Blood Bank Management System

Praveen T
Bannari Amman Institute of Technology
Erode, India
praveen.ec19@bitsathy.ac.in

Indraprasath N M
Bannari Amman Institute of Technology
Erode, India
indraprasath.ec19@bitsathy.ac.in

Santhosh T
Bannari Amman Institute of Technology
Erode, India
santhosh.ec19@bitsathy.ac.in

Mrs Mythili S
Assistant Professor
Department of Electronics and Communication Engineering
Bannari Amman Institute of Technology
Erode, India
mythilis@bitsathy.ac.in

Abstract—**Blood donation and blood banking systems are expanding daily in the real world. However, because the blood donor location is out of reach during an emergency, the blood cannot be delivered at the appropriate moment. The proposed solution, a GPS-based Blood Bank System, addresses the issue. Android can be used to construct the mobile application known as GPS based Blood based Bank System. The GPS data of the user's position and the query input are used by this programme to determine the location in the beginning. All of the services are gathered and kept in a database.When a user demands blood, the system determines the GPS values, compares them to the database, and determines the boundary of the GPS values' range. Additionally, the system uses GPS to locate the other user and looks for the necessary Blood group. The donor's present position is shown to the user if the system discovers the appropriate blood group and the donor's GPS readings are roughly identical to those of the user.**

Keywords—**Smart blood management, GPS, Blood bank, Database, Location.**

I. INTRODUCTION

Give chains are far more problematic now than they ever were. Customers' expectations for new products, even though associations are required to be more innovative, are nevertheless unprepared for amicably addressing a few legitimate, real-world challenges [2] as a result of the changed escape clauses and shifted interruptions. If the known close-by donors aren't willing to donate blood right now, then the distance between the donors and the public increases. The bank's MIS Bharat saves the name of the donor who is donating blood, a new identification number [6] through which the donor can access his record, an arcanum to access the record, the donor's date of birth since his age must fall between the ages of 18 and 60, the donor's sex, weight, mobile number, email address, address, city, and state, the donor's most recent blood donation, and the last time the donor registered himself as a donor.This project includes a robot application that is blessing on the donors' Android smartphone application that can encourage to create a crisis services to the necessary blood requestor looking for people to give the blood and it furthermore uses cloud services for keeping the donors' data securely.

II. PROBLEM STATEMENT

Southeast Asia is predicted to need roughly 16 million units of blood yearly, but only collects about 9.4 million units,leaving a shortage of 6 million units, according to the World Health Organization. India, which has a population of over a billion people, is falling behind in the collection of blood. India has 2,433 blood banks with the capacity to collect 9 million units of blood per year, but only manages to do so with 7 million. Management and awareness are the other two primary causes. Regarding the management of blood, the blood banks' regulations and practises are not universal, consistent, or current. This puts human lives in peril since it renders the data prone to inaccuracies and human error.

Additionally, it is difficult to transport blood units between blood banks, which occasionally results in units becoming bad on the shelf. There is also no centralised database with a large enough population track. A hospital may have its own system and blood bank, but it is nearly hard to coordinate acrossnearby blood banks.

In India, there are three types of blood donors: professional donors, replacement donors, and voluntary donors. The majority of contributions are made possible by replacement donations, which are unpaid gifts given by family members of patients who require blood urgently or in advance of anticipated transfusions during scheduled surgeries. Blood donors who work as professionals do so in exchange for compensation. To create an Android system that uses GPS to locate blood donors quickly and reliably by examining GPS information from the user's requested location.

III. NEED FOR THE SYSTEM

The blood banks are currently manually run, with the designated medical staff handling the blood bags. Intelligent Blood Management System is an efficient application, to solve such a problem, looking at the problem which is broadly talking about the awareness, lack of blood management comprising of communication and network

295

connectivity among many blood banks. This system contains a single centralised database that can track the management and mobility of the many factors including movement of the blood units, volunteer blood donor details, and more in order to improve connectivity among various blood banks .Whether blood units are available or not, it performs real-time assessment and sends out immediate alerts within the blood bank. This is accomplished with the use of a clever color-coding

system. Making a wise decision about how many blood units are needed in a specific location is made possible with the use of machine learning algorithms. By using this technique, blood units can be transferred from one blood bank to another before an emergency, which would actually need for more than one. The programme also makes a significant effort to raise awareness by displaying various information pop-ups and insights about the value of voluntary blood donation. The ability of blood banks to request the necessary units from other blood banks that are able to donate online provides another source of blood units.

This choice is also made automatically. Additionally to communication between blood banks, there is a connection between hospitals that may require blood for life-saving procedures. This is mostly for hospitals without a blood bank of their own. Additionally, the programme links common users to the unique capabilities of the IBMS. The user will be aware of where to go and who to speak with if they choose to donate blood.

