Medical Assist and Fund Raise Supporting Mobile Application using Matching Algorithm for NGO'S

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ABSTRACT
Medical Assist and Fund raising application plays an important role in saving the life of human beings. All living things need blood to function. In an emergency, it turns out to be a life-saving element. This application aims to design, develop, and implement an android application which allows the user to search the blood donors, organ bank and fund sponsors information.Users has to register themselves by giving basic information such as name, contact details, blood type, health condition, Aadhaar verification etc,. Users can get blood, organ and fund all those emergency needs within this application. User can able to search and track nearby donors, banks and sponsors via GPS live location once they get registered. Blood banks, organ banks and NGO's needs to register by themselves with their basic information and unique identification number which prevents scam activities. This application has main feature that user can advertise their needs and share it in various social media platforms i.e.advertise blood, fund, organ by themselves results in immediate response from the donors.
The primary thing of creating this application is to drastically cut down on the quantum of time demanded to find the ideal patron and the necessary blood force. Also, the stoner can subscribe up to contribute their organs to others in need after passing down. It has a significant impact on saving mortal lives. Within this programme, users can gain blood, organs, and fund backing for all exigency needs. After being registers, they're suitable to search for and follow near contributors, banks, and guarantors using GPS live position.In order to help scamming, blood banks, organ banks, and NGO's must singly register with their introductory information and unique identification number. This application also includes NGO Management System which employs block chain to provide contributors and the organization peace of mind that no fraud is being committed with their donations.

Keywords: *Blood Bank, Organ Donation, Donors, Receptors, Android, NGO, GPS location sharing*

I INTRODUCTION

Donating blood is a medical procedure in which a patient gives their informed consent to have blood drawn. [2] In the event of an emergency, this blood will be transfused to patients at hospitals. Blood can be donated in many different forms, platelets, as well as whole blood (blood taken directly from the donor's body). There are many steps involved in collecting blood, and blood banks are often a part of them. These steps include stock management, approving blood requests, and updating donor data. The primary motivation for creating this Android app is to help those in need of transfusions and

organ donations. Every day, a staggering number of new people join the ranks of those desperately seeking blood donations. By using this method, a stoner can find patrons in the megacity who share his blood group and get in touch with them directly. This Android function is put to good use by those who want to aid those in need of blood by locating donors who share the same blood type as them within a megalopolis[7]. For this reason, the user can ask the donor for a blood transfusion if the blood bank does not have the necessary blood type. The project's overarching goal is to streamline and computerise the procedure of searching for blood, organs, or funds in times of emergency, as well as to keep track of donors, recipients, and the amount of supply in local registered banks. Users looking for donations can use this app to find them and get in touch with the contributors in question. The user can also make and submit an ad about their blood/organ/fund needs by filling out the form within a few minutes, sharing their location and facts through private conversations. When the post is published, the app's registered users will all receive push notifications. To donate an organ is to give legal permission for that organ to be transplanted into another person, whether that person is alive or dead. [8]. Organ and tissue donations are accepted for either scientific study or, more commonly, transplantation into recipients in need. Organs that are routinely transplanted include bones, bone marrow, skin, corneas, kidneys, hearts, livers, pancreas, intestines, and lungs. Certain organs and tissues can be donated while the donor is still alive; examples include a kidney, a segment of liver, a segment of pancreas, a segment of lungs, or a segment of intestines. Nongovernmental organisations (NGOs) always work to better the world via their selfless and uplifting initiatives. Non-governmental organisations need a lot of funding and help to function effectively. This component provides the NGO with monetary aid on a purely voluntary basis. User contributions can be processed through the module's integrated payment processor. Developing and deploying server-side logic is used to keep track of the monetary transactions. [12] In order to confirm donations and recognise payments, the database listener is triggered whenever a new payment is added, which triggers an alert to be delivered to the donors**.**

II LITERATURE REVIEW

According to Technopedia's "The Optimization of Blood Donor Information and Management System," This system is an Android application that is web-based. The system is made up of a server and two Android smartphones (Usually a pc). [14] Donor/Receptor registers an account and receives a special user ID and password. Receptor either the patient or any of their family members. Each specifics are kept in a database.

