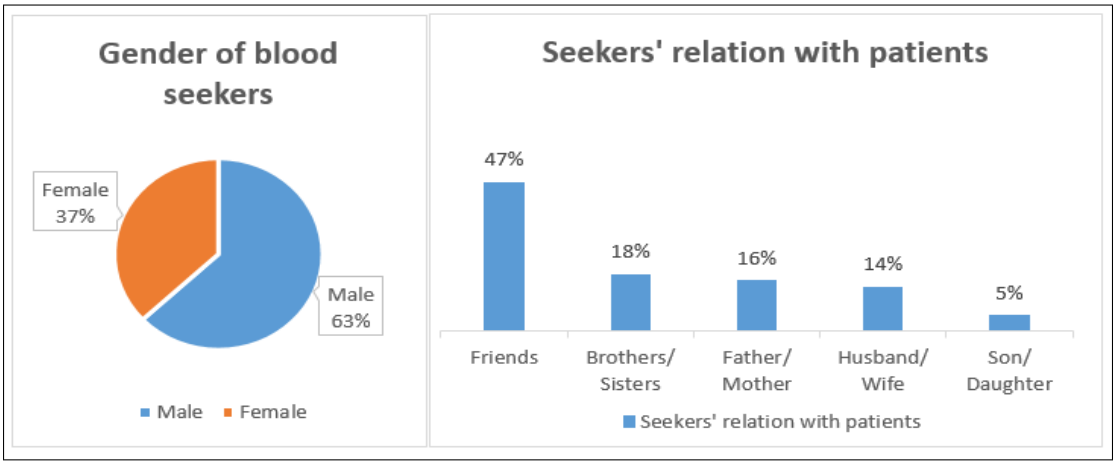

Figure 2.1: Gender of blood seekers (a) and seekers' relation with patients (b)

Figure 2.1 (a) represents the gender of the blood searchers. It has been observed that there were 63% of male blood searchers what's more, 37% of female blood searchers searched for blood for their family members and companions.

Figure 2.1 (b) represents blood searchers' connection with the patients for whom blood was searched and gathered. It has been found that around 47% of respondents searched for blood for their friends. Around 18% of respondents have searched for blood for their siblings while 16% of blood searchers searched for blood for their dad and mom

Blood Donors:

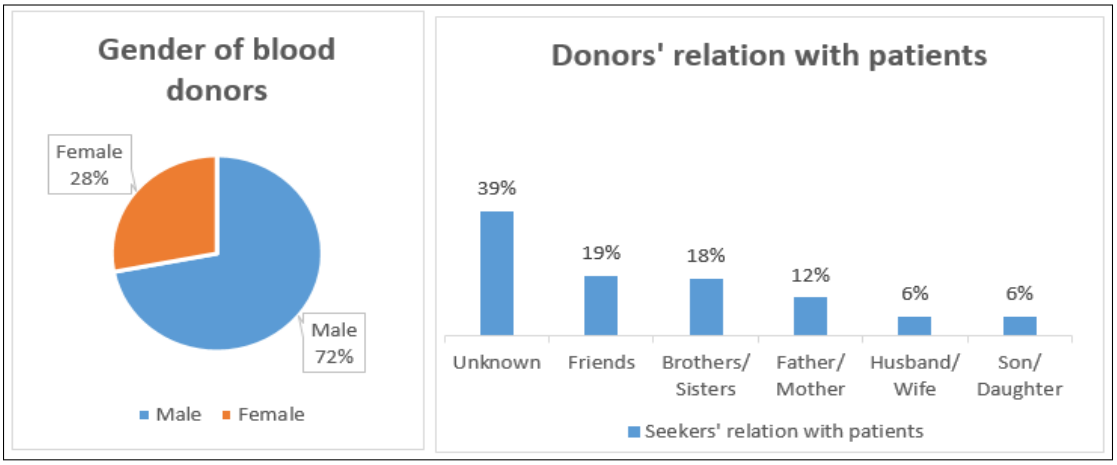

Figure 2.2: Gender of blood donors (a) and donors' relation with patients (b)

Figure-2.2 (a) represents the gender of the blood donors. There were 72% male donors and 28% are female.

Figure-2.2 (b) represents the donors' connection with the patients. It has been tracked down that around 39% respondents given blood to unknown patients. Around 19% donors have given blood to their friends. Around 18% donors have given blood to their siblings.

Purposes of Blood:

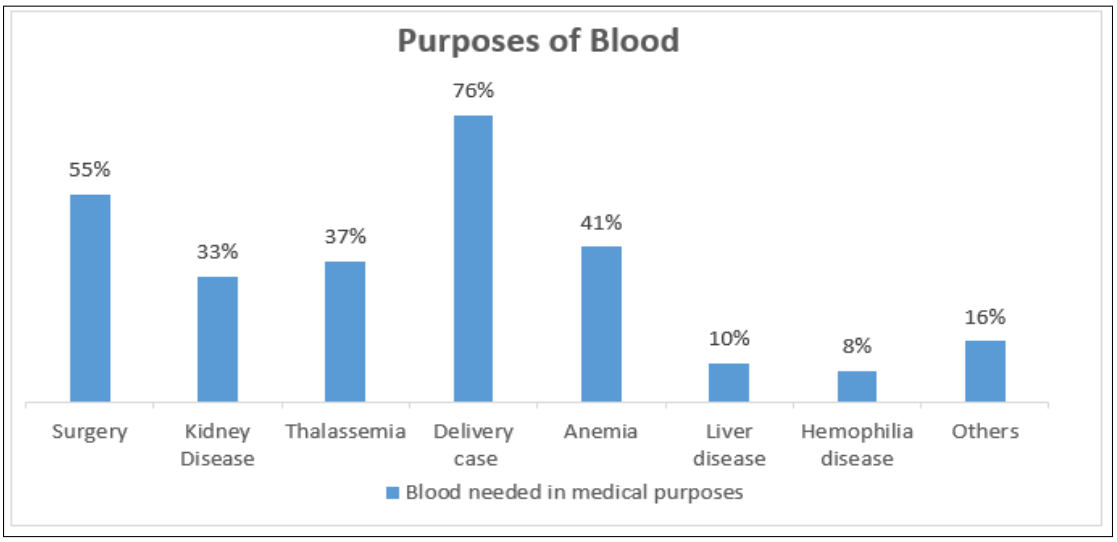

Figure 2.3: Blood needed in different medical purposes

Figure-2.3 shows the reasons or instances of blood donation. It has been observed that blood is required in the vast majority of the delivery cases (76%). Around 55% respondents have referenced that they gave blood to a medical surgery patients. Around 41% donors have referenced to need blood for Anemia patients. Approximately 37% of Thalassemia patients looking for blood. 33% Kidney Disease seekers are looking for donors.10% and 8% patients of Liver disease and Hemophilia disease respectively desperate for blood and around 16% other patients looking for blood donation.

Needs of Blood Bag and Time:

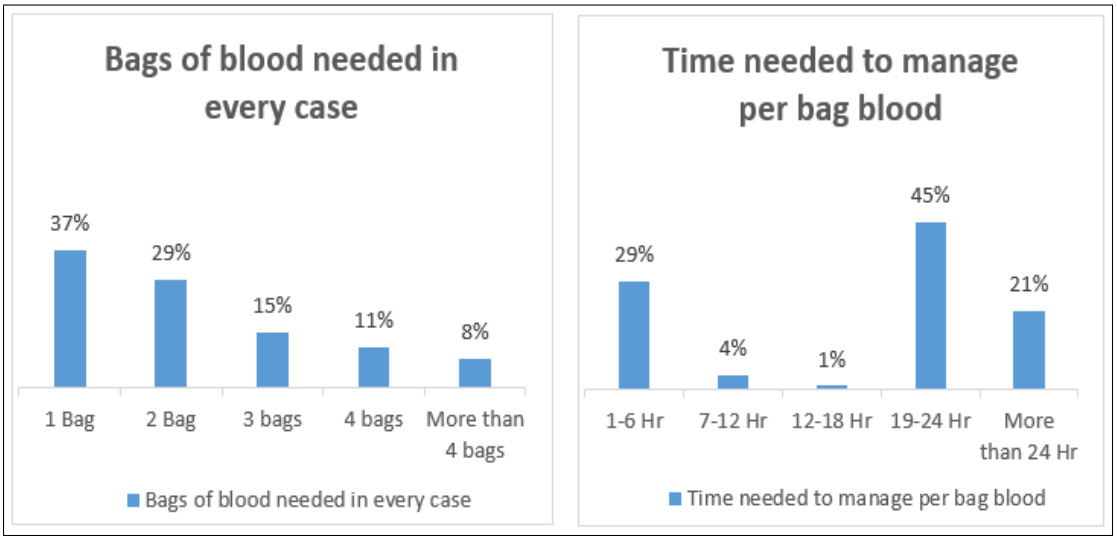

Figure 2.4: Bags of blood needed in every case (a) and time needed to manage per bag blood (b)

From figure 2.4 (a) it has been tracked down that a greater part (37%) of respondents required one bag of blood. Then again, just 8% of respondents believed that they required multiple bags of blood. Around 29% of respondents have referenced that they required two bags of blood. 15% of respondents demand 3 bags and 4 bags of blood needed for around 11% of patients.

Figure 2.4 (b) addresses the time required by the blood searchers to gather a bag of blood. A larger part (45%) of the respondents have referenced that they expected 19-24 hours to manage each bag of blood. Just 1% has announced that they required 12-18 hours to gather for each bag blood. Around 29% responded that need 1-6 hours to collect every bag of blood. 4% claimed that they needed 7-12 hours and 21% opine that they needed more than 24 hours to collect each bag of blood.

2.5 Problem Areas

It is a significant issue that the lack of blood in crisis circumstances like surgery and pregnancy issue. As indicated by World Health Organization (WHO) just 31% of requested blood comes from the voluntary donors. But the patients can not get the donors

within short time because of they can not find the donors in their nearest location as well as don't get the direct contact information of donors. As a result the patient fallen into life risk and sometimes died. Another problem for donor that they can not take record of their last blood donation history. So that they don't know whether they are eligible to donate or not. Sometimes donor donate blood inside of 120 days period of last donation. It make a huge health issues for the donors.

2.6 Possible Solutions

It is actually quite complex process and the users faces a huge amount of problems. The solution is to make a system based on GPS. This system should centrally store the all database of blood donors, blood seekers. Particular location wise and donor eligibility wise blood donor searching technology should be implemented into the system. Automatic donor filtering, eligibility checking, valid blood request checking, give notification to donor by the email and mobile SMS in every blood request. Take the donation history of donor and notify them after 120 days from last donation.

These all can be deployed via a web-based application system and use the latest GPS technology to find out the nearest donors within short time.

We think this system can be reduced the problem which we mention above and can save the valuable life of patients as well as maintain a sound health of all donors.

Chapter 3

Literature Review

In our project, the system is proposed reduces the lot of time required to collection blood from different blood group. Donor will register itself. When emergency requirement the blood seeker can place a request. The system will provides the requester information and notify the donor.

In this system, users can view the information of nearby donors. This project is developed by using latest technologies as like GPS, SMS integration, Email integration. System will have provided security for authenticated donor as new donor have to register by enter their personal details, like name, exact location, phone number, and blood group. Existing donors have to login into the system to update their profile and post blogs. This application helps to find the nearby donors immediately by tracking their location using GPS. This application reduces the time to a greater extent that is searching for the required blood through blood banks, hospital, and blood volunteers.

3.1 Discussion on the existing systems

GEO-Location Based Blood Donor Searching System is mainly focusing on the donor searching system and Management Information System (MIS). After the public authority of Bangladesh re-shaped the Bangladesh Council of Blood Transfusion in 2009, a few associations created sites for blood donor searching. Like rokto.co, hellodoctorbd, bloodseek.com, INFOBLOOD, Blood Donors Club Bangladesh, Blood Cell,

BADHON, and Bangladesh Red Crescent Society. Yet at the same time now there is no completed system for the blood donor searching and blood donation system in the country. Every one of the above associations implements its system simply by thinking about its organizational activities. However, the main issue is there is no coordinated effort among these associations and their activities, because of the absence of proper analysis and the latest technology.

The main issues related to the current system of our country are:

- Not having any centralized system.
- Not having a particular location-based donor searching system.
- Not having the latest technology like GPS
- Not have donor's full information, blood donation tracking system.
- Not having the donor verification and eligibility filtering system.
- Not having donor's donation history storing system.
- Not having legitimate regulation and strategy.

3.2 Discussion on the Problem Solution

GEO-Location Based Blood Donor Searching System project is about the unified blood donor searching and safe blood donation system which is under well-being and clinical domain. In this time of innovation and globalization automation is wherever from the bed to the workplace. The medical area isn't on the back foot. Technology makes changes consistently in this area. Everything is getting computer based and information-driven. The proposed system solution ought to consider the issues expressed below:

- **Security**

  Since the system needs to store very confidential information including individual information, information security ought to be the number 1 thought for the

proposed system solution. The system ought to execute high-security elements and carry out role-based limited admittance to the information.

- **Trust**

  The issue generally looked at by this sort of system is reliability. The whole system ought to be straightforward to its users. To procure trust from the users the public authority strategy ought to integrate.

- **Privacy**

  Privacy of the blood donor and searcher needs to guarantee. To guarantee security the proposed system ought to utilize encrypted information transfer and furthermore utilize a scrambled VPN tunnel for client-server reaction.

- **Security**

  Since the system needs to store very confidential information including individual information, information security ought to be the number 1 thought for the proposed system solution. The system ought to execute high-security elements and carry out role-based limited admittance to the information.

