WEB APPLICATION FOR BLOOD AND ORGAN DONATION (iDONATE)

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CONTRIBUTORS

Manjusha K
Reshmi Mohan
Devika M Nath
Sreelekshmi CJ
Computer Science
College of Engineering Cherthala
India

GUIDED BY,

Vimal Vinod
Assisstant Professor
College of Engineering Cherthala
India

Abstract—**Without a supply of blood, health services could not meet their clinical needs. Similarly, organs for transplantation save and transform lives. iDonate is a web application mainly focuses to connect Hospitals, Organizations, Donors and Receivers.This application can be accessed throughout the Hospitals with respective logins provided. This system can be used as an efficient tool for the Hospitals for the blood and organ transplantations and to manage the patients information and also to pass the information regarding the transplantations. After login, the Donors, Receivers, Hospitals and Organizations be able to view the dashboard,from there they can search and update correspondingly. This system could also be used as a central repository that controls/possesses the entire data of patients details in hospitals. This will also helps to fastly crosscheck the availability of blood and organs.**

Index Terms—**Optimization, Abstraction, Security, Transplantation.**

I. INTRODUCTION

Many hospitals provide the way to donate organs and blood directly and can supply that to the people who are in need of that. Now-a-days many cases are being reported to death because of the unavailability of blood. Through this we are proposed to have a platform which will give people to get a chance to know about the availability of blood and organs in each hospitals and hence can request for the same when need occur.The need for blood and organ is great as it is life, as there is no replacement for human blood and organ. Every day blood and organ is required in hospitals and emergency treatment facilities for patients with Cancer, Thalassemia and other diseases, for organ transplant recipients, and to help save the lives of accident/trauma victims. With a growing population and advances in medical treatments and procedures requiring blood transfusions, the demand for blood and organ continue to increase. In India many people are losing their lives every day in emergency situations because we are suffering fro

m lack of blood and organ in blood and Organ Banks, and they do not receive the blood and organ timely.There is a disparity exists between the supply and demand of the organs and blood. There doesnot exists a website showing the availability of both blood and organs.

The aim of this project is to build a web application which allows people to get a chance to know about the availability of blood and organs in each hospitals and hence can request for the same when need occur.

The main purpose is to connect hospitals, organizations, donors and receivers and allows them to get a chance to know about the availability of blood and organs in each hospitals and hence can request for the same when need occur. The main functions are Patients's information is maintained in the database so that the data will be organized and, can be accessed by hospital management. Gives more security to data, ensures data accuracy. Reduces paper work and save a lot of time. Since the availability of blood and organs are shown in a single website, it will be easy to connect the needed ones and helps to save their lives. Since the data is stored in a database, the chance of data duplication is probably less.

II. PROBLEM STATEMENT AND OBJECTIVES

patients, who are in need of blood and organ, usually request through advertising on televisions or social media, with the series of advert placement of donation of blood and organ the patient may still not get the required amount of blood and compactable organs needed at that particular time.. There is no platform to co-ordinate these both blood and organ donation activities effectively. The objective is to make a web app to connect Hospitals, Organizations, Donors and Receivers and allows them to know about the availability of blood and organs in each hospitals and hence can request for the same when need occur.

- It eases the complex process which involves finding a donor whose blood group is compactible with the blood group of the patient.

- The Hospital managements or the authorized ones have to update, delete, manage these data.

- The security of user data is also uncertain here.

- As the registration processes are done as a whole, there exists a fear of fake or illegal malpractice.

III. LITERATURE REVIEW

Several studies about various websites for blood and organ donation has done. Few of them are listed below. [1] NHS organ donation and NHS blood and transplants- These are two websites for organ donation and blood donation respectively under the same organisation.They manage blood and platelet donation, and organ, stem cell and tissue donation and transplantation. NHS Blood and Transplant (NHSBT) is a joint England and Wales Special Health Authority that provides a blood and transplant service to the National Health Service—supplying blood to hospitals in England, and tissues and solid organs to hospitals across the United Kingdom. Each year, donors give approximately two million donations of blood and 3,500 organs—saving and transforming countless lives. Safeguarding the blood supply and increasing the number of donated organs involves collecting, testing, processing, storing, and delivering blood, plasma, and tissue to every NHS Trust in England. NHSBT also matches, allocates, audits, and analyzes organ donations across the whole of the UK. "NHSBT was embarking on its most complex transformation program ever, initially focusing on the Organ Donation and Transplantation (ODT) area of its business". "It needed to modernize a significant percentage of its core systems, platforms, and architecture along with realigning the infrastructure to more modern cloud-based technologies. The impact on the current business and practices couldn't be underestimated across the organization—we were anticipating changes in how we work and how the system worked.