For the sake of saving lives, an Android runs a blood bank. In order to use Android Blood Bank, a user must first register an account on the app's website. Information will be filed away in a database (MySQL). The user will be presented with a number of distinct menu options, such as searching for blood camps in the user's immediate vicinity, blood donors, blood banks, and blood types. A GPS system can help you find the nearest blood drive, blood bank, or hospital. In a time of need, using GPS to find the fastest route to the nearest blood bank is a must[9].

MPlus is an Android app for Kerala people with the ability to request blood donors

from the Kerala Blood Bank and have their responses sent directly to those in need[8]. The GPS system is not used and this application is just for blood donations.

New organ donor ECard from Irish renal groups. The ECard is a more practical way to get the word out to loved ones and rescue workers in an urgent situation. We restrict this form's use to organ donation applications. [10]

American Red Cross Blood Bank - The user of this programme can invite others to join them on a lifesaving team, schedule appointments, manage total donations, and earn prizes. However, this application has some drawbacks. No GPS is utilized in this application. This website and Android application system interact to support the entire blood donation programme in America. In India, this facility is not accessible.

Web-based system keeps records, analyses several criteria for research questions, and provides information online. Patients obtain blood by getting in touch with the donor over the phone or internet. It is merely a website. An android IOT and cloud servers.Although the application solely stands for organ donation, it wants to connect the sensors and store data on cloud servers.Development of Social Application to Enhance NGO and Society Collaboration It is used to manage Organization operations and profile management.[11]

III. EXISTING SYSTEM

A blood bank, also known as a blood collection centre for hospitals, is a location where blood bags collected by patients are stored and conserved for use in blood transfusions in the future[13]. A patient receives blood or blood products during a blood transfusion as a life-saving procedure. Furthermore, it stated that its Directorate of Blood Services is operating at peak efficiency to fulfil Sultanate demand. The majority of blood banks still conduct their business using manual techniques. As a result, there is inefficiency because data collection for blood donors, blood bag inventories, and transfusion services is still done on paper.[49] Patients' health may be in jeopardy if there is improper record keeping since contaminated blood bags could be used.Blood banks will manage blood donation donors, activities, and blood bags with the use of this study's findings. [16]This will enable the hospital to decide whether a specific type of blood is required but currently not accessible there but is available in another hospital close by. Also, because each blood bag contains information on the donor, specifics about the donation activity, and the expiration date, handling the blood bags in the blood bank will be much simpler. Also, doctors can utilise this system to provide blood bags to patients and keep track of donor information.[47]

Organ Transplantation is one of the most difficult and intricate areas of contemporary medicine, but organ transplantations are one of its most remarkable triumphs..[50] More than 123,175 people are now on the organ transplant waiting list in the alone. At least six patients are added to the waiting list for organs every hour. Only 200 of the 1,50,000 patients in India who need kidney transplants currently receive their organs from deceased donors. [21]It's crucial to shorten the time between organ retrieval and transplantation in order to optimise the

unitization of the accessible organ and produce successful results.

In the NGO sector, there aren't many apps that enable communication , fund recipients, NGOs, and other organisations. The information pertaining to the fund needers must be conveniently accessible to the donator, so we must figure out how to establish a connection between a donator and the fund needers[17]. The only way to learn more about them right now is to physically visit the location. This adds much too many processes and discourages users from making donations.