- **Remote Access**

  As the GEO-Location Based Blood Donor Searching System is hosted on the Internet and various users' access it through the Internet the entrance ought to be checked and safeguarded. Network Address Server, External Firewall and VPN ought to be utilized to guarantee safe remote access.

- **Users Identity Verification**

  Individuals give fraud information on the Internet because of less reliable. To guarantee the Identity of the blood donor they ought to give a distinguishing proof material like NID. As the system administrator can confirm the identity by questioning to important power.

- **Server Down or all day, every day Availability**

  The accessibility of the application all the time from everywhere in the nation

ought to be thought of. Since there is no alternative option so the application must accessible 24/7. Server down, low data transmission, and mass traffic need to deal with.

- **Data Backup**

  The proposed system works with an enormous measure of data so it necessities to guarantee ordinary backup of this information. A proxy server and information storage ought to be continuously saved and prepared for backing up the GEO-Location Based Blood Donor Searching System.

- Train data-set

- Searching

3.3 Comparison with the current systems

Encompassing is changing throughout time and time carries new technologies to get updated and make life more straightforward to live. Presently days the world is actually too little like a town in view of the Internet. There are great many systems for taking care of similar issues in various ways. However, GEO-Location Based Blood Donor Searching System is a special solution yet there are a few existing systems working in a similar space.

Here in this segment, we are going to think about the well famous and well-known current sites and rundown their best-highlighted features, assets, and shortcomings. These are-

- https://www.rokto.co/ (Bangladesh)
- http://hellodoctorbd.com/blood-donor (Bangladesh)
- http://infoblood.org/ (Bangladesh)
- https://blood.ca/en (Canada)
- https://www.donatebloodbd.com/ (Bangladesh)

3.3.1 Rokto.co

Rokto.co is a famous blood donor searching system in Bangladesh. This application allows users to search a donor or become a blood donor as well. Having mention that Rokto is always free for everyone. About 5322 donors are registered into this system and they are giving service to 64 districts.

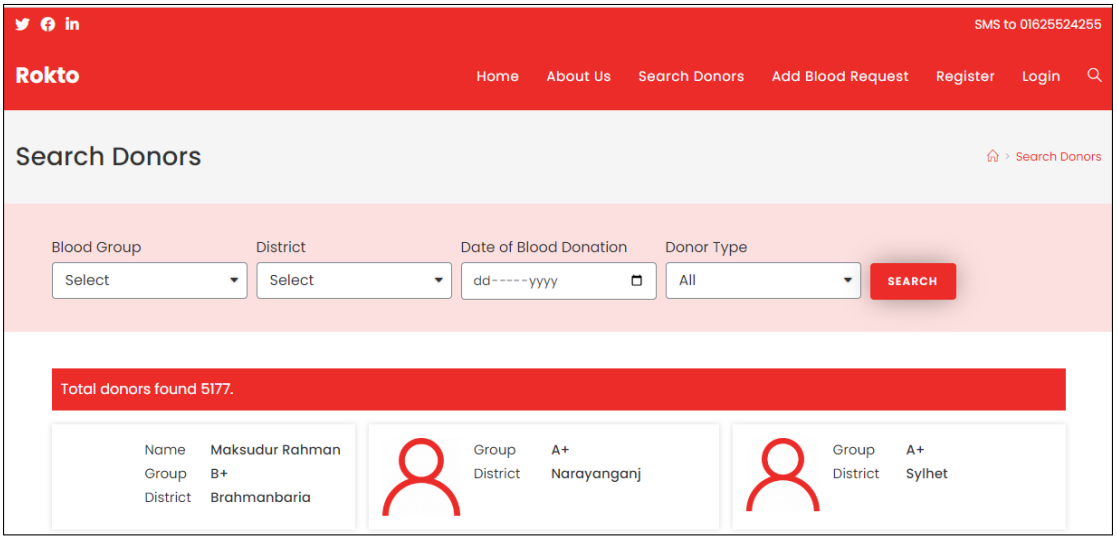

Figure 3.1: The overview of the Rokto.co

Best Features

- Blood donor searching based on blood group and static location wise.
- Maintaining the user's personal profile.
- Send person to person request.
- Send blood request to system admin.

Limitations

- Do not have any option to direct contact with donor.
- Blood seekers have to registration when need add a blood request.
- No real-time request processing or notification system.
- No GPS technology has been implemented.
- Do not have notify the donor when they are eligible to donate blood.

3.3.2 Hellodoctorbd.com

Hello Doctor is the boundless program pointed toward advancing Bangladesh's cutting edge in medical care. Hello Doctor is supported with the most trusted, exact, and modern medication and medical services information hotspot for the overall population and patients from the place of Hello Doctor BD. This application is committed to assisting you with viewing complete and detailed data about Medicines, Diseases, Health Tips, Doctor and Hospital Directory, Doctor's Finder, Medicine Reminder, Medicine Cost Calculator, and a lot more at the simplicity of your fingertips.
Along with this services, Hello Doctor providing a dedicate blood donor searching system. This system is also free for every users.

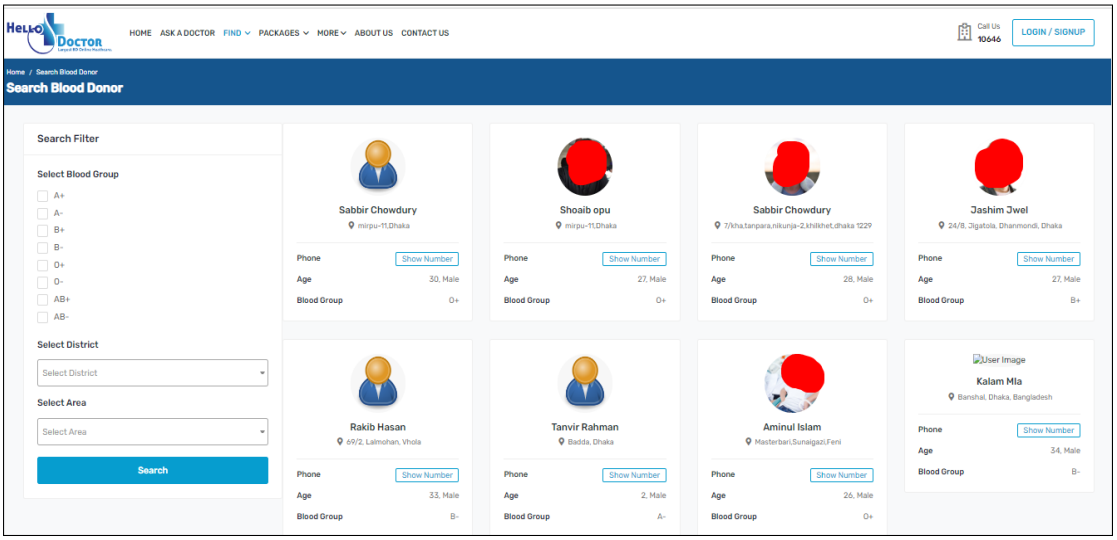

Figure 3.2: The overview of the Hellodoctorbd.com

Best Features

- Blood donor searching based on blood group & static location wise.
- Maintaining the user's personal profile.
- Send person to person request.
- Direct contact with donors

Limitations

- No real-time request processing or notification system.
- Do not have any facility to whether the donor is eligible or not.
- No GPS technology has been implemented.
- Do not have notify the donor when they are eligible to donate blood.
- Not only for blood services.

3.3.3 Infoblood.org

Infoblood.org is the biggest blood searching system in Bangladesh. The site permits its users to look as blood donors or to turn into a blood donors. It additionally works with the different associations to get enlisted and utilize this site for their exercises. Almost 35449 donors registered into this system.

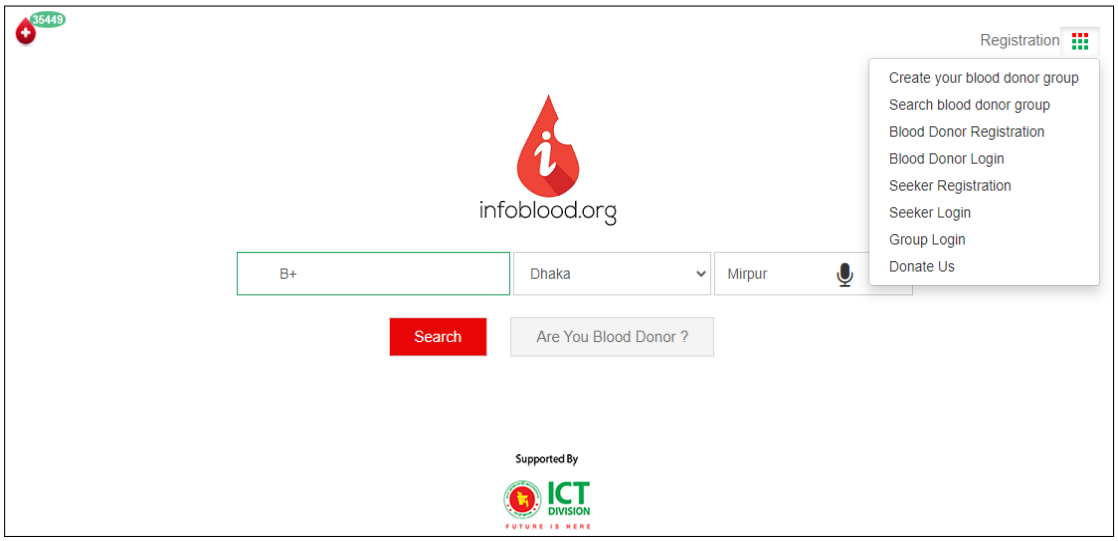

Figure 3.3: The overview of infoblood.org

Best Features

- Blood donor searching based on blood group & static location wise.
- Maintaining the user's personal profile.
- Send person to person request.
- Create blood donor group.

Limitations

- No real-time request processing or notification system.
- Do not have any facility to whether the donor is eligible or not.
- No GPS technology has been implemented.
- Do not have notify the donor when they are eligible to donate blood.
- Lack of data privacy and security.
- No identity verification for users.
- Blood seekers have to registration when need send a blood request to donors.

3.3.4 Blood.ca

Canadian Blood Services is a not-for-benefit charitable association that works freely from the government. Made through a reminder of figuring out between the bureaucratic, commonplace, and regional legislatures, they opened their entryways in 1998. Our subsidizing comes basically from the commonplace and regional legislatures, and they are an enrolled foundation that acknowledges monetary donation.
The biggest blood administrations the board system in the Canada as well as in the current world. The system is subsidized by the regional and focal administration of Canada. It works with all the clinical and wellbeing administrations like, medical clinic, emergency vehicle, blood, research, etc. It monitors its users and guarantee the constant request handling of crisis demands.

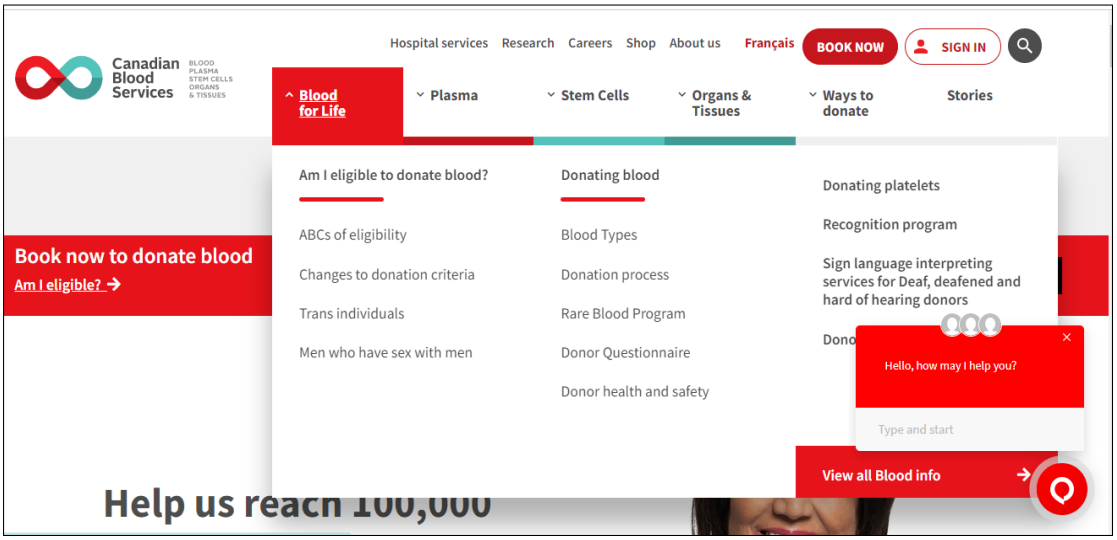

Figure 3.4: The overview of the Blood.ca

Best Features

- Professionally organized and brilliant design.
- Donation time booking system.
- Individual donor can set his own donation measures!
- Works with other medical supports too.
- Have an acknowledgment program for the donors.

Limitations

- Not just for blood services
- Pre-demand donation may.
- Don’t deal with the communication among the medical clinic and donors.
- No private request options.
- No real-time request processing or notification system.
- Do not have any facility to whether the donor is eligible or not.

- No GPS technology has been implemented.
- Do not have notify the donor when they are eligible to donate blood.

3.3.5 Donatebloodbd.com

”Donate Blood: Save People and Be Saved” is the motto of the website which started its journey on January 24, 2013. The main purpose of this website is to preserve the information of blood donors. Www.DonateBloodBD.com begins with a dream: ”Anyone in need of a dying patient’s blood can easily contact a blood donor at any time.” Blood donors will be able to register as blood donors on this website, and people in need of blood will be able to find blood donors by searching from this website. With the combined efforts of all, we may be able to save thousands of dying patients.