[2] HRSA - organdonar.gov- An organ donation management website under Health resource and service administration.Organs ,Corneas ,Tissues , Hands and Face ,Blood Stem Cells, Cord Blood, and Bone Marrow , Blood and transplants are donated using these sites.There also exists android apps like Organ Do- nation (Life after death), Friends to support, Blood donation etc under certain hospitals.But these apps won't allow the needed ones to register in these apps. Only the donars can register and the hospital authority will provide the organs to the patients consulting there hospitals only. And also no app provides both blood and organ donation management scheme together. Either blood nor organs are only considered. Organ donar is a website under health resource and service administration but this site also provides only the donar to register. More than 120,000 men, women, and children across the U.S. are waiting for a life-saving organ transplant, and 22 people die every day because a matching organ can't be found in time. The Division of Transplantation (DoT), HRSA/HHS chose Crosby to help promote registration nationwide for organ, eye, and tissue donation. Research showed the vast majority of people in the U.S. support donation, but nearly half of eligible adults hadn't signed up. Our job was to reach out to these "passive positives" and spread the message about the importance and ease of registering. Just one donor can save up to 8 lives.

[3]e-Rakt Kosh- A Centralized Blood Bank Management System eRaktKosh was Inaugurated on 7th April 2016 by Hon'ble Minister of Health and Family Welfare, Sh. J P Nadda. e-Rakt Kosh enforces Drug Cosmetic Act, National blood policy standards and guidelines ensuring proper collection donation, effective management and monitoring the quality and quantity of the donated blood. Considering the national roll out, e-Rakt Kosh has been developed with modular and scal- able approach with configurable rule based architecture allowing customization to easily incorpoate specific requirements from nationwide stakeholders. e-Rakt Kosh has the bio metric Donor Management System for identifying, tracking and blocking donors based on donor's health, donation history etc. It provides features such as blood grouping, TTI screening, antibody screening, component preparation etc. as per the defined processes and rules. A centralized Blood Inventory Management System for keeping track of the blood stock across numerous blood banks. Bio-Medical Waste Management System for disposal of discarded blood and other waste generated during this process. Generation of rare blood group donor registries and the generation of regular repeat donors

[4] www.notto.nic.in- National Organ and Tissue Transplant Organization (NOTTO) is a National level organization set up under Directorate General of Health Services, Ministry of India.A website by the name www.notto.nic.in has been hosted where information with regards to the organ transplantation can be obtained. An online system through website is being developed for establishing network for Removal and Storage of Organs and Tissues from deceased donors and their allocation and distribution in a transparent manner. A computerized system of State/Regional and National Registry of donors and recipients is also going to be put in place.

[5] U-Blood- The features of U-Blood are It has the geo-search feature, finding blood donors has become easier than ever. When you enter your location and you will be shown the donors available in the closest proximity. It helps in Real-time Connect: No delays in receiving blood anymore. Connect with donors and receivers in real-time.It notifications the updates on blood requests so that you are informed the moment a donor is available or a request is made.

Many more papers and systems that are given in the reference was surveyed and analaysed in order to formulate this project. We found through this study that each of this system was developed for a particular hospital and organizations. And also there doesnot exit a single platform for blood and organ donation. It is very inconvinient to use different apps

for each purpose. So the main objective of this project is to develop a web application that integrates both blood and organ donation in a single platform.Also through our study we found that there is not a single application that connects hospitals, organizations, donors and receivers together. The aim of this project is to build a web application which allows people to get a chance to know about the availability of blood and organs in each hospitals and hence can request for the same when need occur.