III PROBLEM STATEMENT

As there is no substitute for human blood and organs, there is a significant need for both. In hospitals and emergency situations, blood and organs are needed daily. Facilities for organ transplant recipients, cancer patients, those with thalassemia, [15]and people in need of other types of medical care, as well as ones to help accident and trauma victims survive. The demand for blood and organs is constantly rising as a result of a growing population and improvements in medical procedures and treatments requiring blood transfusions[43]. Since there is a severe shortage of blood and organs in blood and organ banks and those banks are not receiving the blood and organs on time, many individuals in India lose their lives every day in emergency situations. Start looking for a donor as their family and friends The fundamental issue is that all applications dedicated to blood, organ, and fund donations only provide the bare minimum of information and don't permit users to communicate the real-time whereabouts of donors.[22] The current system offers organ, blood, and financial donations in accordance with each applicant's unique needs. The delay in receiving the necessary funding at the appropriate time is caused by advertising the fund through numerous NGO applications.

The current application users are unable to communicate their current location. They can speak with the donor in place of that. It seems uncomfortable to contact the donor about the emergency situation[46]. In the current system, users need to search for blood/organs in different applications. For that purpose, the user needs to register in all those applications individually to get those providers. India is believed to have done the second-highest number of transplants in 2019 (the United States performed the most), however India still lags behind. In India, the percentage of living donors is higher than that of deceased donors (0.01% vs. 0.01%, respectively). [18]The percentage of donations from cadavers is only around 5% of all donors. Lack of knowledge, religious and superstitious beliefs, and severe rules are a few of the major contributors.While some people are interested in this social problem, they lack the information necessary to act or make donations. Another problem is that most individuals lack the literacy necessary to understand the significance of this cause. To increase awareness, we are giving our country access to an Android application for organ donation. Although there are certain internet services available to NGO's, offline services are utilized more frequently[25]. NGO's continue to use outdated procedures that frequently entail a lot of tiresome paperwork. Maintaining manual records of all these monies is challenging because even donations are made by hand.For fund seekers, it is much more complicated while collecting funds

from various NGO applications. It leads to delays in getting fund at the right time.Also users can’t able to find all the individual applications.Also, the user must only advertise their emergency needs using individual apps, such as blood donation or organ donation applications, or by raising money through other NGO's or websites. It takes a long time to fulfil their demands, and occasionally they are unable to obtain funding and gifts..[23]

IV PROPOSED SYSTEM

The medical assistance and fund-raising application offers a quick and effective approach to search for blood, organs, and funds. The primary benefit realised by this programme is that it has an intuitive user interface and makes it simple for users to receive donations when they upload the relevant supporting documentation.The proposed system includes the ability for the user to easily search for blood, organ, and fund providers by using this medical assist and fund-raising application. This application is not only helpful for blood donors and receivers; it is also helpful for organ donors and receivers. By using this application, users can also get help from Non-Governmental Organizations. Users do not need to register in multiple applications; instead, they register in this application using basic information such as name, address, contact number, and Aadhaar number. E-mail id. Once the user has registered with the application, a login ID is created[37]. The user can log in using that login ID the next time.For blood banks, organ banks, hospitals, an emergency situations, blood and organs are needed daily. This programme will eventually be able to coordinate and transmit the distance patients and donors, which is utilized to analyse the data using different matching approaches. Whether it be an organ or a system with GPS capabilities.

Once the user shares the post, other users of the application will get notified of an alert message through push notifications[24]. User can easily share their current location with the particular donor through the personal chat section using GPS.Receivers may also update their status regarding the assistance they have received from donors.The user can also share the post on other social media platforms too. requirement for a mobile app that might communicate information.The main feature of the application is that the user can advertise their blood needs, organ needs, and fund needs just by filling out the details in the form that is included in the application and NGO's, they need to upload their unique ID and registration certificate to register themselves.As there is no substitute for human blood and organs, there is a significant need for both.[27]