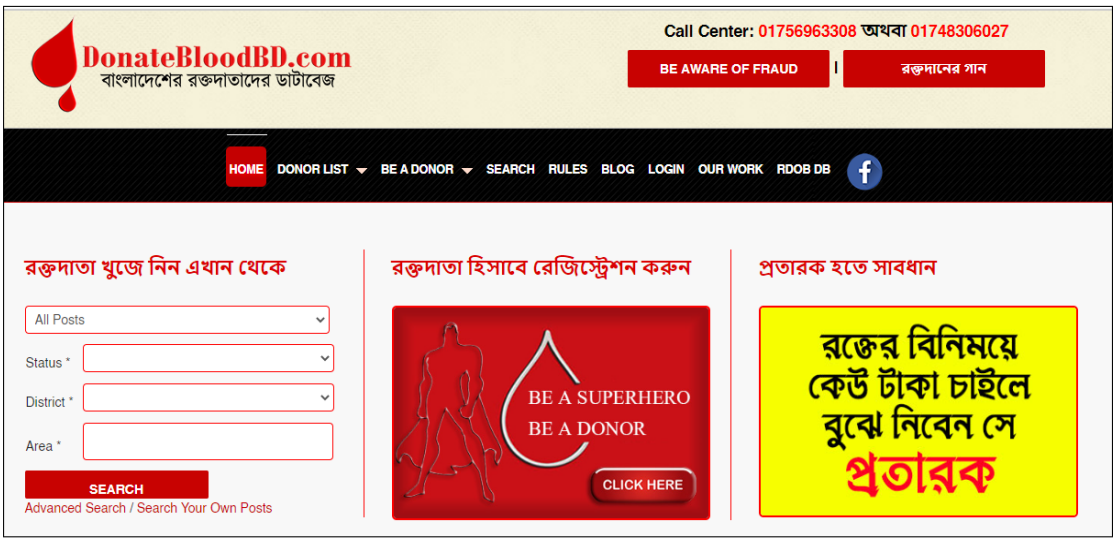

Figure 3.5: The overview of the Donatebloodbd.com

Best Features

- Professionally organized and brilliant design.
- Can see all donor list.
- Export Donor list with contact numbers.

- Direct contact with donors.
- Know about the last donation of donors
- Blog post

Limitations

- No real-time request processing or notification system.
- No GPS technology has been implemented.
- Do not have notify the donor when they are eligible to donate blood.

3.4 Recommended Approach

From the above explanation and comparison, obviously the current systems don't have the necessary features and functionalities. It additionally clears the functionalities and contemplations need to consider for the new proposed system. The GEO-Location Based Blood Donor Searching System ought to give the features recorded here-

- Attractive and user friendly UI design.
- Implement Restriction on access to the women donor's information.
- Automatic Email & SMS notification system.
- Donor Identity and verification approval process.
- GPS technology for find nearest donor by using GEO-Location.
- Notify donors when they are eligible for donation.
- Take ta donation history of donors.
- Upload medical reports of donor's.
- Blog post for medical health awareness.
- Direct contact with donors.

Chapter 4

System Requirements Analysis and Diagram Design

4.1 Introduction

A proper and complete system need to a proper analysis on functional, non-functional requirements, hardware-software requirements, system working flow, use case design analysis and so on. Therefore, this section is contain the system requirements analysis and diagram design. We tried to find out the all possible solutions and finally choose the best solutions for our system.

4.2 Specification and Requirements

Our system has various types of requirements to access it. These are:

- Hardware requirements
- Software requirements

We have tried to sort out the best hardware and software requirements for the system. Here the requirements:

4.2.1 Hardware Requirements

The hardware requirements to access our system is given below:

- Processor = Intel Pentium II and Above.
- RAM = 512 MB and Above.
- ROM = 16 GB HDD Space and Above

4.2.2 Software Requirements

Prototype Design

- Design UI/UX using Figma online tools

Frontend Development

- HTML5
- CSS
- Bootstrap4
- JavaScript
- JQuery

Backend Development

- Asp.net Core
- C#
- MSSQL
- API

Deployment:

- IIS (Internet Information System)

4.3 Methodology

For the software advancement process we utilized the agile system. Since this strategy is a renowned programming improvement system. It centers around client fulfillment. In such sort of strategy the absolute word is broken into various parts and all parts can carry out equal. It decreased improvement risk, since it takes the input from clients fixed the bugs if necessary any abrupt changes then at that point change the framework according to prerequisites. It likewise assists with decreasing the expense of framework advancement.

Hence we thought by utilizing this approach, we can convey the best framework for the clients and can undoubtedly be fixed the bugs and make changes to the framework. Here is the chart of the functioning technique of agile strategy:

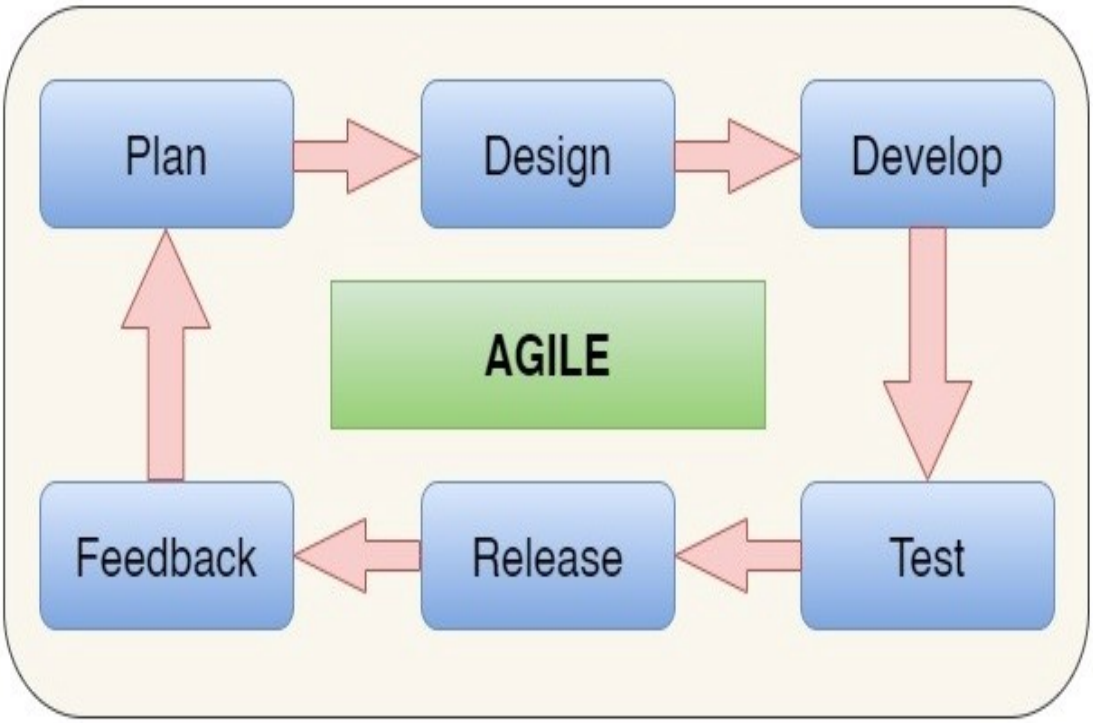

Figure 4.1: Agile Methodology

4.4 Gantt Chart

Here is the gantt chart of our system. It contain the full schedule of our system development from the beginning day to final deployment day.

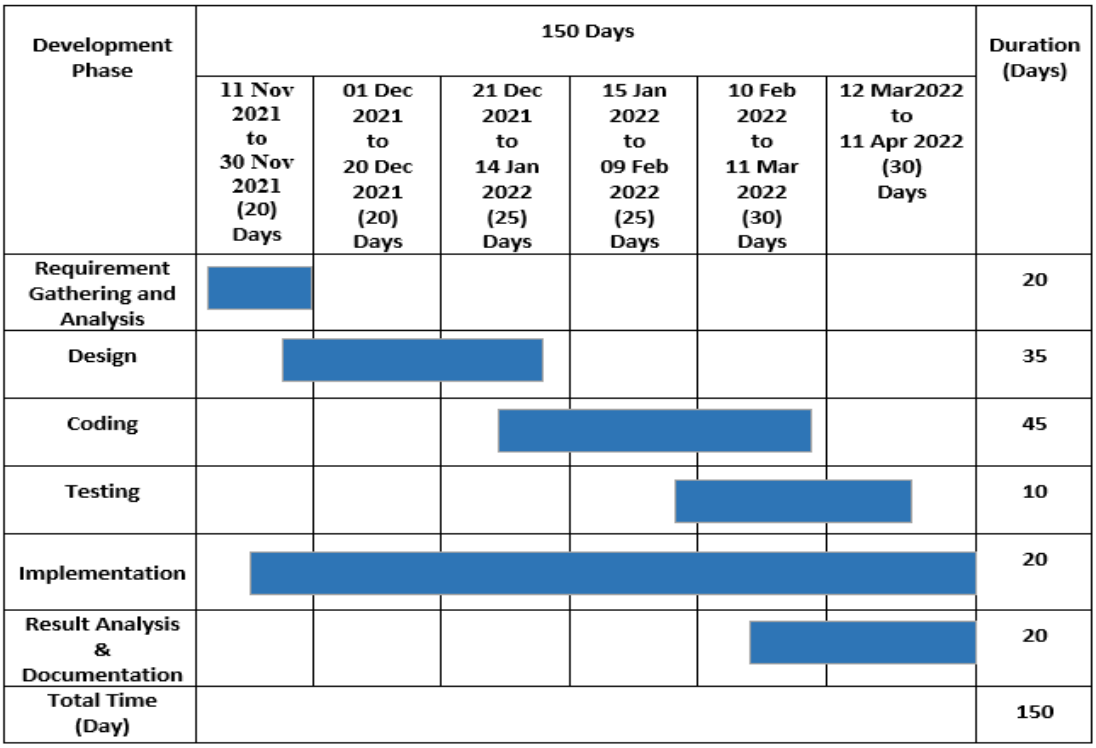

Figure 4.2: Gantt Chart

4.5 Functional Requirements

Functional requirements consider the main features demanded by the clients and these are consider as the main module of the system. The functional requirements of GEO-Location Based Blood Donor Searching System are given below:

4.5.1 Admin

- Login
- Setup Areas

- Manage Donors
- Manage Blood request
- Manage Profile

4.5.2 Blood Donor

- Registration
- Login
- See Blood Request
- Manage Donation History
- Donor Eligibility
- Get Notification By SMS & E-mail
- Manage Profile

4.5.3 Blood Seekers

- Donor Searching Using GEO-Location
- Add Blood Request

4.6 Non-Functional Requirements

Non-Functional requirements is consider as the criteria specification of a system which is used to judge a system. These are mainly deployment along with the functional requirements. The non-functional requirements of our system are given below:

4.6.1 Security

Our system is a fully secured system. Because we added mobile number verification while donor registration as well as email validation. Only authorized donor can access to our system by using their valid user name and password. The password is being encrypted.

4.6.2 Usability

The usability of our system is well accurate. With the quality internet, user will get the full advantages from our system.

4.6.3 User-friendly UI

We have designed our system considering the easy UI. This system is easily understandable to all users who are familiar with the internet. Users don't need to type most. Because most of the text field we used drop-down boxes. Users just need to choose the option from drop-down box. Buttons are also make using understandable color coding.

4.6.4 Reliable

Our system is reliable to all users. Because we focused on our security system. No data will be go to the 3rd party and the confidential data is being encrypted.

4.6.5 Easy to Modification

If needed any future modification if both frontend & backend, developers can easily modify the system. Because we used easy design for front end and backend design also easier.

4.7 Limitations

The biggest limitation of our system is, the user must have to access of internet. Especially in rural area of our country where the internet is not available yet. So, network failure will be hampered to the usability of users. Secondly, the users of our system is need minimum of education level, so that they can use the system properly.

4.8 Use Case Diagram

Use case diagram is a graphical view of user's possible interaction with the system modules and features. Here is the use case diagram of our system.

