

Blood Bridge: Location based search of donors

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Abstract: The present scenario during cases of medical emergencies is that there is no lack of blood donors but lack of donor contacts. This project aims at bridging the gap between the donors and the people in need of blood. The donors have to register themselves in the application which requires them to provide their contact details and blood group. The care takers of the patient need to provide the patient details and they can search for the available donors in a particular location according to the required blood group. Once the particular donor is chosen the donor is pinged with the details, once accepted the care taker gets the details. After the process is completed the donor is dormant for the next 3 months. And also the list of blood requirements will be shown to the donors if they wish to donate at that particular moment. We also show the availability of the nearby blood banks.

I. INTRODUCTION

Blood is the life sustaining fluid in each and every one of us. At times it so happens that we require blood from external source at times of emergency. As estimated this happens every 2 seconds, every 2 seconds someone on this earth is in need of blood transfusion. In India alone we require 4 crore units of blood every year, only a meager 40 lakhs units are supplied [2]. In a nation of a billion finding 4 crore unit of blood is found to be difficult and it is not because people are preserving blood in their body it is because people do not get to know that blood donation is required at some place and acceptors fail to get donor contacts in time of need. Yes blood banks and blood donation camp helps but blood donated there has a shelf life of 40-45 days after which the blood goes waste. It does not mean that blood banks are wasting their time and our blood, they can reach out to more people who are in very urgent need for blood. But they are not completely effective at all times taking into consideration type of blood and the distance from the patient and freshness of blood.

The present method followed in such situations is to call up the people who are in close contact and ask if they can donate. This does work but is very tedious and again the availability of the person and how far he or she stays becomes a major issue, consider a person who has met with an accident and needs blood urgently. Asking for availability of blood from people in their contacts is time consuming and not always effective, And various factors for eligibility also comes into picture.

After considering all these above situations we came up with a solution to this, to be a Android app through which help will be only a click away. This is a technological world with abundance of ideas and creations hence there are apps similar to our idea, but there are numerous drawbacks as in listing a huge number of contacts, which is more hectic than the normal approach of enquiring people manually through our contact list. And one of these already existing systems is a website which does not provide donor contacts which are in the vicinity.

Blood bridge is intended to overcome all the drawbacks that exists in the existing system, by maintaining a database of all the registered donors which can be retrieved when needed, to remove the complications of giving the contact number of the same person even after he has donated blood recently, we have a checkbox for availability which can be unchecked, and that particular user won't get a call from people seeking blood till the availability is turned on. This option can be used even when the person is going out of town or has used some medication in recent times. To provide the contacts of donors who are in the vicinity of the acceptors, we use the pin code of the donor to find the list of the people who are close by.

II. RELATED WORK

There are many apps with the motive of providing the donors contact information and here we will discuss a few of these apps and their features.

1) Indian Blood donor

The Indian blood donors app was created by the founders after they witnessed a village women die due to lack of blood for transfusion. The Indian Blood Donors Mobile App helps needy patients search for blood donors in their city or area. If you are a Blood Donor you can sign up as a blood donor on the Indian blood donor app. And when the user needs to find blood he just has to enter the blood type and STD code, and the app finds out everyone in the city with the same blood type. Search is based on STD code [5].

2) Friends2Support

Friends2support is one of the apps in the lines of providing support to people in times of blood emergencies.

This organization organizes rallies for awareness on blood donation and promotes it too. To search for blood the user has to choose the blood group, country etc that is provided by the app's dropdown menu. Search is based on the location selected. They also provide Blood donation facts to help the donors before and after donation [3].



Figure 2.1: Screenshot of Indian blood donor app

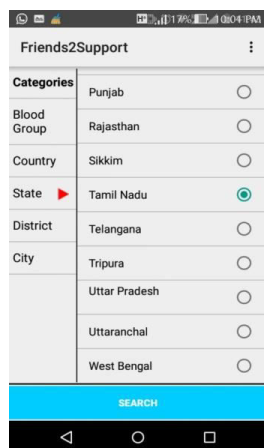


Figure 2.2: Screenshot of Friends2support app

3) *Blood plus*

This free application caters the blood donors and receivers anywhere in India. Anybody can register voluntarily their blood group in this application by providing essential details like city, email id and mobile number. They have provided detailed information and tips for blood donors. Users can search for blood by entering blood type and STD code [4].