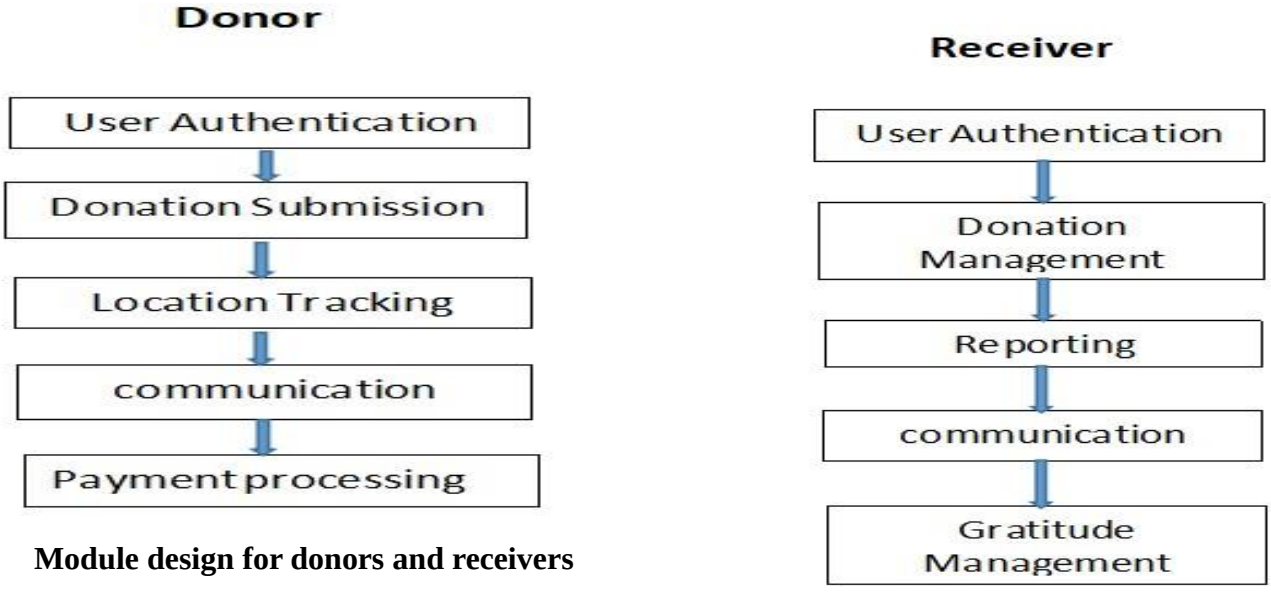
Table 1. Comparison of applications and websites

Apps\Parameter	Web Site	Tracking Location	Blood/Organ Donation/ fund	Search for Blood Bank, Hospital ,fund providers
American Red Cross	yes	No	Blood	no
MPlus/Kerela	yes	Yes	Blood	no
Organ Donor ECard	yes	No	Organ	no
Life Donor, Saudi Arabia	yes	No	Blood	no
Web based information scheme for Blood & Organ	yes	No	Blood	no
Medical assist and fund raising request	No	Yes	Blood,Organ & fund	yes

Table 2. Usage of donated blood

Place of blood need	**Amount of blood and its component require**
5. Bone Core Transplant	120.00 units of platelets / 20.00 unit of blood
6. Burn Victims	20.00 unit of platelets
1. Automobile Accident	50.00 unit of blood
2. Heart Surgery	6.00 unit of blood/6.00 unit of platelets
3. Organ Transplant	40.00 unit of blood/ 30.00 unit of platelets
4. 20 bags of Cryoprecipitate	25.00 unit of fresh frozen plasma