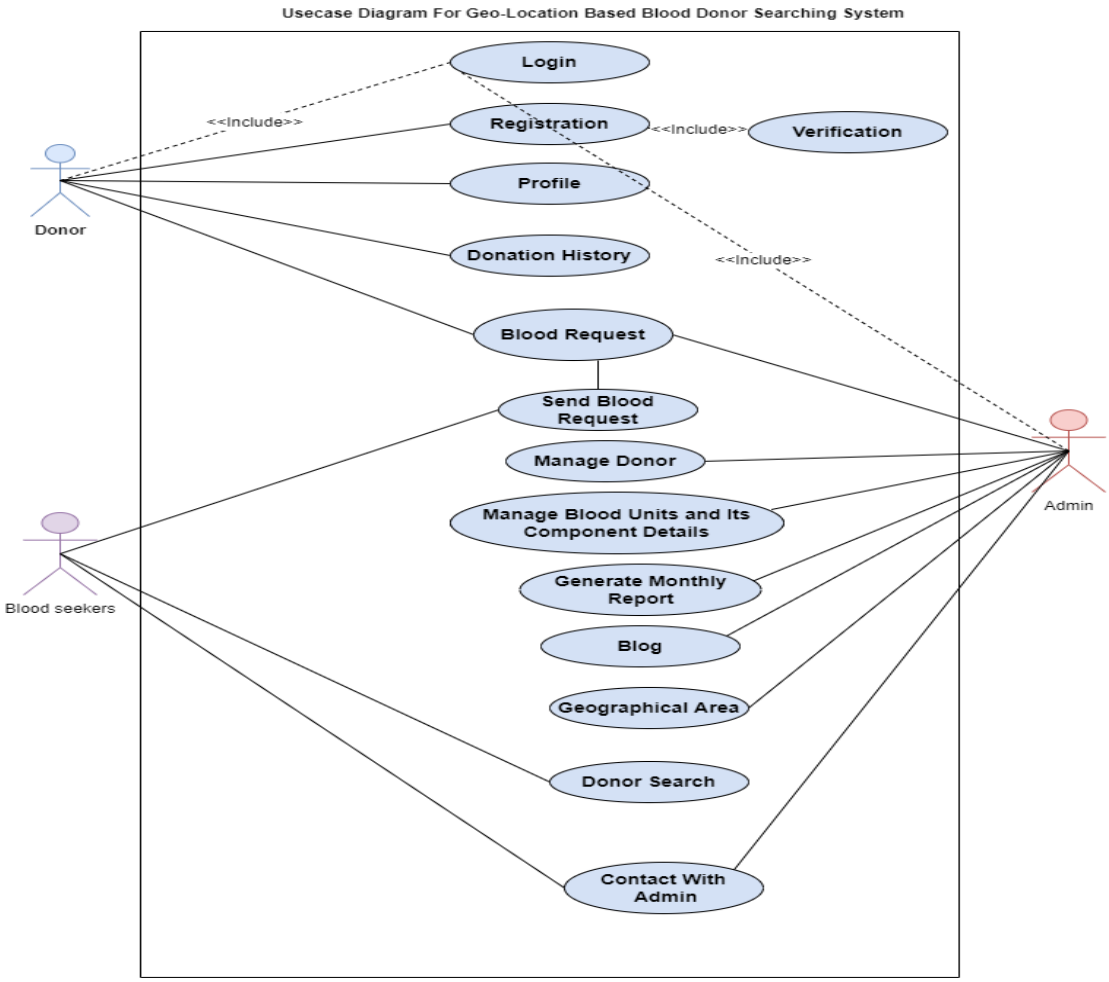

Figure 4.3: Use Case Diagram

4.9 DFD Model

Data Flow Diagram is the best way to represent the total data flow process of a system. DFD also provide the input, output, users, entity and the total process of them. DFD has the various level.

4.9.1 DFD Level – 0

Here is the level – 0 DFD model of our system.

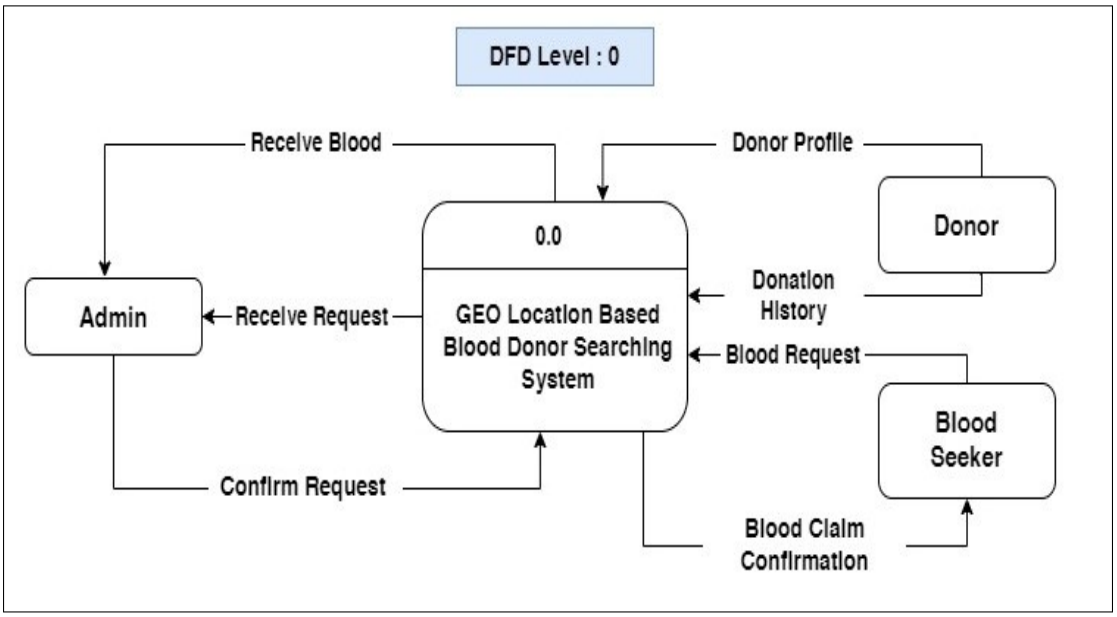

Figure 4.4: DFD Model Level - 0

4.9.2 DFD Level - 1

Here is the level – 1 DFD model of our system.

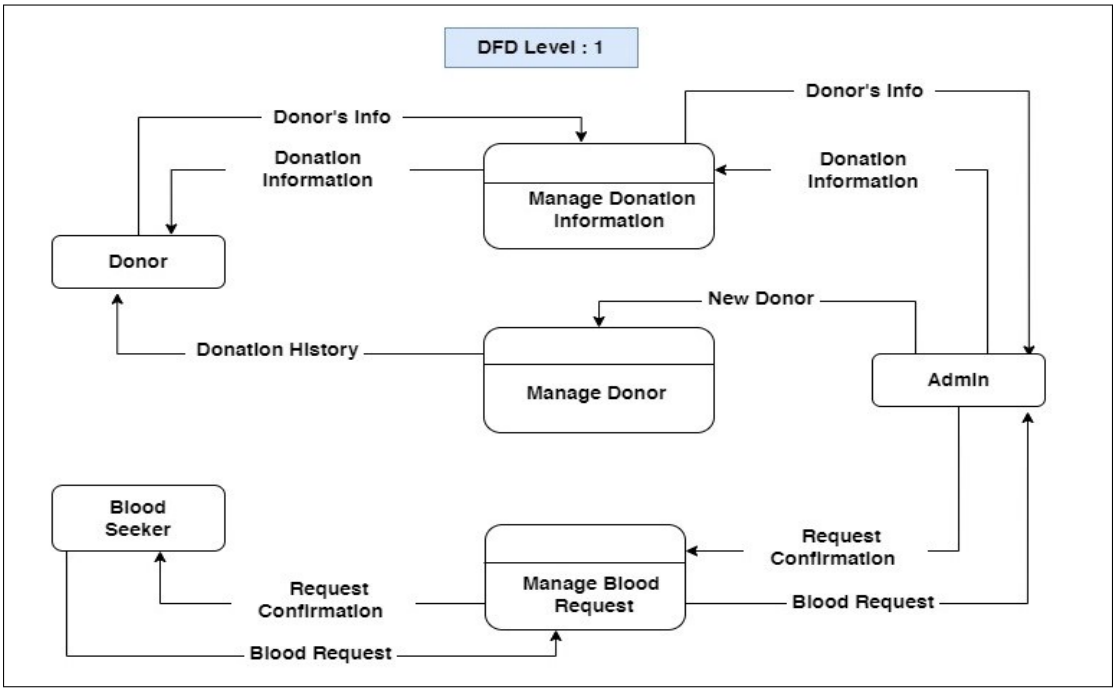

Figure 4.5: DFD Model Level - 1

4.10 Database Model

Database model is the graphical view of the system's database design.Here is the Database model of our system:

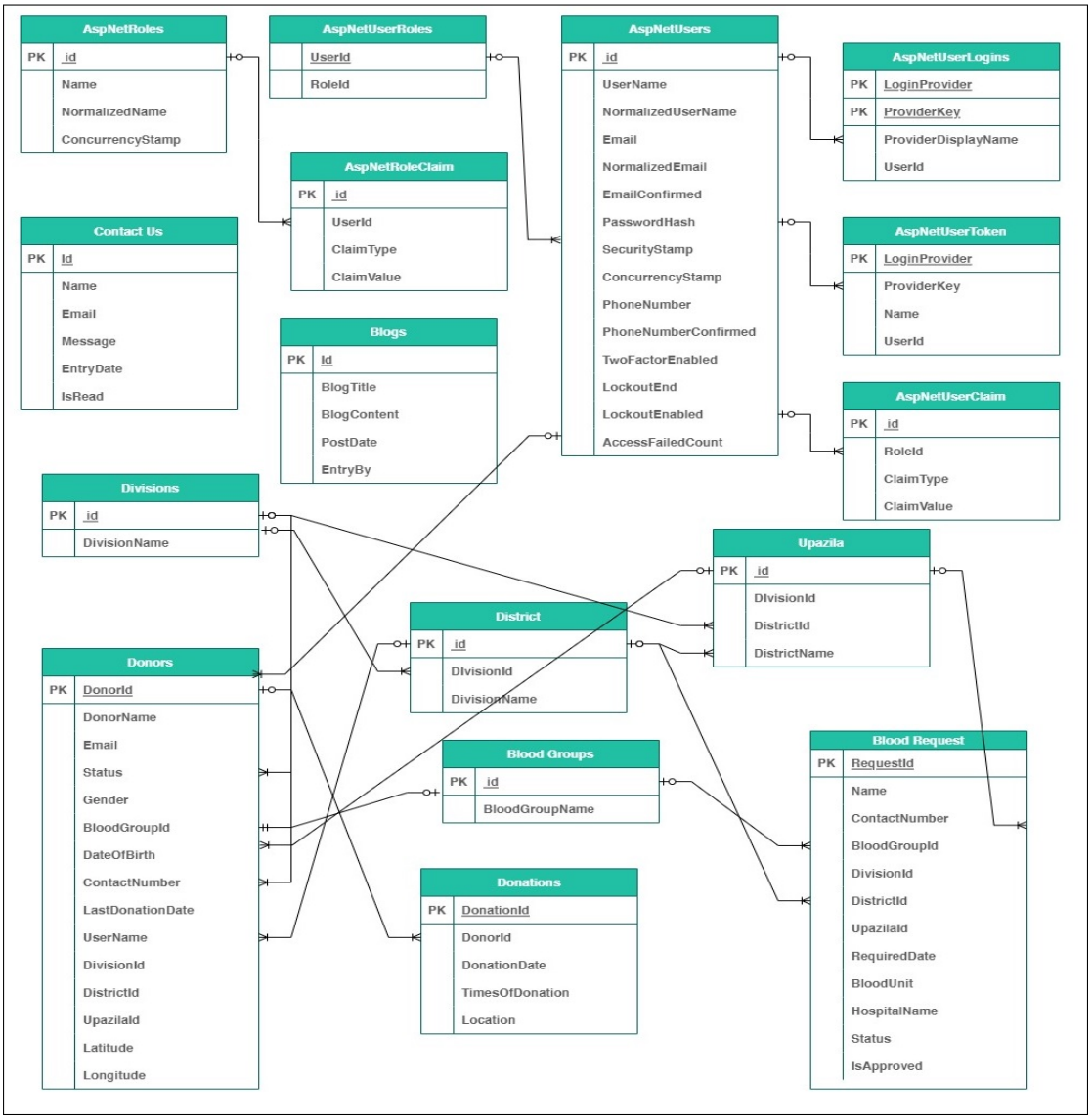

Figure 4.6: Database Model Design

Chapter 5

System Interface Design and Implementation

5.1 Introduction

We are going to discuss about the system requirements analysis, design and implementation. This Phase is began with a proper analysis about the functional and non-functional requirements. We have tried to make possible all effective solutions for design and implementation criteria. Then we choose a best solution and transform it to make a complete, efficient and user friendly system.

5.2 Design Process

At the initial stage wire framing is being used for system layout structure design. Here we make our planning and system layout thoughts. Right after that we moved to figma for making screen layout mockups and make connection between the layouts. From here we test this prototype by some user perspective. Then we finalize the mockups and started to front-end design.

5.3 Frontend Development

First of all, we developed a prototype of our project or system using Figma online tools, then developed user interface or frontend using HTML5, Bootstrap4 , JavaScript and JQuery.

5.4 Backend Development

We have used dot net framework to develop the backend of our system, Asp.net Core, C sharp as the programming language, Microsoft SQL to manage the database, and Google API for donor searching using GEO Location.

5.5 System Designs

In this section we are going to introduce our system all interface designs and their functionality.

5.5.1 Home Page

When the regular users come into our system, firstly they will see our system's home page. Our system home page is containing the following module buttons:

- Home
- About Us
- Blood Request
- Search Donor
- Blog
- Contact Us
- Donor Registration

- Login

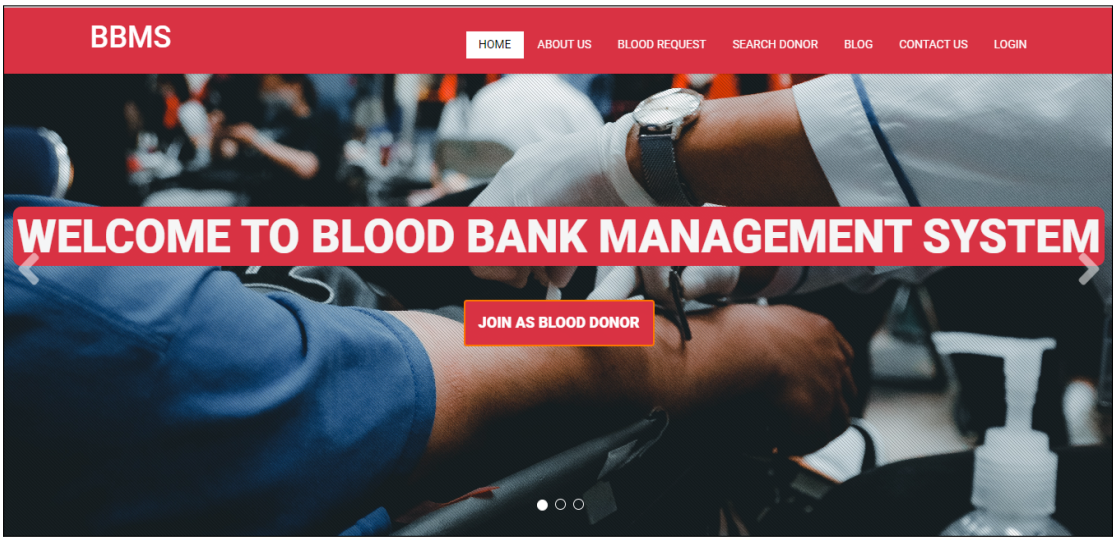

Figure 5.1: Home Page

5.5.2 About Us

The users will get a brief idea about our system as well as our mission and vision.