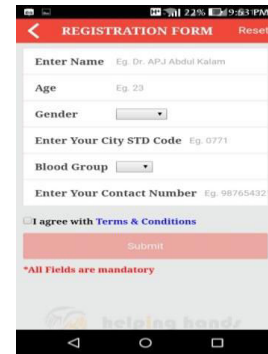


Figure 2.3: Screenshot of Blood plus app

Limitations of existing application

- Indian blood donor app provides the required results which are the donor contacts, but not in a efficient way as they use location names to make their searches, retrieving good results is difficult as we can't expect everybody to use the correct spelling all the time. .
- Search made on STD codes provide contact details of all the registered donors of a huge area, finding the nearest donor is not always easy through this.
- Friend2Support uses a better approach to this by making a search by using the city name, district name etc. By doing this the result obtained is smaller and more accurate but the process of requesting for blood is tedious and if a district or a cities name is not listed in the app, no request can be made.
- Blood Plus does it searches in similar way as the Indian Blood Donor using STD codes.
- None of the existing applications notify the donor about a search being made.
- In case a registered donor is out of town, or has consumed alcohol or drugs, his contact is still given to people who request for blood; by this the patient looses valuable time.
- Once a contact data is listed when a user requests for blood, disregard to whether the person has donated blood or not, his entry in the database is removed and has to register again in order to donate again.
- Platelets are required as much as blood, none of the apps consists of this facility to request for them.
- Blood bank details are not provided by most of the apps mentioned above

WHY BLOOD BRIDGE?

Blood becomes a grave need during emergencies, which arises without future notice; blood requirement can vary from loss of blood in case a person meets with an accident or during major surgeries, Patients suffering with disease like dengue or people suffering from sickle cell anemia or leukemia or kidney failure who require frequent blood transfusions.

Need for blood may arise anytime, an efficient solution to this can save a lot of lives. Keeping in mind the importance of time and life, using technology we can gather data, store it and retrieve it as and when required in an efficient manner to address the problem of finding eligible donors for blood donation.

An app can find eligible blood donors in the vicinity by filling a simple form and submitting it. We can eradicate the deaths that may occur due to lack of blood when needed.

III. PROPOSED SYSTEM

We have introduced new methods to overcome the listed limitations in the existing system, using which we can create a more efficient way of searching blood during emergencies. The methods that are newly included are

- One-time password is used to ensure that the user is genuine.
- Altering Pin code temporarily after registering.
- Availability option, which can be turned off if the user doesn't intend to be contacted for some time
- Donor can view if there is any searches made by the acceptors
- Option to either request for blood or platelets, when acceptor is searching for the same.
- Already searched list to view the previously gotten result if any and other new results too.
- New search method is integrated; we search by using pin code to find accurate results.

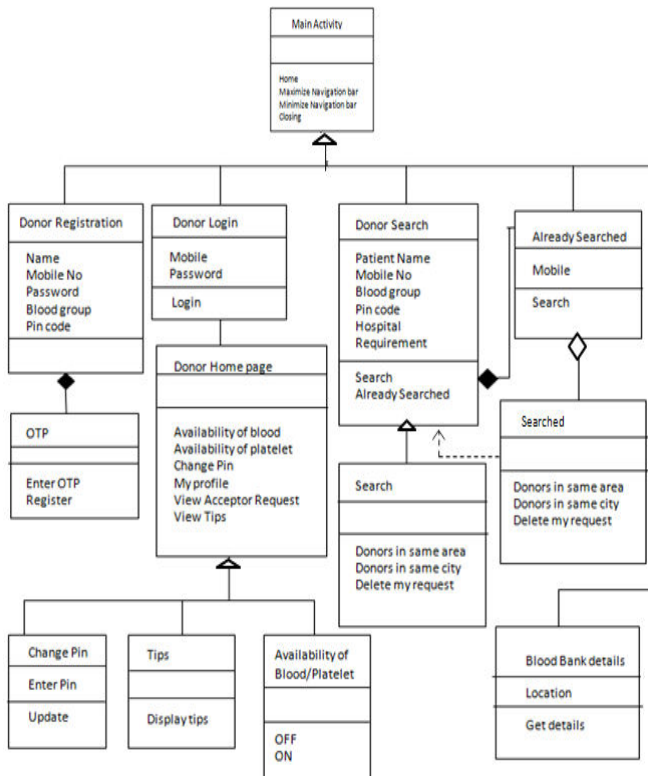
ADVANTAGE

Blood bridge is a combination of best features of the app and their limitations of the existing apps, which makes it a better app for Blood Search. And the features that make it good are:

- By using OTP we can ensure the authenticity of the new user, so that we have genuine donor list to appeal during emergencies.