V MODULE DESIGN



Module design for donors and receivers

Matching Algorithm for donation

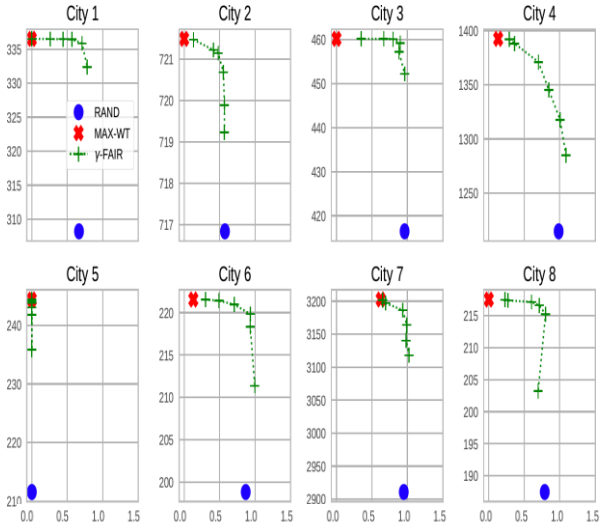
The blood donation bipartite donation graph G = (U, V, E), where donors are represented by u and donors are represented by v and recipients are represented by v. 9 A donor u and a recipient v can only contribute to each other if they are compatible, which is determined by the qualities of each vertex (such as blood type, location, and so on)[25]. Edges e = (u, v) E link compatible pairs (u, v); we designate all edges. Eu's vertices are near u and v, hence the Eu is also close to u and v. (E:v). A donor u can learn about a recipient v if there is an edge e = (u, v). 10 A finite time horizon T is used to divide time into discrete intervals of t days, where t = 1, 2, 3,..., T. Those who give and those who receive. Here, we model a real-world blood donation process that is constantly evolving to accommodate new donors and recipients, which are available at specific time intervals.[43]. This idea of dynamism is intended to reflect a blood donation environment. Yet, any number of donors may be contacted about the same recipient at any time step. We presume that donors may only receive one notice at each time step[29]. Hence, as a weighted bipartite matchingblem, our setup more closely resembles b-matching than classic bipartite matchingblem.

Edge Weights:

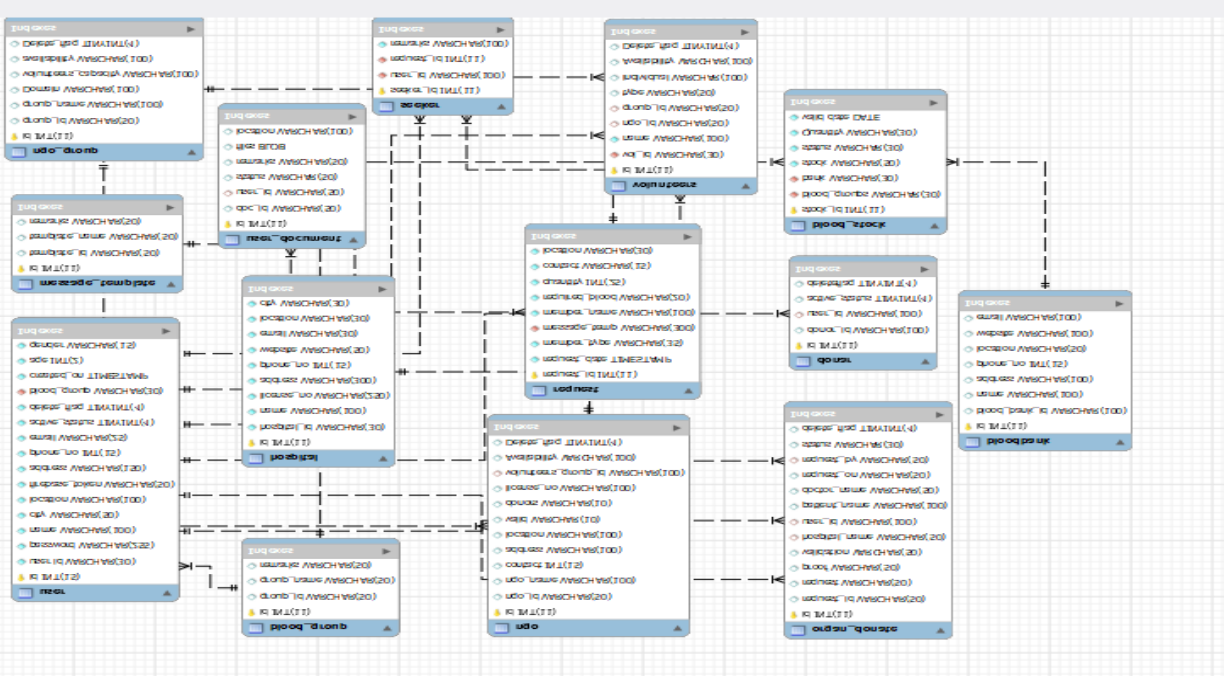
The assumption here is that each edge (u, v) has a weight equal to the chance that donor u donates to receiver v after being informed, and that the weights are indexed by edge e and time step t. As a result, some) are more likely to result in a contribution than others. As an illustration, some people may be more inclined to make a contribution than others. [34].