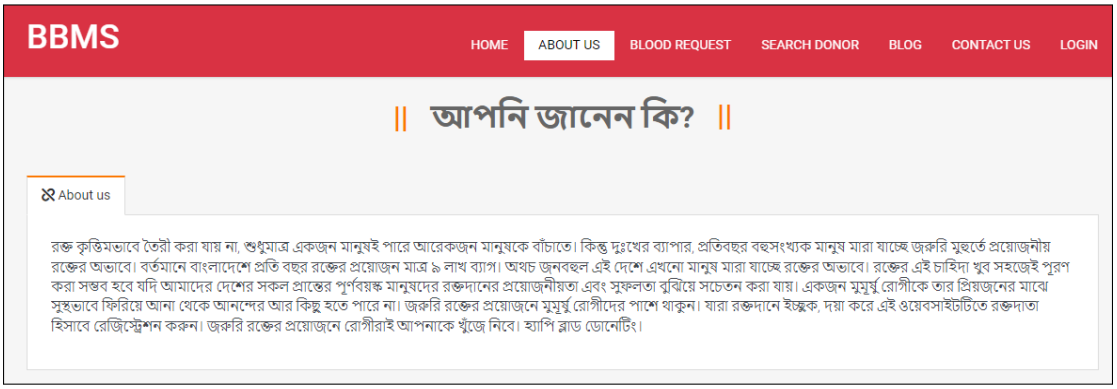

Figure 5.2: About Us Page

5.5.3 Blood Request

Here, the blood seekers can submit a blood request to the system admin. We also called it advance blood booking module. Blood seekers have to fillip the require information

field and then submit the request to the system admin. Having said that this request would not goto to the donor until and unless the admin approved this request.

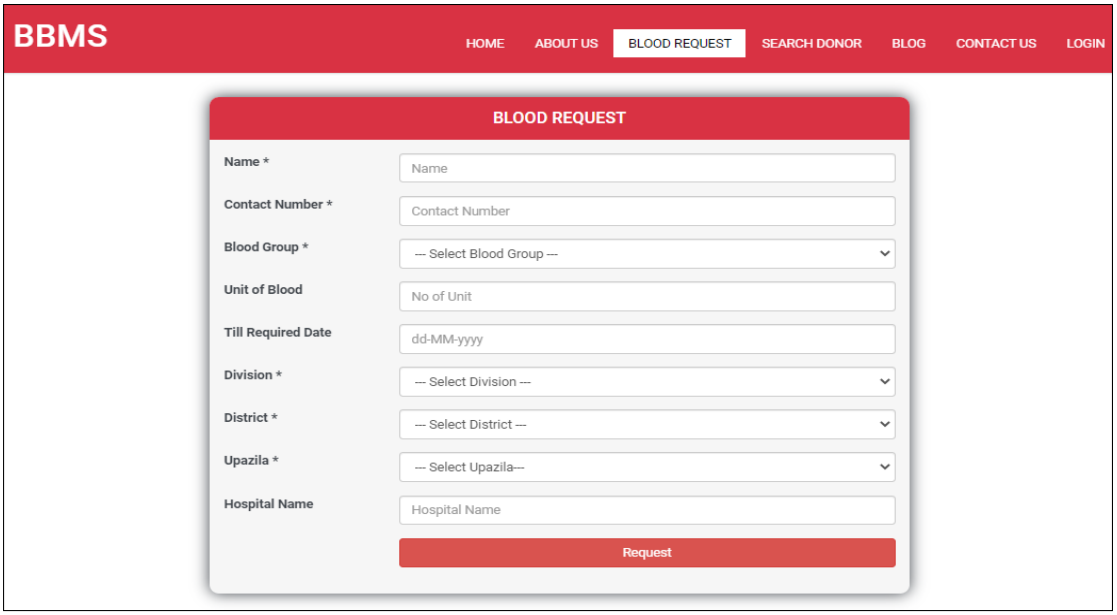

Figure 5.3: Blood Request Page

5.5.4 Search Donor

This the most highlighted feature of our system. A blood seeker can find a blood donor in his/her fingertips by using the GPS system. When a user comes into this page, the system will wanted the location permission of the user. Then user just need to choose the required blood group. Then system will find the available blood donor in the nearest 5-10 KM radius area.

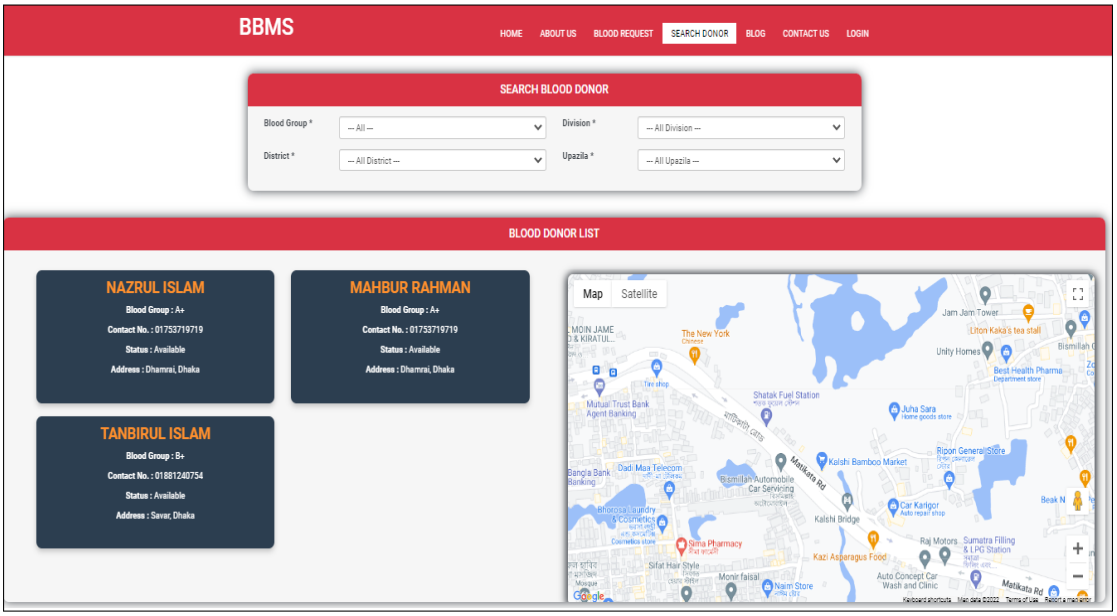

Figure 5.4: Search Donor Page

5.5.5 Donor Registration

When a donor wanted to registration to our system, the need to click on "Join as a blood donor" button on home page. Then they need to provide a valid contact number to get the OTP from the system.

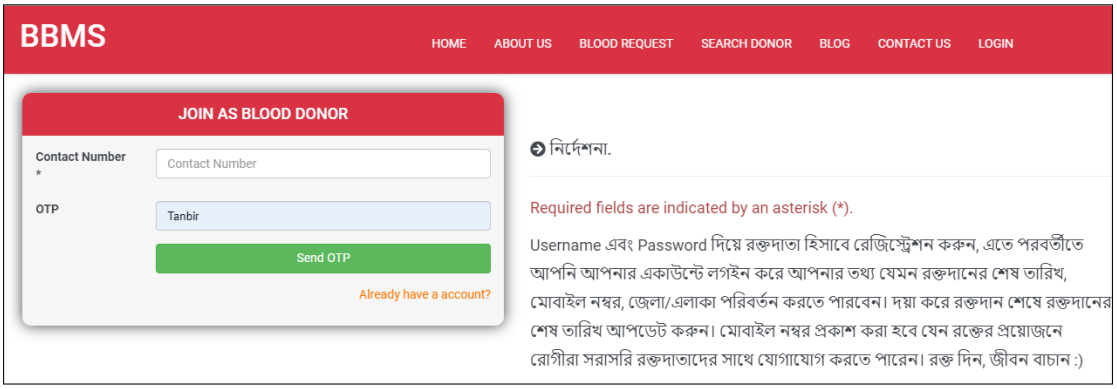

Figure 5.5: Donor Registration (OTP Page)

After getting the OTP from System and put on OTP field, Donor will be redirect to donor information page. Here, donor have to put their information and location. System

will convert their location latitude and longitude value and store it on system database. After giving all information including user name and password donor need to click on register button. Then they will became a registered blood donor.

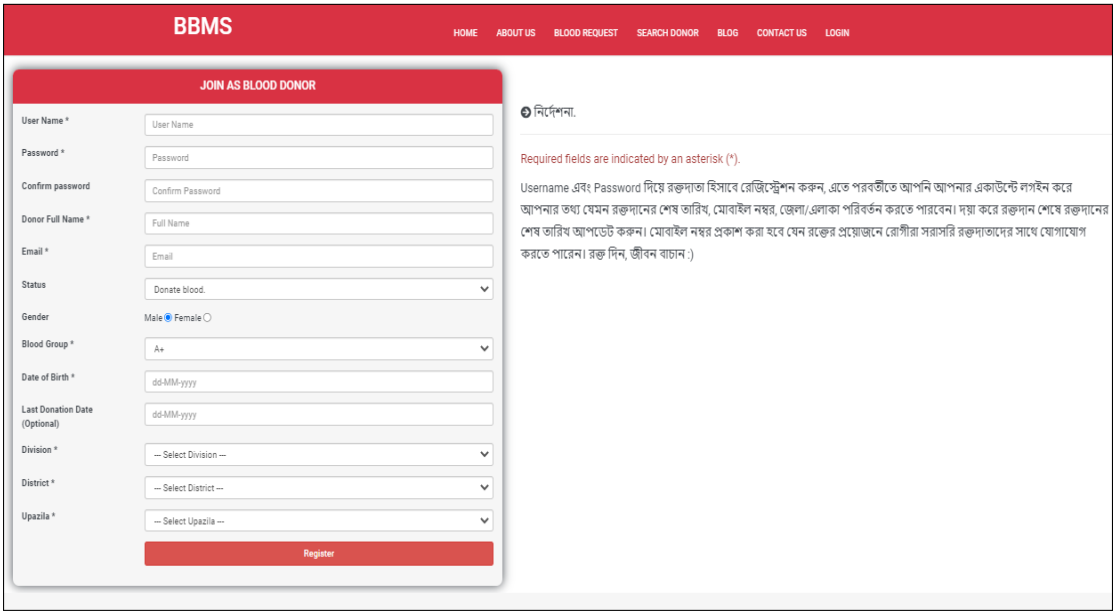

Figure 5.6: Donor Registration (Information Page)

5.5.6 Blog

Here, the users can see the blogs about the blood donation, health tips and many other articles.

Figure 5.7: Blog Page

5.5.7 Contact Us

From this page, any user can contact with the system admin. Users can find out our system office address, facebook page, twitter, LinkedIn, Instagram and so on. If the users wanted to send any message to system admin, they need to put their name, email and put the text message and press the "submit" button.

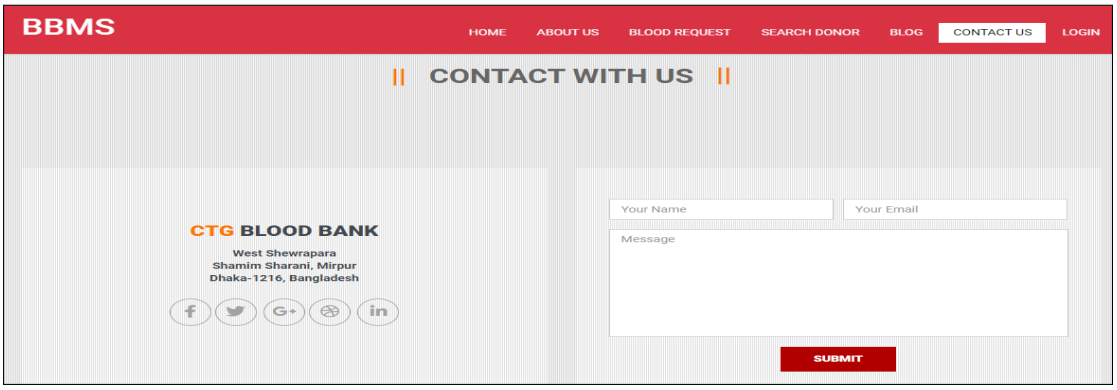

Figure 5.8: Contact Us Page

5.5.8 Login Page

From this page the donor and the admin can login to their profile. Admin and donor both need to put their valid user name and password. From this page a user can registration as a donor. If any user forget their password, then they can reset their password from login page.

