

PRANA: Life Saving Community

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Abstract: *Prana* is a mobile application tailored to enhance blood donation process. Users can effortlessly register as blood donors encompassing essential information such as blood type, contact details, and donation history. This application matches the location and required blood group of donors and recipients and match them. If there is a match the recipient will get list of donors in their location using GPS and they can be contacted. All the matched donors will be displayed in ascending order of distances. We can choose the donor and notify him about emergency through WhatsApp. This app also notifies about the nearby blood camps to the donors in that location. Prana advanced search and matching functionality empower hospitals, blood banks, and individuals to locate suitable donors based on diverse criteria including blood type, proximity, and availability, thereby expediting critical blood acquisition.

Key Words: *Mobile application, Notification System, Matching, Blood Camp, GPS, Donor, Recipient, Location, WhatsApp*

I. INTRODUCTION

Prana: Life-Saving Community App is an innovative mobile application designed to streamline and enhance the blood donation process, ensuring timely and effective connections between donors and recipients. The app features an automated matching system that connects donors with recipients based on blood type and geographic location, providing immediate real-time notifications once a match is found. This facilitates prompt communication and coordination, making the donation process more efficient. Prana also keeps donors informed about upcoming blood donation camps through event alerts, providing centralized information about the location, date, and time of these events. This encourages participation and increases donation rates. One of the standout features of Prana is its integration with the Geocoder API, which shows donors within a 50km radius of a recipient, enhancing the likelihood of finding nearby donors quickly through real-time GPS functionality. Additionally, Prana boasts a user-friendly interface with an intuitive design, making it accessible for users of all ages and technical proficiency levels. The comprehensive dashboard allows users to view their donation history, upcoming blood camps, and personal notifications, providing a seamless experience.

This paper details the design and implementation of the Prana app, highlighting its key features and the benefits it brings to blood donation system. Prana provides a scalable and efficient solution to streamline blood donation process.

II. EXISTING WORK

To improve efficiency and reach, many organizations have adopted web-based blood donation platforms. These platforms provide a centralized database for donor and recipient information, event management, and communication. They enable easier coordination of blood drives and facilitate the matching of donors to recipients. However, they may still lack real-time notifications and mobile accessibility, which are critical for urgent needs..

Recent advancements in mobile technology have led to the development of mobile blood donation applications. These applications offer real-time data access, GPS-based location services, and instant notifications. Examples include Blood Donor by American Red Cross and Blood4Life. Mobile solutions provide flexibility and can be accessed from anywhere with a smartphone. However, they may pose concerns related to data security and require ongoing maintenance and updates. Additionally, these applications can suffer from GPS glitches, leading to inaccurate location tracking and match results.

DISADVANTAGES:

Non-User Friendly Interface : UI is not simple and might be difficult for use to understand.

GPS Glitch: GPS location issues , no accuracy and many location related issues

Doesn't support real time notification: Real time updates of system notifications doesn't takes place.

Non- Scalable: Scalability issues with growing user database

III. PROPOSED WORK

The proposed Prana blood donation application heralds a new era in blood donation management, marked by its innovative features, including a sophisticated notification system and seamless integration with a Geocoder API. Designed to streamline and enhance the donation process, Prana leverages cutting-edge technology to ensure efficient and timely blood transfusions. At its core, Prana's notification system serves as a vital communication tool, keeping donors informed and engaged throughout the donation journey. Through personalized notifications, donors receive updates on donation opportunities, appointment reminders, and urgent requests for specific blood types.

ADVANTAGES:

User Friendly Interface: Simple and clean UI

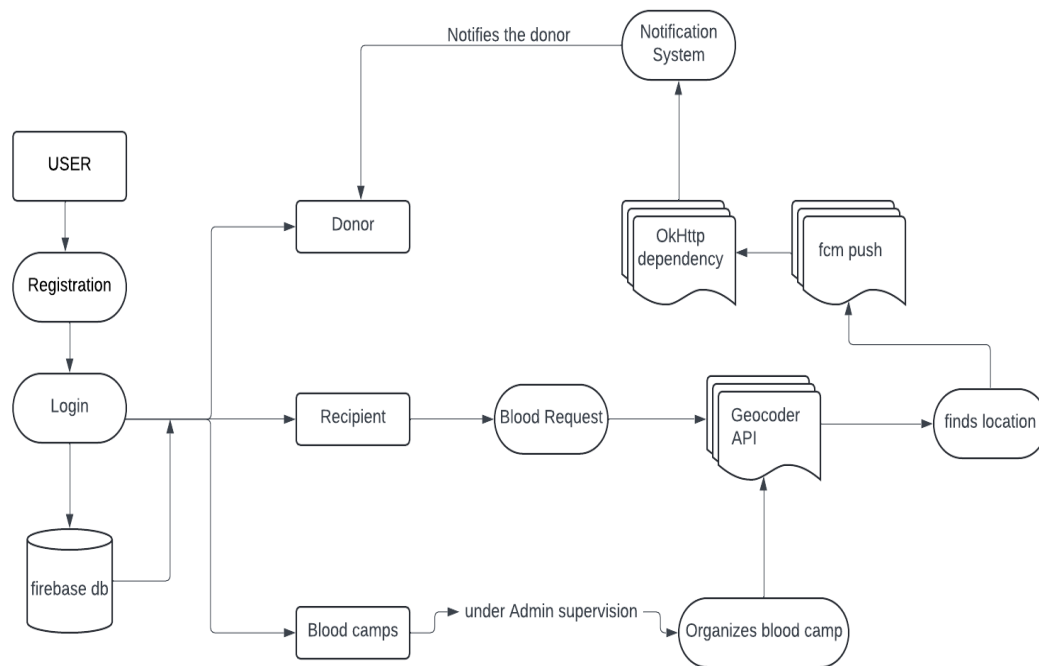
Precise Location Tracker: Accurate location services that displays donors based on distances.

Notification System: Quick and real time notifications through WhatsApp.

Scalability: Scalable database that accommodates increasing user base.

Efficient Searching: Fast and efficient searching, Matches donor with the requirement of the recipient.

ESIGN:



The blood donation application involves defining various components and their interactions within the system. Here's a high level overview of the typical components you might find in the application

User:

The starting point where users (both donors and recipients) register and log in to the system.

Registration:

Users register by providing necessary information which gets stored in the database.

Login:

Users log in to the application using their credentials. The login process interacts with the Firebase database to authenticate users.

Firestore DB:

The central database (Firestore) that stores user data, including registration details, login credentials, blood requests, and donor information.

User Roles:

Donor: After logging in, users who are donors can access functionalities related to blood donation.

Recipient: After logging in, users who are recipients can request blood.

Blood Request:

Recipients submit blood requests. This request triggers several processes, including finding a location and notifying donors.

Geocoder API:

This API is used to find the geographical location for blood camps and donors, ensuring that blood requests can be matched with nearby donors.

IV. EXPERIMENTAL RESULT

The Prana: Life-Saving Community app has significantly improved the efficiency of blood donation processes. It has been thoroughly tested and validated, demonstrating its capability in managing donor-recipient matching, notification workflows, and organizing blood camps. Users have experienced considerable time savings and a reduction in manual effort due to its automated features. Stakeholder feedback praises its user-friendly interfaces

and intuitive workflows, which enhance collaboration and communication. This app marks a notable step forward in modernizing blood donation efforts and offers room for further enhancements to keep pace with evolving healthcare needs.

Output Screens:



Fig 1: Home Page



Fig 2: Logo

Home Screen shows the main functionalities of our application like Donate, Search, add camp.

User can either search or donate blood accordingly. Apart from these they can also keep track of nearby hospitals and upcoming blood camps