IV. PROPOSED SYSTEM -IDONATE

iDonate is a web application that connects hospitals, organizations, donors and receivers and allows them to get a chance to know about the availability of blood and organs in each hospitals and hence can request for the same when need occur. The main functions are as follows:

- Patients's information is maintained in the database so that the data will be organized and, can be accessed by hospital management.
- Gives more security to data, ensures data accuracy.
- Reduces paper work and save a lot of time.
- Since the availability of blood and organs are shown in a single website, it will be easy to connect the needed ones and helps to save their lives.
- Since the data is stored in a database, the chance of data duplication is probably less.
- The system will be cost effective.. To provide the user-friendly system to all the VIMP, It is our one step towards helping those people to face the challenging world of internet today. To provide them the facility of technology through this they have the chance to overcome this disability.

V. SYSTEM DESIGN

In System design a structural framework for the entire system is created. It is done in such a way that related part come under particular groups. Thus after the system design, a network of different groups is obtained. It is the high-level strategy for solving the problem and building a solution. It includes the decision about the organization of the system into subsystems, the allocation of subsystems to hardware and software components, and major conceptual and policy decisions that form the framework for the detailed design.

In detailed design, each group is studied in detail and the internal operations are decided. Based on this, the data structures and the programming language to be used are decided. Apart from detailed design, the system design can be grouped into physical design and structural design. The physical design maps out the details of the physical system and plans the system implementation and specifies the hardware and software requirements.

Structured design is an attempt to minimize the complexity and make a problem manageable by subdividing into smaller segments, which is called modularization or decomposition. In this way structuring minimizes intuitive reasoning and promotes maintainable provable of systems.The structured design partitions a program into small, independent modules. They are arranged in a hierarchy that approximates a model of the business are and is organized in a top-down manner. Logical design proceeds in a top-down manner. General features, such as reports and inputs are identified first. Then each is studied individually and in more detail. Hence the structured design is an attempt to minimize the complexity and make a problem.

VI. SYSTEM MODULES

The system consist of mainly five modules.

VII. MODULES

A. ADMIN

Input : Username & Password
Output : Logged in to the Admin dashboard.
1) start
2) Logged in using username & password.
3) Send this data to the server.
4) If an error occurred, returns back to the homepage.
5) If success, logged in to the admin dashboard.
6) Can view all profile & can accept or reject the request.
7) Stop

B. DONOR

LOGIN

Input : Username & Password
Output : Logged in to the donor dashboard.
1) Logged in using username & password.
2) Send this data to the server.
3) If an error occurred, returns back to the homepage.
4) If success, logged in to the donor dashboard.
5) Can view their profile, identity and contact details.
6) Donor dashboard shows the Notifications and sent requests.
7) Donor can send request to any of the receiver, hospitals and organizations.
8) Stop

SIGNUP

Input : Username, Mail id & Password
Output : Signin to the Donor registration.
1) Donor can signup using username, Mail id & password.
2) Send this data to the server.
3) Signin to the donor registration.
4) Enter valid donor details.
5) If admin reject the request, returns back to the homepage.
6) If admin accepts the request, can login to the donor dashboard.
7) Can view their profile, identity and contact details.
8) Donor dashboard shows the Notifications and sent requests.
9) Donor can send and accept request to any of the receiver, hospitals and organizations.

10) Stop

C. RECEIVER

LOGIN

Input : Username & Password
Output : Logged in to the Receiver dashboard.
1) Logged in using username & password.
2) Send this data to the server.
3) If an error occurred, returns back to the homepage.
4) If success, logged in to the receiver dashboard.
5) Can view their profile, identity and contact details.
6) Receiver dashboard shows the Notifications and sent requests.
7) Receiver can send and accept request to any of the donor, hospitals and organizations.
8) Stop

SIGNUP

Input : Username, Mail id & Password
Output : Signin to the receiver registration.
1) Receiver can signup using username, Mail id& password.
2) Send this data to the server.
3) Signin to the receiver registration.
4) Enter valid receiver details.
5) If admin reject the request, returns back to the homepage.
6) If admin accepts the request, can login to the receiver dashboard.
7) Can view their profile, identity and contact details.
8) Receiver dashboard shows the Notifications and sent requests.
9) Receiver can send and accept request to any of the donor, hospitals and organizations.
10) Stop