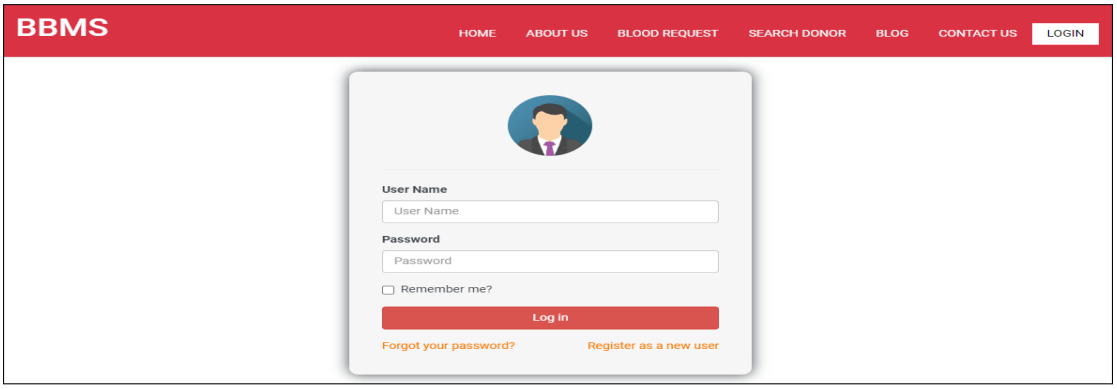

Figure 5.9: Login Page

5.5.9 Password Reset

If user need to reset their password, they need to click on reset password from login page. Then system will wanted their user name. if the user name is valid, then they will get a password reset mail to their email with the full information for reset password. User can easily reset their password from here.

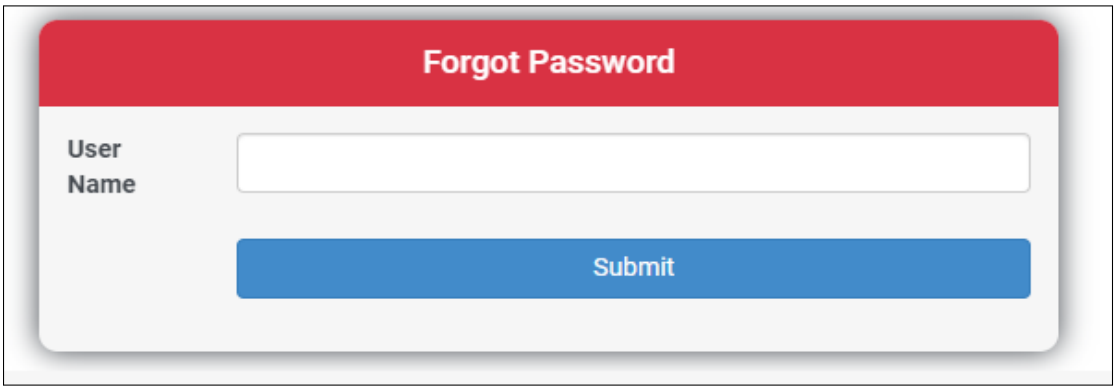

Figure 5.10: Password Reset Page

5.5.10 Donor Dashboard

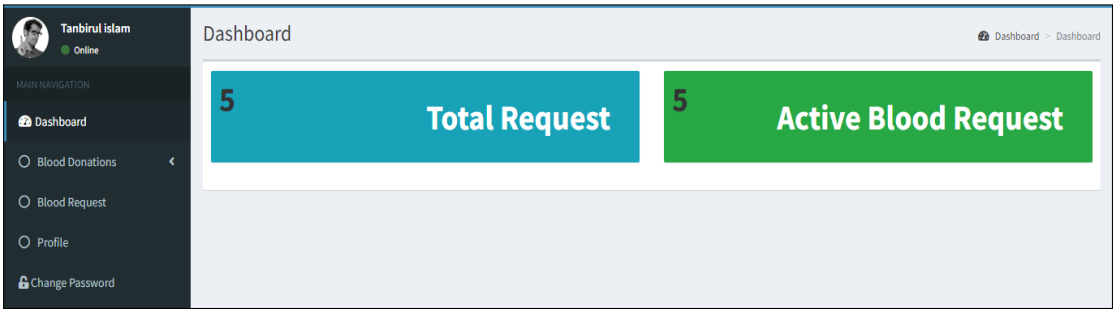

Figure 5.11: Donor Dashboard Page

5.5.11 Add Donation

In this page, donors can add their blood donation history. The system will count 120 days from last donation date and show this donor not eligible for donate. After 120 days of last donation system will send availability notification message to the donors.

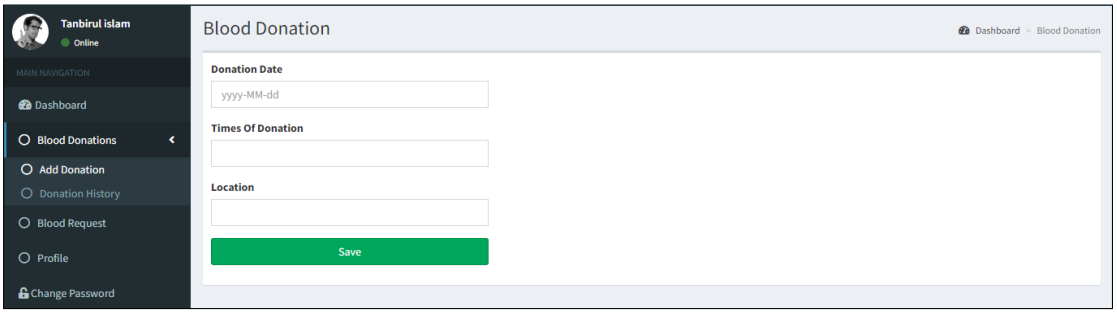

Figure 5.12: Add Blood Donation Page

5.5.12 Donation History

From this page donors can see their donation history. And also add the donation from this page. Donor can see the list by ascending and descending order.

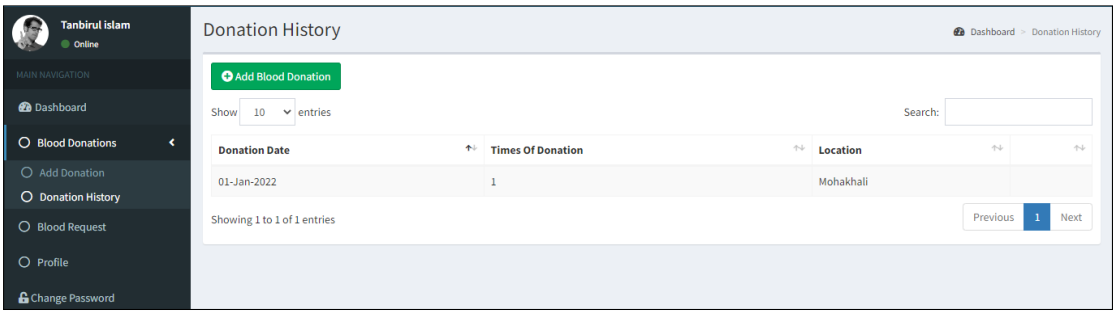

Figure 5.13: Donation History Page

5.5.13 Blood Request

In this page, donor can see the approved blood request as the same blood group of them. Here they will the patient all information. They can contact them from here. Donor can see the list by ascending and descending order.

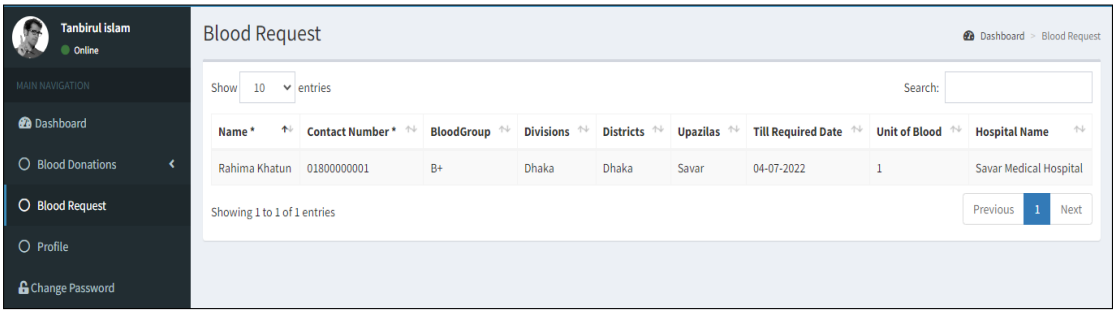

Figure 5.14: See Blood Request Page

5.5.14 Profile

From this page, donor can update their personal information.

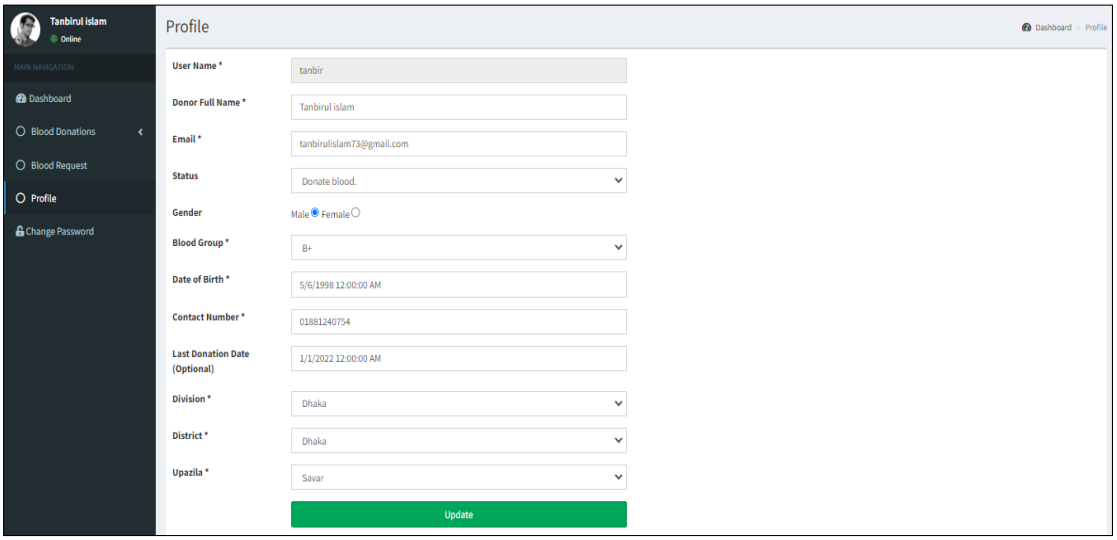

Figure 5.15: Donor Profile Page

5.5.15 Admin Dashboard

Here is the admin dashboard of our system. Admin can see all blood donor in blood group wise. Also can see the total request and pending request. Admin can go to pending request by click on pending request in dashboard.

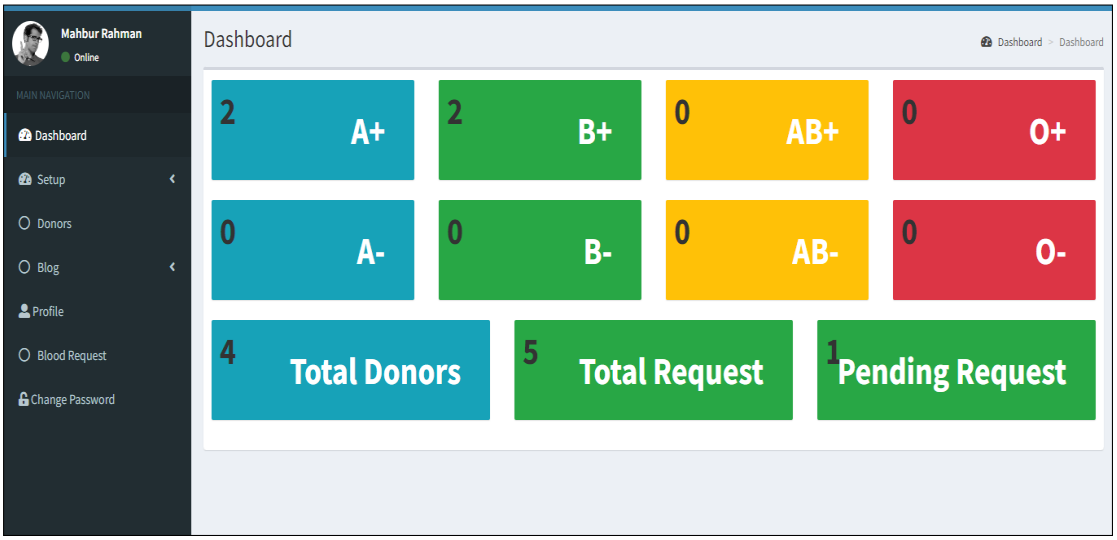

Figure 5.16: Admin Dashboard Page

5.5.16 Setup

In this section admin can setup many things as like Blood group, Divisions, Districts, Upazila.