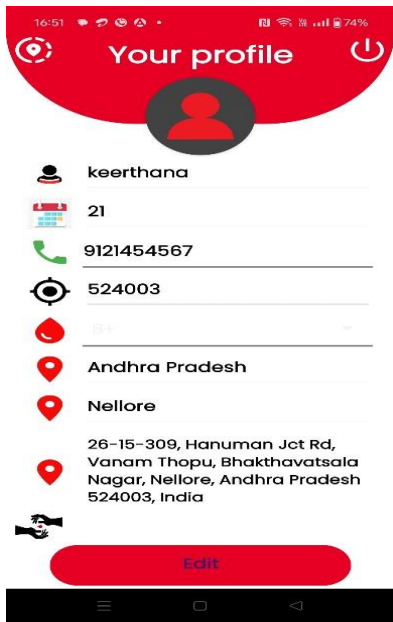


Fig 3: User Profile

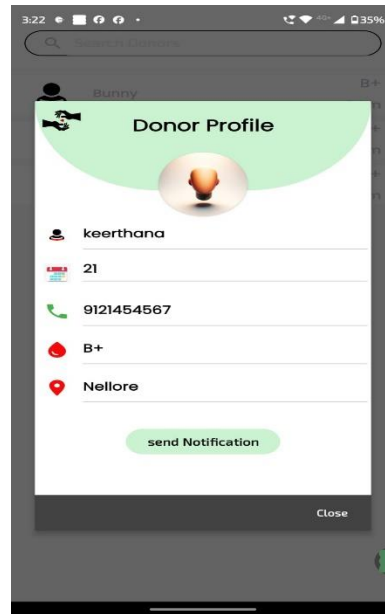


Fig 4: Donor Profile

This functionality allows user to update their details like name , Blood group, Location and other personal details, about user. On clicking location symbol your location will be fetched automatically. On clicking power button we will be signed out of our account. This screen allows a recipient to view donor profile from list of donors and send notification to donor about emergency through whatsapp

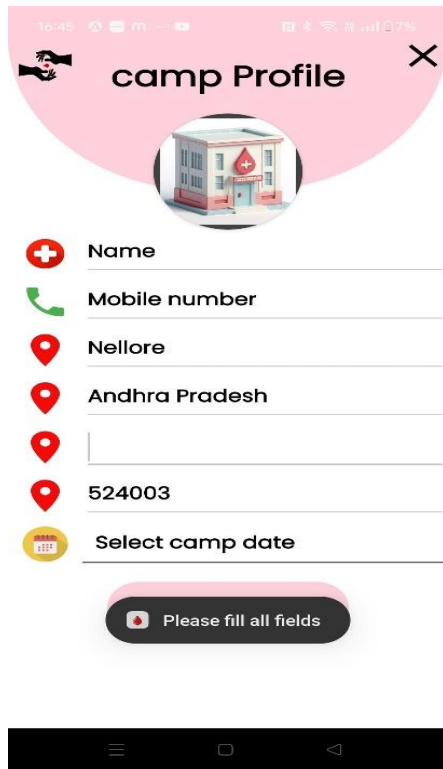


Fig 5: Camp Profile

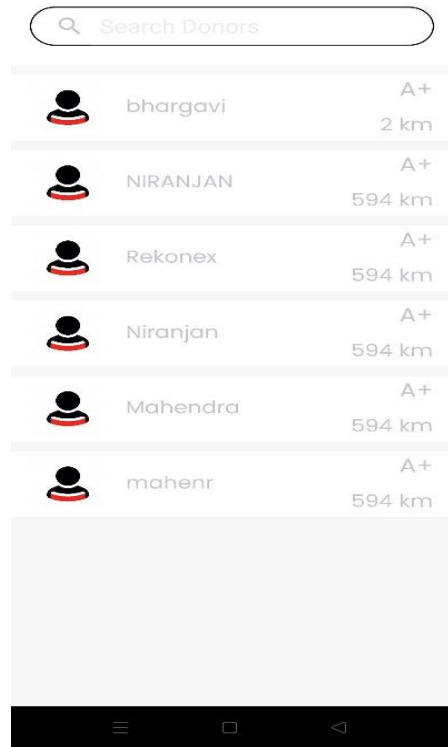


Fig 6: List of donors

Here we can add camp giving all the details like date and location. On clicking save and notify, The camp details will be sent to admin and admin will be able to add camp. This screen shows list of donors that are matched with our blood group in ascending order of distances showing nearest donor first. Recipient will choose suitable donor among them

V. CONCLUSION

In conclusion, our Prana blood donation application represents a significant leap forward in revolutionizing the blood donation process and enhancing the overall experience for donors, healthcare providers, and recipients alike. By providing a centralized platform with tailored interfaces for each user type, we have streamlined communication, improved transparency, and fostered trust among all stakeholders. Throughout the development and implementation of this application, our focus has been on enhancing efficiency, usability, and accessibility. The integration of features such as donor registration, search functionality, real-time notifications, and location-based services has empowered users to navigate the complexities of blood donation with ease. Looking ahead, we recognize the potential for further enhancements to enrich the user experience and stay ahead of evolving healthcare needs. Future iterations may include personalized health recommendations, integration with wearable health devices, and machine learning algorithms to predict blood demand and optimize donor outreach. Ultimately, our goal is to continue pushing the boundaries of healthcare technology, leveraging innovation to create seamless and intuitive experiences that exceed user expectations. By fostering transparent communication, enhancing efficiency, and prioritizing user satisfaction, we believe Prana will play a pivotal role in shaping the future of blood donation and transforming the way stakeholders interact in the healthcare ecosystem.

VI. REFERENCES

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