

Smart Blood Bank App

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Abstract

The proposed Paper “Smart Blood Bank App” tries to lower down barrier between blood bank and person in need of blood due to accident or emergency. Our aim is to reduce time span between donor and recipient. The database present in system fetches to the user as per query to it. App catches the location of device and provides the contact details of blood bank and voluntary donor near by.

Keywords: Blood Bank, Database Management, Information system, Raspberry PI, GSM, Application (App)

INTRODUCTION

Here is no doubt that mankind achieved many great things in medicine in 20th and 21th century. One of the most important was blood transfer and Blood banks. In 1901 Karl Landsteiner [1] discovered different blood types. Moreover Ludvig Hektoen suggested that blood transfer should be done among same blood group. This was widely accepted all over the world and give rise to management of stored blood. In early days there were many misconceptions popular in common Public that Blood donation can cause disease but soon after people realized importance of blood donations. Situations like War, natural calamities, chronic disease are major factors in developing blood banks.

According to Survey by NHO for year 2019 India needs 15 crore units of blood but available units are quite less than expected. India being country of massive population the demand for emergency blood is increasing day by day. Every day there is need of minimum 2000 donations but most of the time it does not meet requirements. Not matter how much science has progressed but there is no alternative to Human blood. We are totally depended on each other.

In recent years we have progressed exponentially in the field of communication through Internet we can connect to any part of world. We can use this technology for betterment of human race. One blood donation can save not only one but three lives. In this paper we try to lower down barrier between user and nearest blood bank.

LITERATURE SURVEY

Donation of Life saving

“Donation of Life saving” is Paper presented by T. Hilda Jenifer and R Backiya in year 2015 based on cloud computing

technology in this Blood bank and user can communicate using website.

Reducing Complexity of Blood Donation

“Reducing Complexity of Blood Donation ” is Paper presented by Y. M. Balonekar & S. Dhadre uses Data Mining Concept to reduce complexity in data related to blood donation in various places.

E Blood Bank

“E Blood Bank” is a survey Paper presented by Prof. Tushar Pandit and Satish Niloor gives information regarding number of blood banks present all over country.

Optimization of Blood Donor Information

“Optimization of Blood Donor Information” is a Paper presented by Technopedia group elaborates management of Blood donor information. As we know there is more than one blood type. Some of the blood types are very rare so to keep a record of such donor is very important. If there is an emergency sufficient storage should be present. To deal with such crucial situations optimization is very essential.

Blood Donation Camp Coordinator

“Blood Donation Camp Coordinator” is paper presented by Prof. Vijay Singh and Vikas Behl based on Android application. Number of smart phone users is increasing day by day. With the social platforms like facebook Twitter etc. we can communicate easily and can broadcast information thus paper presented offers different ways to help arrange and coordinate blood camps and encourage people to donate blood.

PROPOSED SYSTEM

The Proposed Paper attempts to develop a system which will act as Server and can be connected through its users over Internet. A server is Computer Program or device that provides functionality to for other programs or devices the architecture is called client server model here a single computation is distributed across multiple processes or devices. A server can provide various functionalities sharing

data or resource among multiple client. In proposed system client can be any user which is registered with application. The user has to login by filling up registration form then according to the need of user it can navigate through the app. User can register as volunteer blood donor or can request blood banks near by Information. When user wants to request the Information such as address and contact number of blood bank its simply needs to on location tab of the device and app will fetch the appropriate information

CONSTITUENTS OF SYSTEM

For every electronic system the processor plays very important role here in proposed system we use Raspberry PI as the core processor. As per the need of the system Raspberry PI was perfect choice as it is small in size have great speed and compatibility. The processor with high speed and connectivity is always desirable. The Raspberry Pi is compact credit card size single board computer developed in UK by Raspberry Pi Foundation. The intention behind development of PI was to promote teaching of computer science in schools and developing countries. The core processor is based on BCM 2836 system on system on chip SoC. Its latest model 3 has 1.4 GHz 64 bit quad core ARM cortex 53 with 512 KB shared cache. The Raspberry Pi is (RTOS) real time operating system. Most of Raspberry Pi model can be overlocked upto 1000 Mhz also in extreme cases it can be raised to 1500Mhz also but this will trigger shutting down as temperature may raise more than standard. Latest model contains Turbo which will protect board getting damage. Random Access memory is 1 GB in PI.