IV. SYSTEM DESIGN
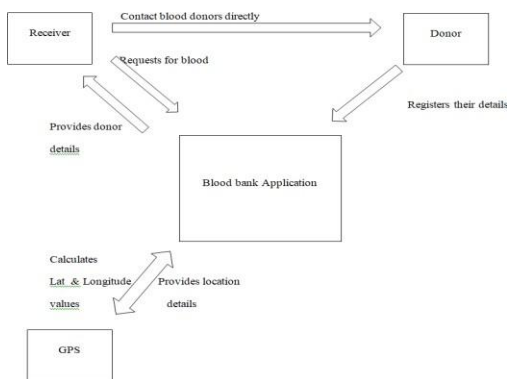

Fig.1.System flow diagram

V. METHODOLOGY

The Android operating system is used in the development of the application for smartphones. The application's primary responsibility is to notify Rh++ of the donor's whereabouts on a regular basis. The following steps must be taken in order to register as a Rh++ donor: Volunteer to be added to the donor database. Rh++ is a clever information system that minimises all user interventions.However, after registering, volunteers are called by the employees of the blood recruitment centre and asked to pass the standard health inspections. The blood centre

gives the volunteer the username and password and instructs them to download the programme to their smartphones if their health permits them to be donors. The Android application's login screen is shown in the next image.The application was initially created using ANT in Android Studio. The application performs two main tasks. Sending donors from Rh++ on a regular basis. We added a maps component to our applications and decided to use Google's maps services to calculate the latitude and longitude values of the donor.The system determines the distance between the requester health centre and the donor in order to identify the closest accessible donor. It is a calculation of Euclidian distance. The web services provide the data interchange between the application and the main system.This web service is in charge of locating the closest donors to the healthcare facility that made the request. The web service obtains data about the location of the healthcare facility, details about the required blood, and the radius value chosen by the user in order to perform this computation.With all of this information provided, the web site may identify the donors' names, last names, and locations that are acceptable, close to the requester's medical facility, and that have been updated within the last NH hours . It finds the nearest location's currency according to the user's query (as blood group).

VI. COMPARISON WITH OTHER EXISTING SYSTEMS

The manual approach is a limitation of the current system since it requires a lot of personnel to provide better outcomes and is labor-intensive and error-prone.It has inadequate data security. Additionally, retrieving data takes a long time, the accuracy rate is low, and creating reports takes longer.

VII. CONCLUSION

We now have a better mechanism, which will facilitate improved communication between blood donors and blood banks. This programme is widely used and will motivate donors to give blood.

The system made the following contributions to this cause.The user has access to information about blood donation requirements and blood types. The donor can use maps to locate blood banks in his neighbourhood or contact a blood bank by calling the numbers listed in the application. Blood banks have access to a list of donors who fit a specific blood type and can get in touch with them to request blood donations.The system is scalable, allowing any number of additional devices to be added without substantially altering itsfundamental design.

VIII. FUTURE SCOPE

There is room for the system to be improved still further. The system can be improved with the following suggestions. It is advised to create a system that can be used in other regions besides Tamil Nadu.We strive to include as many blood banks and donors in our programme as we can.Currently, the blood bank can only view the list of donors; but, in the future, tools will be added that will allow blood banks to phone, SMS, and email donors.

IX. REFERENCES

[1]   France, C. R., France, J. L., Wissel, M. E., Kowalsky, J. M., Bolinger, E. M., & Huckins, J. L. (2011). Enhancing blood donation intentions using multimedia donor education materials. Transfusion, 51

296

[2]   1796-1801. [8] Stanger, S. H., Yates, N., Wilding, R., & Cotton, S. (2012). Blood inventory management: hospital best practice. Transfusion medicine reviews, 26(2), 153-163.

[3]   Williamson, L. M., & Devine, D. V. (2013). Challenges in the management of the blood supply. The Lancet, 381(9880), 1866-1875.

[4]   Türkiye Kan Merkezleri ve Transfüzyon Derneği, Ulusal Kan ve Kan Ürünleri Rehberi, Haziran 2011, www.kmtd.org.tr

[5]   Ministry of Health and Family Welfare,National AIDS Control Organization Government of India. Name, Voluntary Blood Donation Programme , 2007.

[6]   MedlinePlus, U.S.National   Library of Medicine, NIH,USA. Blood   Transfusion   and   Donation, http://www.nlm.nih.gov/medlineplus/bloodtransfusionan   ddonation.html, 2011.

[7]   The   Armed   Services   Blood   Program   (ASBP,, http://www.militaryblood.dod.mil/About/default.aspx 2011.

297