D. HOSPITAL

LOGIN

Input : Username & Password
Output : Logged in to the Hospital dashboard.
1) Logged in using username, Mail id & password.
2) Send this data to the server.
3) If an error occurred, returns back to the homepage.
4) If success, logged in to the hospital dashboard.
5) Can view their profile, identity and contact details.
6) Hospital dashboard shows the Notifications and sent requests.
7) Hospital can send and accept request to any of the receivers, donors and organizations.
8) Stop

SIGNUP

Input : Username, Mail id & Password
Output : Signin to the Hospital registration.

1) Hospital can signup using username, Mail id & password.
2) Send this data to the server.
3) Signin to the hospital registration.
4) Enter valid hospital details.
5) If admin reject the request, returns back to the homepage.
6) If admin accepts the request, can login to the hospital dashboard.
7) Can view their profile, identity and contact details.
8) Hospital dashboard shows the Notifications and sent requests.
9) Hospital can send and accept request to any of the receiver, donors and organizations.
10) Stop

E. ORGANIZATION

LOGIN

Input : Username & Password
Output : Logged in to the Organization dashboard.
1) Logged in using username & password.
2) Send this data to the server.
3) If an error occurred, returns back to the homepage.
4) If success, logged in to the organization dashboard.
5) Can view their profile, identity and contact details.
6) Organization dashboard shows the Notifications and sent requests.
7) Organization can send request to any of the receiver, donor and hospitals.
8) Stop

SIGNUP

Input : Username, Mail id & Password
Output : Signin to the Organization registration.
1) Organization can signup using username, Mail id & password.
2) Send this data to the server.
3) Signin to the Organization registration.
4) Enter valid organization details.
5) If admin reject the request, returns back to the homepage.
6) If admin accepts the request, can login to the organization dashboard.
7) Can view their profile, identity and contact details.
8) Donor dashboard shows the Notifications and sent requests.
9) Donor can send request to any of the receiver, donors and hospitals.
10) Stop

VIII. Implementation

An important aspect of system and analyst's job is to make sure that the new design implemented to establish standards. Implementation involves all these activities that take place to convert from the old system to new. A proper implementation is essential to provide reliable system to meet the requirements of a new computerized system will improve the efficiency of the entire system and reduce the labours involved.

IX. Coding Environment Used

Visual Studio Code is a source-code editor developed by Microsoft for Windows, Linux and macOS. It includes support for debugging, embedded Git control, syntax highlighting, intelligent code completion, snippets, and code refactoring. It comes with built-in support for JavaScript, TypeScript and Node.js and has a rich ecosystem of extensions for other languages (such as C++, C, Java, Python, PHP, Go) and runtimes (such as .NET and Unity).

The login Module allows the users to login into the application. Here the users are Admin, Donor, Receiver, Hospital, and Organization. The first homepage allows registered users to login and new users to signup. Users while registering should provide valid identity proof. The admin will check the profiles and accept or reject requests accordingly. After signin each users are entered into their corresponding dashboards. There they can view the matches and sent requests.

X. CONCLUSION AND FUTURE SCOPE

In conclusion, iDONATE is a modern progressive web application for blood and organ donation.It help people find blood donors in times of need. A transplant can save or transform the life of a person. One organ donor can save up to 7 lives and help many more through eye and tissue donation. This application helps to connect the needed ones.

Future Scope of this project are we can use the technique of machine learning and artificial intelligence for reading the medical prescription and reports and carry out the major matching between donor and recipient through the application itself. It can be the most self evolved application which can read the medical report and can find matches by specially taking time of requirement as a major consideration.

This application will be the most user-friendly platform to enroll people in such good activ- ity and will save many lives of the people who are dying due to lack of organ donation. It will create a long-term lifesaving role for every citizen in our country. Our prime target is to provide organs to the seeker when they are in need and make it a life saver platform for those who are dying due to the lack of organs and also targets the human race and spreads the concept of saving life after one's death .

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