Adaptive policies:

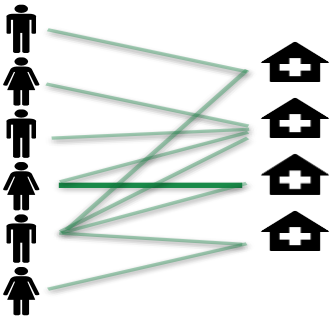
In order to make matching decisions, adaptive policies can use any information that is available, including observed demand realisations, earlier matching decisions[42], and the distribution of future demand. Future research will be used to characterise adaptive policies more broadly, but for now, [30]we will focus on a straightforward class of adaptive policies that logically extends the non-adaptive policies from the preceding section.



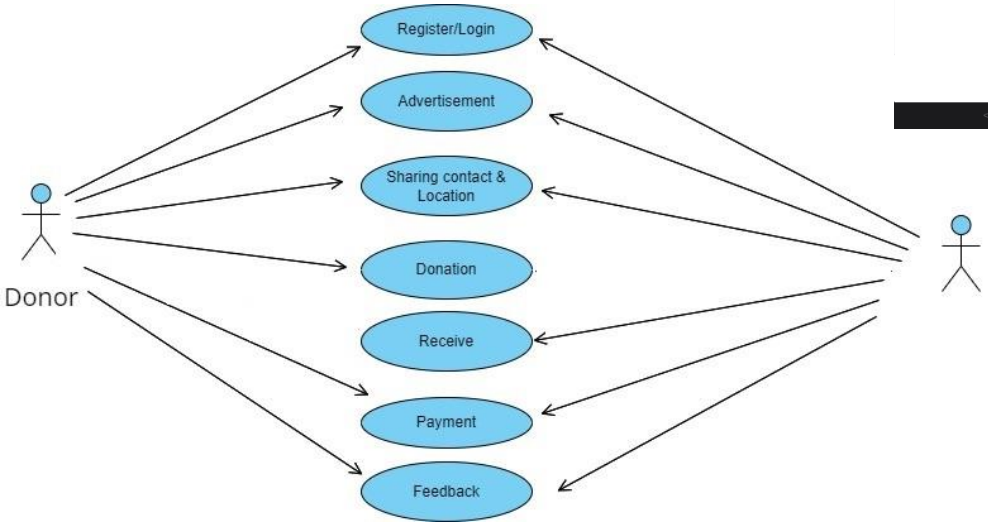
Matching with mega cities



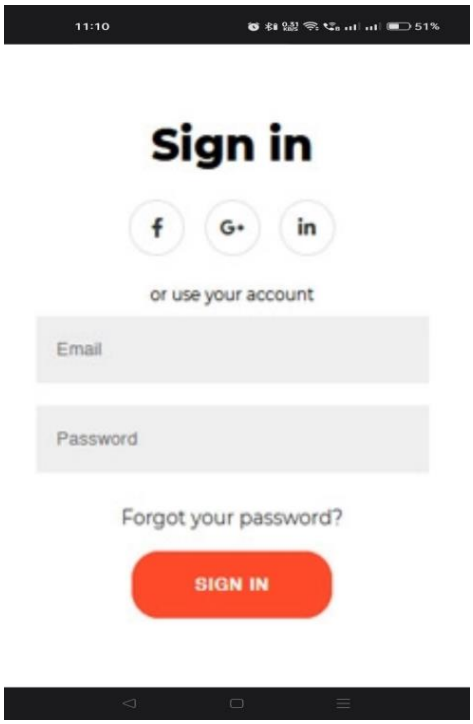
VI.ENTITY RELATIONSHIP DIAGRAM



VII. USECASE DIAGRAM



VIII. INPUT FORM FOR PROPOSED SYSTEM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Sign in
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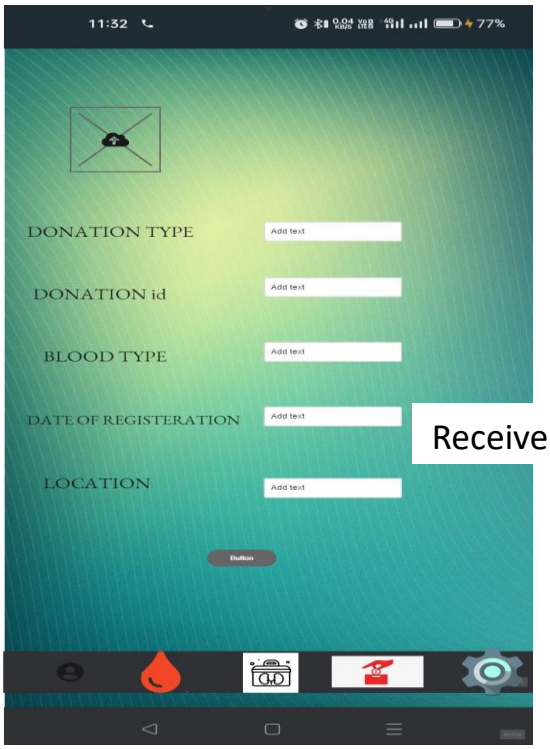
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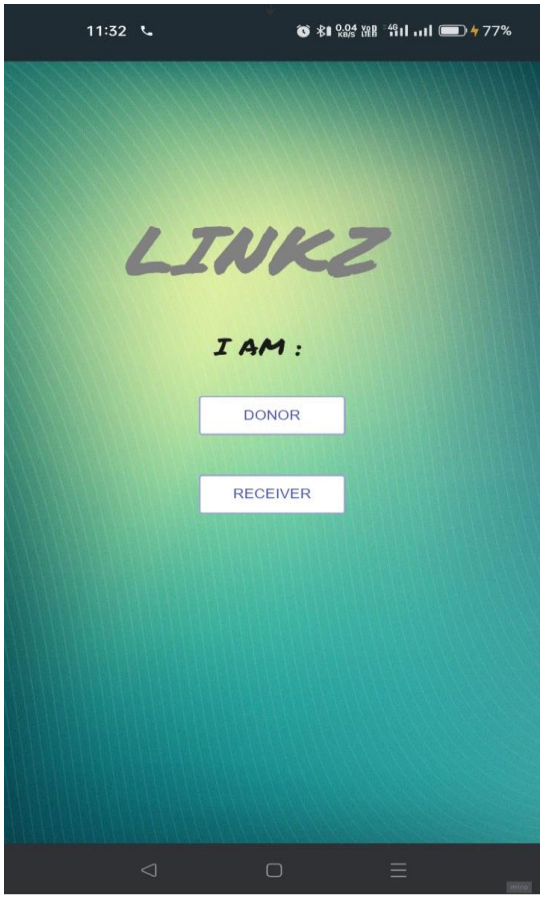
DONATION TYPE
DONATION id
BLOOD TYPE
DATE OF REGISTERATION
LOCATION
Add text
Button