A random access memory device allows data items to be read item to be read or written in almost the same amount of time irrespective of the physical location of data inside the memory. In contrast with other direct access data storage media such as hard disk, CD RW ,DVD RW and older magnetic tapes and drum memory the time required to Read and write data

media rotation speed arm movement. RAM contains multiplexing and demultiplexing circuitry to connect the data lines to the addressed storage for reading or writing the entry. In today's technology random access memory takes the form of Integrated circuits The Raspberry PI foundation provides Raspberry Debian based Linux distribution for downloads as well as third Party Ubuntu Windows 10 IoT Core, RISC OS, and specialized media center distribution. It Promotes Python and Scratch as the main programming language. Raspberry PI model has built in real time clock so they can keep track of time independently. PI can retrieve time from network server. Real time clock such as DS1370 can be added via I2C interface. GSM is abbreviation for Global system for mobile communication it is standard developed by European Telecommunication standard Institute in order to describe protocol for cellular network. It is specialized type of modem which has SIM card and operates over subscription to a mobile operator just like a mobile phone. Subscriber identification module is an Integrated circuit which stores information related to subscriber which acts as an authentication key for communication over network. A modem is capable of modulation and demodulation which are the most important procedures performed on signal in the communication. Audio frequency shift keying, Phase shift keying, Frequency shift keying are different types of modulation techniques are used as per required. To get maximum speed it uses channel coding technique where coding information algorithms like Viterbi, RSA are used. PHP stands for Hypertext Preprocessor is a server side language can also be used for general purpose programming reason behind using PHP is it can be embedded into HTML and can be deployed on most of the web server. It can handle form count visitor & restrict on site. It interacts with web server to fetch data from database. It acts as mediator between database, server, application and user.

For every Application it is essential to have good database which is easy to modify as per need. There are various options available like OrmLite , Oracle, Realm, SQLite, Couchbase. The best choice for the app development is SQLite, which is relational DB a lighter version of SQL designed for mobile. It supports all relational database features and has open source compact library which is present in two main Mobile OS like Android & IOS. Using SQLite database in android does not require any database setup or administration only have to define SQLite statement for creating and updating database.

Proposed system is implemented on Android platform. The android system is multiuser Linux based operating system in which each app is different user. System generates unique ID for each app so each app has its own virtual machine so that individual code can be run distinctly. The interaction of the database will be done using application program interface. The database language have different type such as Data control Language DCL which controls the access, Data definition language which defines creating altering and dropping the relation between values, Data manipulation language which enables task like creating, updating, deleting data , Data query language allows searching for information present on the database. The proposed system uses Location based service features for accessing data files

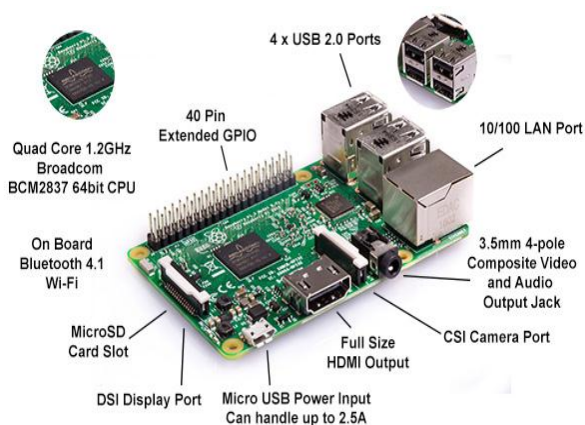


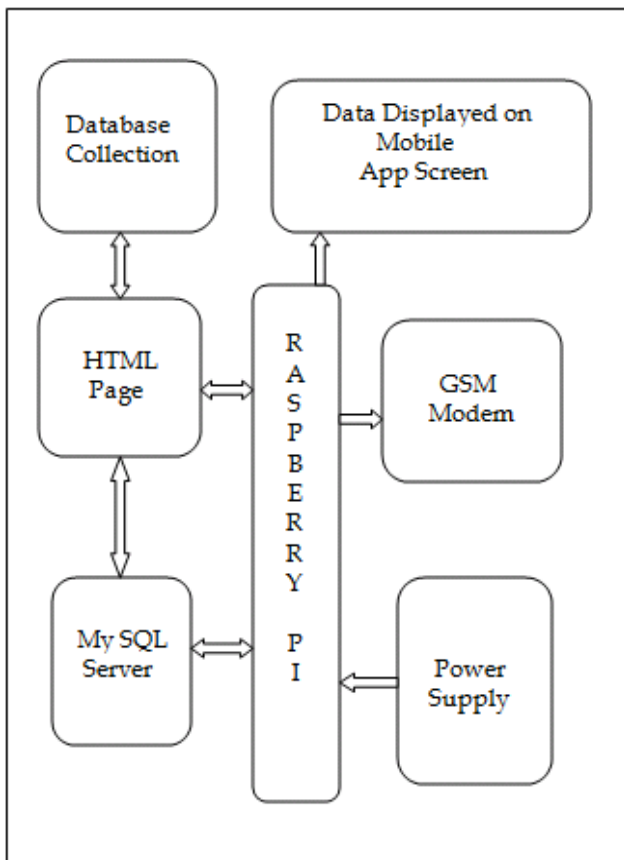
Fig (a) Raspberry PI

Item varies significantly depending on their physical location on the recording medium due to mechanical limitation such as

pipes memory objects. More over LBS is information service based on location of user in real time. There are various example present based on LBS using real time location of user such as vehicle tracking system, places near by , Tracking delivery of the order, location based games as well. All these application calculate the real time location of the user using GPS satellite, local GPS server and mobile service or Internet service provider the user who wants to access Location based service has to make enable GPS. within seconds the GPS local server present near by calculates Latitude and longitude coordinates and gives exact location needed in order to serve the purpose of the application. The power source used for the sytem is very low cost and poratable. The raspberry Pi kit used is also cost effective and easy to maintain. The proposed system can be used in Blood banks and Ambulance to help in emergency situations.