5.5.16.1 Blood Group Setup

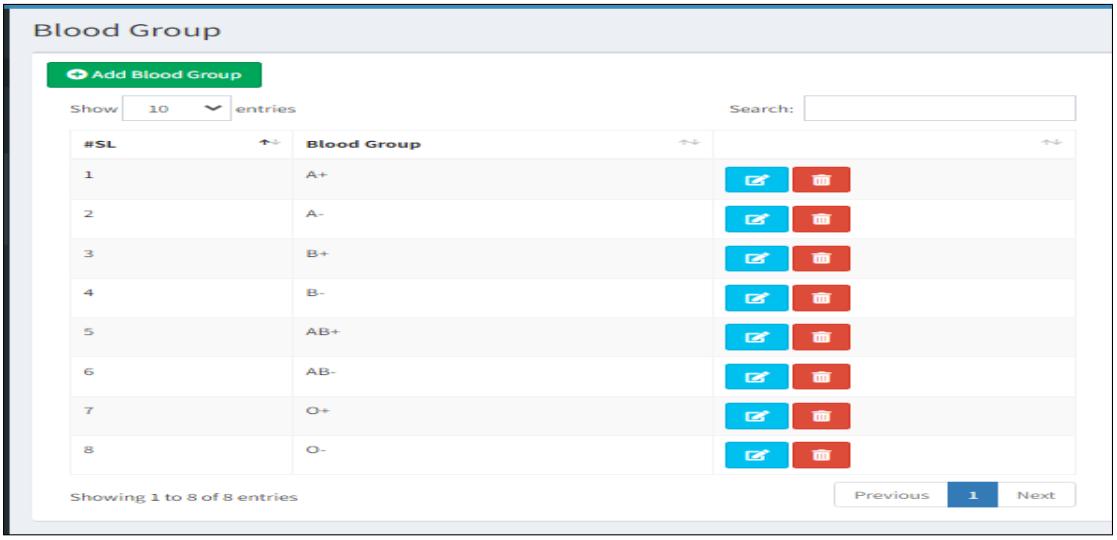

Figure 5.17: Blood Group Setup

5.5.16.2 Division Setup

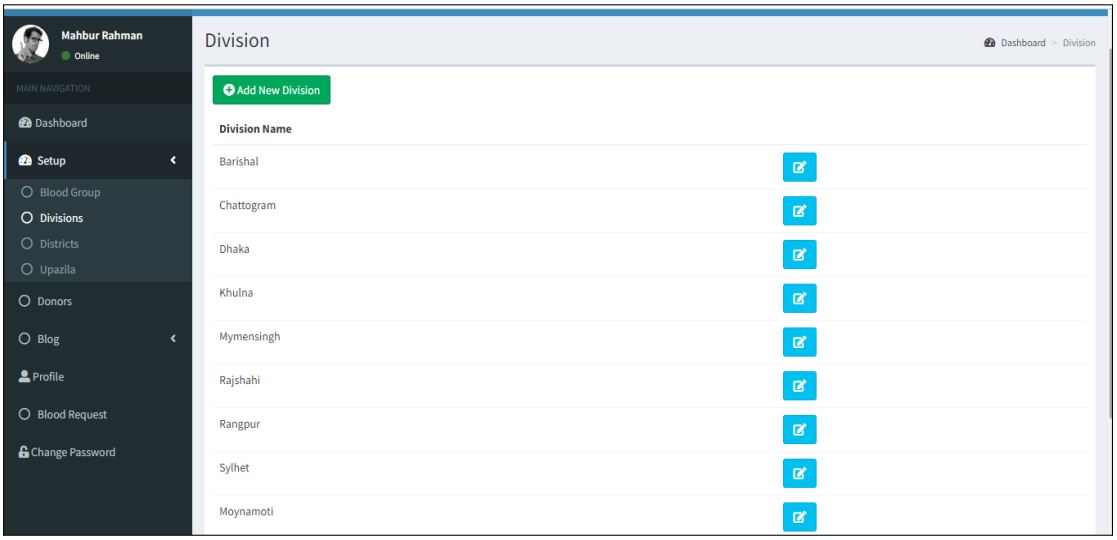

Figure 5.18: Division Setup

5.5.16.3 Districts Setup

Figure 5.19: Districts Setup

5.5.16.4 Upazila Setup

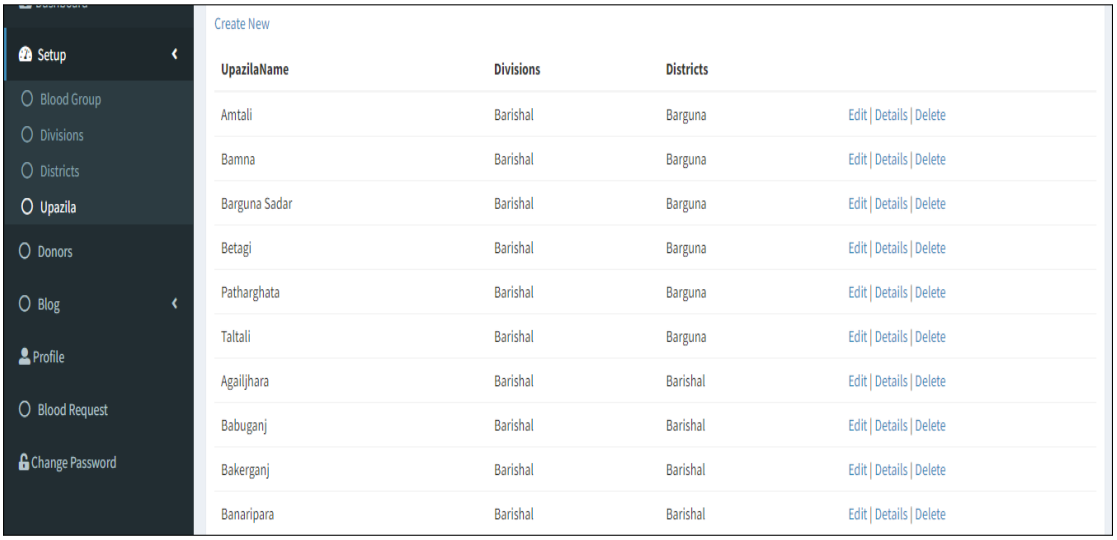

Figure 5.20: Upazila Setup

5.5.17 Manage Donors

From here admin can manage the donors. Admin can update any data of donors and also can remove donor from system.

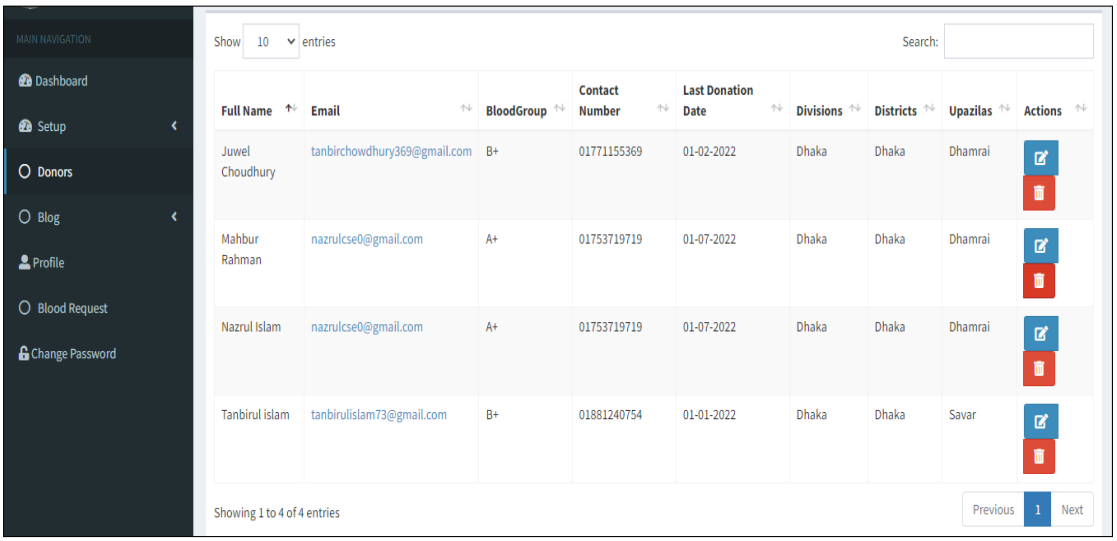

Figure 5.21: Donor Management

5.5.18 Blog

Here admin can add blog and see the blog list. From blog list admin can edit a delete the blogs.

5.5.18.1 Add Blog

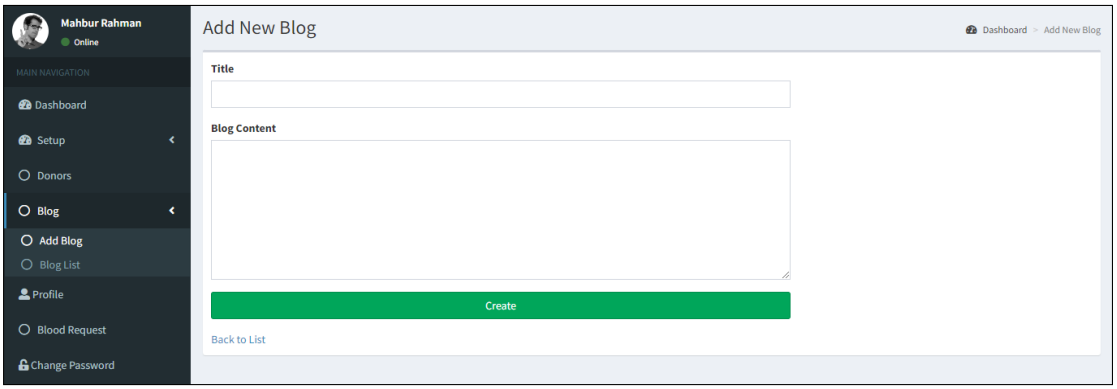

Figure 5.22: Add Blog

5.5.18.2 Blog List

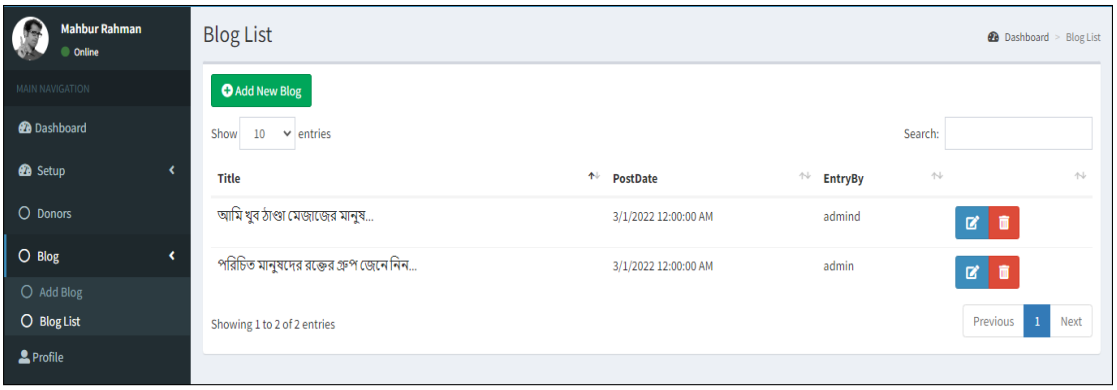

Figure 5.23: Blog List

5.5.19 Profile

Admin can update their personal information from admin profile page.

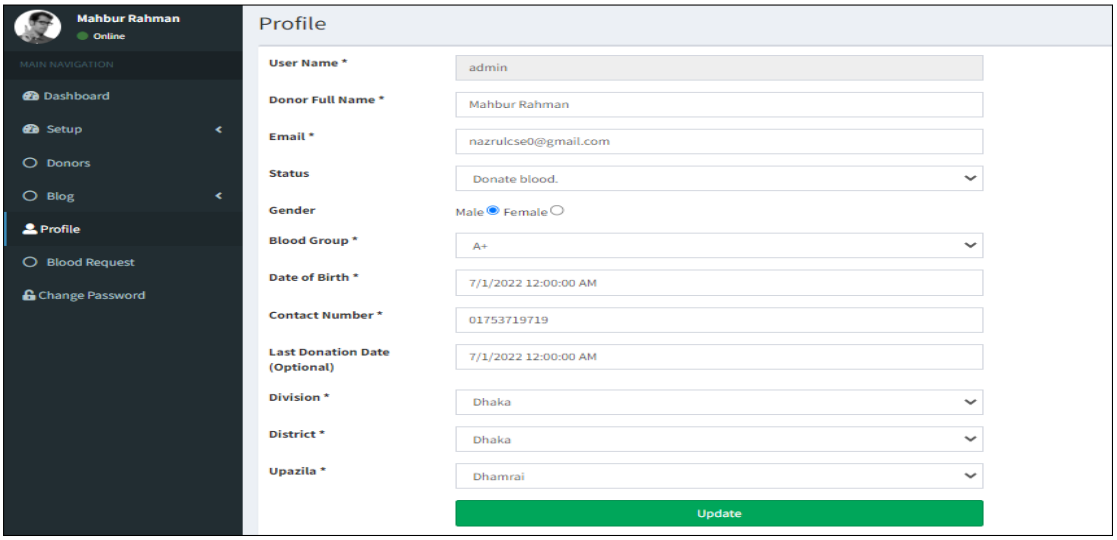

Figure 5.24: Admin Profile Page

5.5.20 Blood Request

In this page, admin can see the all blood request placed by blood seekers. Admin will verify this request and can approve or reject the blood request. When approve the request, then all donor of this particular group will get the notification and can see blood request on their profile.

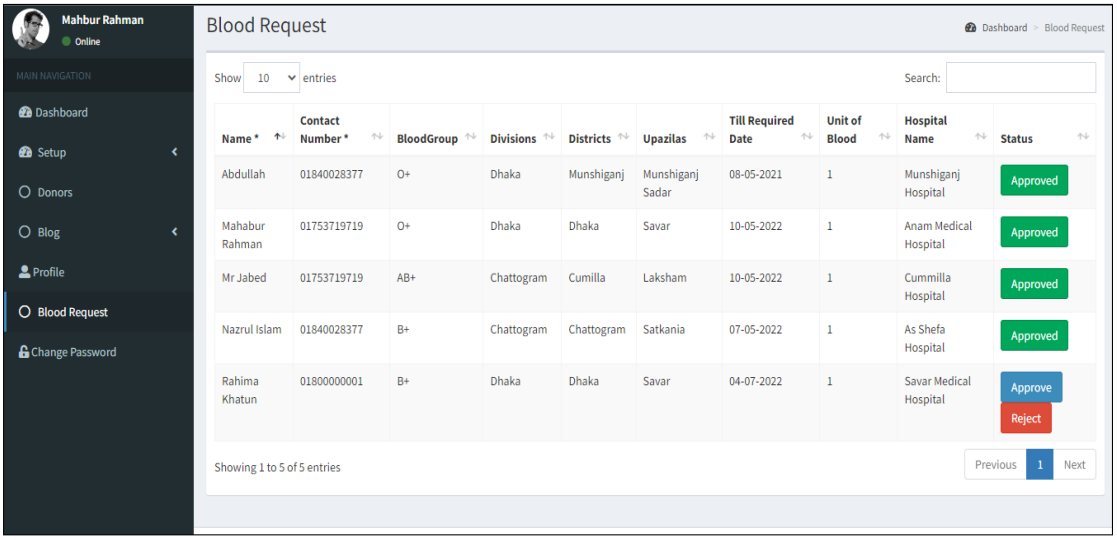

Figure 5.25: Blood Request Page

Chapter 6

Test Case

6.1 Introduction

To development a complete and efficient system, software testing plays a vital role on it. For making the system more responsive, test plan should apply in every section of a system planning and these testing should be approved by the developer and users. In our system we applied many types of testing plan.