Receiver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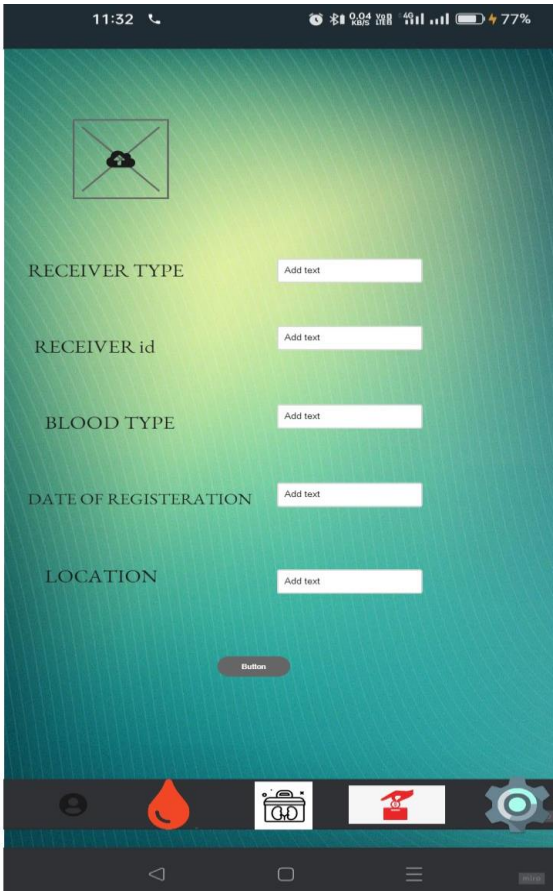
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IX.CONCLUSION

The service is better, quicker, and more beneficial. The method by which users can contact donors of blood, organs, and money for their needs in these areas during medical emergencies With the help of particularly in rural areas where hospitals and blood banks are far away[45].The technology offers the public a more efficient means of getting in touch with organ and blood donors in the event of a medical emergency.this Android-based application, users can find what they need in an emergency faster and at the right time. A G.P.S.-based donor information and management application for blood, organ, and financial donors has been incorporated into an Android mobile application[41]. Also, using an Android app to locate the closest hospital and blood bank increases the likelihood that the patient will survive, This mobile application that integrates a GPS-based information and management system for blood donors. By using an Android application, patients may find the closest hospital and blood bank, which increases their chance of survival, especially in rural areas where hospitals and blood banks are far away.This article clarifies how we can assist those in need of financial assistance and presents the idea of living in harmony with nature so that orphans can lead fulfilling lives by receiving financial assistance. The donor is pleased to be able to support the best in the world thanks to this donation. Based on the findings, this study came to the conclusion that the medical assist application is superior to the manual system. The results indicated that respondents preferred using the application. Based on the findings, this study came to the conclusion that the medical assist application is superior to the manual system. The results indicated that respondents preferred using the applica over the manual approach since it has various advantages and benefits that contribute to its effectiveness and efficiency. Because users have more faith in the system, it can be said that the application improves the safety of blood transfusions by offering better ways to handle the numerous operations in blood bank over the manual approach since it has various advantages and benefits that contribute to its effectiveness and efficiency. Because users have more faith in the system, it can be said that it improves the safety of blood transfusions by offering better ways to handle the numerous operations in blood banks and organ banks.This work discusses the availability of organ donation and transplantation through technological aid. This system intends to reduce the number of man-hours required for registration, organ allocation, organ procurement, organ transportation, and organ transplantation, all of which have the potential to save lives[38]. A unique ID and Aadhar card number prevents duplication. This method can be utilised to obtain information on an organ donor who has passed away and whose specifics regarding their donation are unknown to the environment and hospital by adding new ideas to it.These days, we have the potential to use the Internet for social work because of its reach[33]. As a result, by using this internet tool, the distance between NGO's and the general public will be reduced, encouraging more people to support diverse social causes and financial needs. Future application of this system is restricted to thinking[35]. To increase the system's effectiveness, further

ideas and modules can be added. In the future, the system can be used to make donations online and for direct product donations through this application.

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