- Power supply consist of standard adapter with 240 V input and 12V and 5V output.
- .Once the user is logged in it has two options available one to donate blood to the blood bank present around and second to access Contact information of the blood bank neaby
- To get information of available blood bank near by the user has to enable GPS
- Once the user enables the Loaction the app will fetch the contact information such as address and contact number of the blood banks which are near around a radius of 20 to 30Km of the user location. If user is unable to contact or rach to blood abk it can opt for volounteery blood donor present near by
- Thus proposed system tries to reduce communication gap between the person in emergency situation and blood bank.

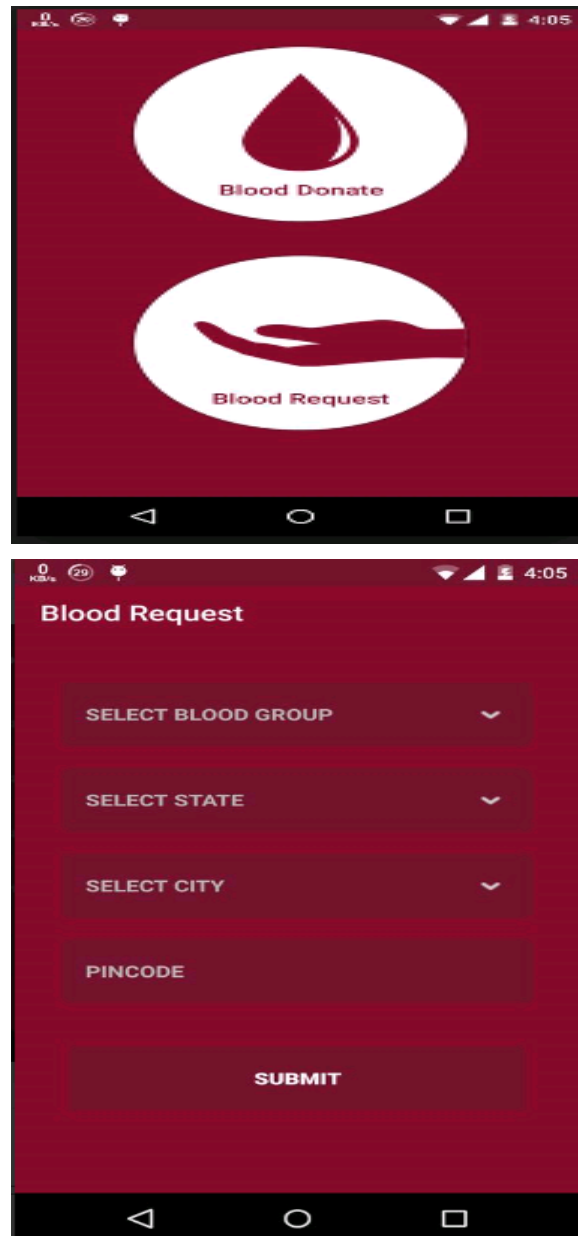
BLOCK DIAGRAM & IMPLEMENTATION

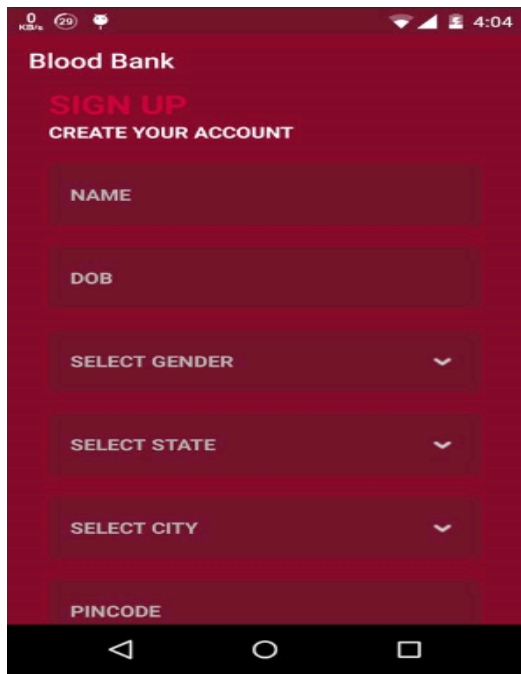


Fig(b) Block Diagram of the system

Process Flow

- Above diagram shows Functional diagram of the proposed system
- Hardware consist of of Raspberry PI Module 3 which is the heart and brain of the system its connected to database via MySQL server and communication takes place with the help of Hypertext Transfer protocol





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CONCLUSION

Blood is the vital part of the body. It can not be produced artificially in any laboratory. Considering this fact in emergency situation receptor of the blood is totally dependent on blood from authenticate source. Blood bank Application using Raspberry PI tries to lower the communication gap between the person in need of the blood and source of the like blood bank or any volunteer blood donor near by.