6.2 Test Case Summary

We have generated total of 98 test cases. Almost all test cases are working efficiently. Having said that google mapping is a 3rd party API. So, there are too many limitation. It works based on networks and location. As we know that 3rd party google API always not giving the accurate location information. And our password reset API has been working and dependent on API. Sometimes it may take some times to provide the OTP and email to the users because of server errors.

6.3 Test Cases

In this section we are going to generate the test case in an international standard test case format.

Table 6.1: Registration

Test Case Id	001			
Test Scenario	Verifying a user on donor registration process.			
Step No	**Step Details**	**Expected Results**	**Actual Results**	**Pass/ Fail/ Not executed/ Suspended**
1	Click on “Register as a new user” from home page and redirect users on registration page.	Redirect to mobile number verification page	As Expected	Pass
2	Click on “join as a donor” from login page and redirect users on registration page.	Redirect to mobile number verification page	As Expected	Pass
3	Put contact number and get verification code on mobile.	Send a OTP from system to given mobile number	As Expected	Pass
4	After put the valid OTP then redirect to personal information page	If OTP is valid, then redirect to information page.	As Expected	Pass
5	Put user name	Check the valid user name.	As Expected	Pass
6	Give valid password and re-confirm it.	If both password not matched then show error on it.	As Expected	Pass
7	Fulfill all others valid information.	If not given valid information then show error message.	As Expected	Pass

Table 6.2: Login

Test Case Id	002			
Test Scenario	Verify on entering valid userid and password, the user can login			
Step No	**Step Details**	**Expected Results**	**Actual Results**	**Pass/ Fail/ Not executed/ Suspended**
1	Click on Login button on system.	System will redirect user on login page	As Expected	Pass
2	Enter Userid and Password	Credential can be entered	As Expected	Pass
3	Click Login	User is logged in	As Expected	Pass

Table 6.3: Blood Request

Test Case Id	003			
Test Scenario	Verifying the blood request process.			
Step No	**Step Details**	**Expected Results**	**Actual Results**	**Pass/ Fail/ Not executed/ Suspended**
1	Click on Blood request button.	Redirect user on Blood request page	As Expected	Pass
2	Enter Name	Name can be entered	As Expected	Pass
3	Enter Contact number	Valid contact number can be entered	As Expected	Pass
4	Select blood group number	Blood group can be selected from dropdown box	As Expected	Pass
5	Enter Unit of blood needed	Unit of blood can be entered in numbers	As Expected	Pass
6	Enter Blood required date	Blood required date can be entered in “dd-mm-yyyy” format	As Expected	Pass
7	Select Division, District and Upazila	Division, District and Upazila can be selected from drop down box	As Expected	Pass
8	Enter hospital Name	Hospital name can be entered	As Expected	Pass
9	Click Request	Blood request send to admin	As Expected	Pass

Table 6.4: Donor Searching

Test Case Id	004			
Test Scenario	GEO-Location based Blood donor searching process.			
Step No	**Step Details**	**Expected Results**	**Actual Results**	**Pass/ Fail/ Not executed/ Suspended**
1	Click on Search Blood button.	Redirect user on Search Blood page	As Expected	Pass
2	Allow location of device	System will want location access from user.	As Expected	Pass
3	Show users current location on Map	If user allow the location access to the system, system will show the google map and the location of seeker.	As Expected	Pass
4	Select blood group	Blood group can be selected from drop down box.	As Expected	Pass
5	Select Division, District and Upazila	Division, district and upazila can be selected from drop down box.	As Expected	Pass
6	Blood donor list view	When seekers select the blood group, then .	As Expected	Pass

Table 6.5: Blog

Test Case Id	005			
Test Scenario	Verifying a user on Blog reading process			
Step No	**Step Details**	**Expected Results**	**Actual Results**	**Pass/ Fail/ Not executed/ Suspended**
1	Click on Blog menu.	Redirect user on Blog reading page	As Expected	Pass
2	Blog list view	User can see the all blog list as grid view	As Expected	Pass
3	Posted date	Show the blog posted date	As Expected	Pass
4	Creator view	Show the initiator of the blog	As Expected	Pass
5	Read more button	If user want to read the full blog then they can click on Read more button, and a popup will be open along with the full content of blog	As Expected	Pass

Table 6.6: Contact Us

Test Case Id	006			
Test Scenario	Verifying a user on contact with admin process.			
Step No	**Step Details**	**Expected Results**	**Actual Results**	**Pass/ Fail/ Not executed/ Suspended**
1	Click on Contact us menu.	Redirect user on contact with admin page	As Expected	Pass
2	System admin address	Show the address of system	As Expected	Pass
3	Enter Name	Name can be entered	As Expected	Pass
4	Enter Email	A Valid Email can be entered	As Expected	Pass
5	Enter message	Message for admin can be entered	As Expected	Pass
5	Click Submit button	Message for admin can be entered User's message send to admin	As Expected	Pass

Table 6.7: Donor Panel

Test Case Id	007			
Test Scenario	Donor panel activities verifying			
Step No	**Step Details**	**Expected Results**	**Actual Results**	**Pass/ Fail/ Not executed/ Suspended**
1	Dashboard view.	After login as a donor, donor will firstly redirect on donor's dashboard	As Expected	Pass
2	See total blood request	Donor will see total blood request count on dashboard	As Expected	Pass
3	See active blood request	Donor will see active request count on dashboard	As Expected	Pass
4	Click Active blood request	Donor will be redirect on blood request list view page	As Expected	Pass
5	Click Add donation	Blood donation history add page will be opened	As Expected	Pass
6	Enter Donation date.	Donation date can be entered in "dd-mm-yyyy" format.	As Expected	Pass
7	Enter Times of donation..	Times of donation can be entered in numeric digit.	As Expected	Pass

Step No	Step Details	Expected Results	Actual Results	Pass/ Fail/ Not executed/ Suspended
8	Enter Location.	Blood donation can be entered.	As Expected	Pass
9	Click Save button.	Donor's donation history can be added to the system.	As Expected	Pass
10	Click donation history.	Blood donation history page will be opened.	As Expected	Pass
11	Show Donation date.	Donation date can be shows in "dd-mm-yyyy" format.	As Expected	Pass
12	Show Times of donation.	Times of donation can be shows in numeric digit. .	As Expected	Pass
13	Show Location.	Blood donation location can be shows	As Expected	Pass
14	Entity view setting.	Donor can set how many history will show in 1 page	As Expected	Pass
15	Searching option.	Donor can able to free text search and find the donation history	As Expected	Pass
16	Count of entities.	How many entity in this account will be shown	As Expected	Pass

Step No	Step Details	Expected Results	Actual Results	Pass/ Fail/ Not executed/ Suspended
17	Pagination.	Go to next page and return to previous page.	As Expected	Pass
18	Add blood donation button on blood donation history page.	Click on this button and redirect to add .	As Expected	Pass
19	Ascending and Descending ordering.	Donor can be changes the ordering of entities in ascending/ descending ordering.	As Expected	Pass
20	Click Blood request.	Blood request list page will be opened.	As Expected	Pass
21	Searching option.	Donor can able to free text search and find the blood request list.	As Expected	Pass
22	Show blood seeker.	Blood seeker's name can be show.	As Expected	Pass
23	Show Seeker's contact number.	Blood Seeker's contact number can be show.	As Expected	Pass

Step No	Step Details	Expected Results	Actual Results	Pass/ Fail/ Not executed/ Suspended
24	Show Seeker's required blood group.	Blood Seeker's blood group can be show.	As Expected	Pass
25	Show Seeker's Division, District and Upazila	Blood Seeker's Division, District and upazila can be show.	As Expected	Pass
26	Show blood required date.	Blood required date can be show.	As Expected	Pass
27	Show required unit of blood.	Required blood unit can be show.	As Expected	Pass
28	Count of entities.	How many entity in this account will be shown.	As Expected	Pass
39	Click on Donor profile.	Donor's profile information editing page will be opened.	As Expected	Pass
30	Donors all information view.	Donors all information will show and can be change the data.	As Expected	Pass
31	Click Update button.	Donor's all information will be update on the system.	As Expected	Pass
32	Click Update button.	Donor's all information will be update on the system.	As Expected	Pass

Table 6.8: Admin Panel

Test Case Id	008			
Test Scenario	Admin Panel activities verifying			
Step No	**Step Details**	**Expected Results**	**Actual Results**	**Pass/ Fail/ Not executed/ Suspended**
1	Dashboard view.	After login as a donor, donor will firstly redirect on admin dashboard	As Expected	Pass
2	Donor count.	Admin can see all donors count by blood group wise.	As Expected	Pass
3	Click Total donor.	System will redirect to donor management page.	As Expected	Pass
4	Click pending request .	System will redirect to blood request page.	As Expected	Pass
5	Blood group setup.	Admin will able to add, edit, delete the blood group.	As Expected	Pass
6	Division setup.	Admin will able to add, edit, delete the Division.	As Expected	Pass
7	District setup.	Admin will able to add, edit, delete the District.	As Expected	Pass
8	Upazila setup.	Admin will able to Upazila.	As Expected	Pass

Step No	Step Details	Expected Results	Actual Results	Pass/ Fail/ Not executed/ Suspended
9	Click on Donor.	Donor management page will open and all donors list will shown.	As Expected	Pass
10	Manage donors.	Admin will able to add, edit, delete the Donors.	As Expected	Pass
11	Click on Add Blog.	Blog adding page will open.	As Expected	Pass
12	Create blog.	Admin will able to add a blog by giving title and blog content and click on create .	As Expected	Pass
13	Click on Blog list.	Blog list view page will open.	As Expected	Pass
14	Manage blogs.	Admin will able to add, edit, delete the blogs.	As Expected	Pass
15	Click on Admin's profile.	Admin's profile information editing page will be opened.	As Expected	Pass
16	Admin's all information view.	Admin's all information will show and can be change the data..	As Expected	Pass

Step No	Step Details	Expected Results	Actual Results	Pass/ Fail/ Not executed/ Suspended
17	Click Update button.	Admin's all information will be update on the system.	As Expected	Pass
18	Change password.	Donor will be change their password by click on change password option.	As Expected	Pass
19	Click Blood request.	Blood request list page will be opened.	As Expected	Pass
20	Entity view setting.	Admin can set how blood request list will show in 1 page.	As Expected	Pass
21	Searching option.	Admin can able to free text search and find the donation history	As Expected	Pass
22	Count of entities.	How many entity in this account will be shown	As Expected	Pass
23	Show blood seeker.	Admin seeker's name can be show.	As Expected	Pass
24	Show Seeker's contact number.	Blood Seeker's contact number can be show.	As Expected	Pass

Step No	Step Details	Expected Results	Actual Results	Pass/ Fail/ Not executed/ Suspended
25	Show Seeker's required blood group.	Blood Seeker's blood group can be show.	As Expected	Pass
26	Show Seeker's Division, District and Upazila.	Blood Seeker's Division, District and Upazila can be show.	As Expected	Pass
27	Pagination.	Go to next page and return to previous page.	As Expected	Pass
28	Ascending and Descending ordering.	Admin can be changes the ordering of entities in ascending/ descending ordering.	As Expected	Pass
29	Request Status.	Admin can take any kind of action of blood request.	As Expected	Pass
30	Click approve.	The request will go to this blood group and this area's all donors profile and send notification.	As Expected	Pass
31	Donor availability check.	Donor will unavailable if they donate blood in recent and not passed 120 days.	As Expected	Pass

Chapter 7

Conclusion and Future Work

7.1 Summary

GEO-Location based blood donor searching system is an online based blood donor searching system. It will ensure the shortcut blood manage in nearest location in emergency medical cases. Provide the automation system in notification and blood donor availability management. Also monthly report generate system and donation history tracking system.

In fine, our system will plays a vital role in blood voluntary activities. By using this system we can manage blood within short time in critical situations. Along with this, our system is considering the wellbeing of the donors.

7.2 Future Work of the System

Our future plan about this project is, the project will extend day by day with the technology. We will add possible all the latest features and technologies. Especially we are making plan in nearest future to include the following things:

- Implement AI (Artificial Intelligence)
- Deploy chatbot.
- Save time while seeking the blood donor.

- Deploy an android and iOS application.

7.3 Value of This Project

Technology is always giving us the highest advantages than drawbacks. It depends how we utilize the system. We have tried to provide the best possible security to our system users. This service will provide the privilege to find the actual blood donor in less time. It also save the extra transportation issues.

Our market analysis shoes that still now there are no system developed like our system. So it is going to the first ever GPS based blood donor searching system in Bangladesh. Therefore, we hope that our system will get a vast amount of popularity in our country.

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