- Donor once registered is not always expected to stay at one particular place, in situations where in the donor has to relocate to a different place he can update his new pin code. So their contact can be given in cases of emergency in their new locality.
- Availability option is provide to keep the user off grid in our app. This can be enforced in a number ways. In case the user is under the influence of alcohol or, drugs or, is busy with important appointments or, has donated blood recently , in all such cases user can turn off the availability and the user will not be disturbed until the availability is turned on.
- Blood or only platelets can be requested for ,as once platelets are donated the donor has to wait for only 7 days but in case of blood donation the donor has to wait for 45 days to donate again. And platelets are required frequently when patients are suffering from diseases like dengue [2] etc.
- Already searched options is used to save time, by eliminating re-entry of essentials other than acceptors mobile number If the acceptor has searched for blood earlier and blood is required again for the same blood group and at the same location.
- Search based on STD code provides huge list on donor list, but this is not feasible as the contacts provided might not be in the vicinity of the patient. Hence, we use Pin code to search by this we get a compact list of people who are close by. Search can also be made on area based if no donors are found search can be expanded to city level. After the donor has been found the request made can be deleted so that there is not obsolete data in the system.

IV. CLASS DIAGRAM



- *Acceptor Home page:* Once he has entered the details he is redirected to home page where he can find the Available donors of same area, Available donors of same city, He can also delete his request if he has got the blood from any of the donor.
 - (Refer fig 4.5)
- *Blood Bank details:* If the acceptor/ Guardian are unable to find any of the donors, they can make use of the blood bank details which is provided in app [1].
- *Help page:* If the donors/ acceptors have any queries regarding the application they can contact us.

SCREENSHOTS



FIG 4.1: Donor Registration

IV. RESULT AND SNAPSHOTS

- *Home page:* which briefly describes the present problem of blood shortage and how Blood bridge is going to be of assistance to get rid of this problem
- *Navigation bar* which includes functionalities that the users can utilize to either donate or search for donors.
- *Donor Registration:* The users can register by entering the details such as Name, Mobile, Password, blood group, Pin code and then request to send OTP. The user has to enter the OTP which he gets and then press submit to register (Refer Fig 4.1)
- *Donor Home page:* Once the user is Authenticated, user is redirected to HOME page where the user can View they own profile, Turn of the availability, View the request from the acceptor/ guardian, view the tips and they can also change the pin code (Refer Fig 4.2)
- *Donor Search:* Acceptor/ Guardian can search for the donor by entering the details such as Name, Mobile, Blood group, Pin code, Hospital, Requirement (Refer fig:4.3)
- *Already Searched:* Acceptor/ Guardian can just enter the mobile number once he has already searched
 - (Refer Fig:4.4)



Fig 4.2: Donor Home page

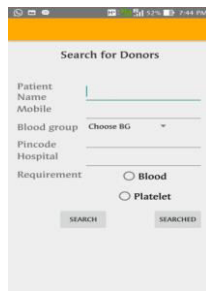


Fig 4.3: Donor search

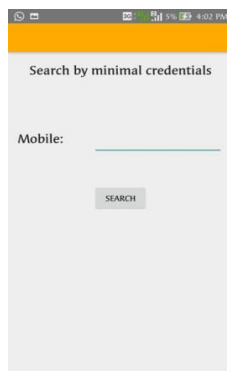


Fig 4.4: Already searched

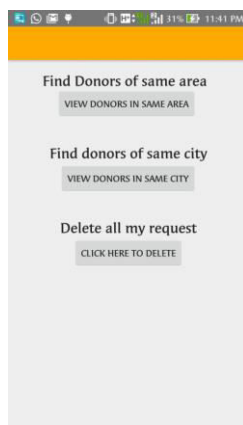


Fig 4.5: Acceptor Home page

V. CONCLUSION AND FUTURE WORK

This report stands as testimonial to state that Blood Bridge Combines all the positive characteristics of the existing

systems and overcomes the limitations posed by those systems. Search results to finding donors in close proximity to the acceptors thereby reducing time taken by the donors to reach the patients. Change of donors address is possible which leads to better search result by reducing the number of wasteful contacts provided. The availability option when turned off keeps the users from being disturbed when they cannot provided assistance, and also save time for the acceptors'. Acceptors can delete their requests once they have found donors, this helps in keeping old unused data content in check.

All the above motioned characteristics of the app helps the users to finally find blood donors more efficiently and for willing people an, opportunity to help people in need. A social app which can be a bridge between patients and donor contacts, and help save lives of people who require blood.

And of course calling this app as a perfect solution is a long shot, as it can be improved further to provide better results. Integrating maps onto the system by which we can search for donors in a radius on 2-3 km's of the patient so that reaching the patient takes lesser time [6]. All type of requests made are not of equal priority ,knowing this we can alter the results provided based on priority of the request in case of ambiguity. In a long run this Blood Bridge can be integrated with any of the cab companies, to provide pick and drop facilities to donors who are willing to go to donate at that point of time in order to make sure that lack of transport is not the reason not being able to donate blood.

Main aim of the App is to help people during emergencies, it is a while for other but it may prove to be a whole lifetime for the person in need of blood.

VII. REFERENCES

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