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# DESIGN AND IMPLEMENTATION OF AN AUTOMATED BLOOD BANK USING EMBEDDED SYSTEMS

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## Abstract:

The Robotized Blood Bank is a collaborative effort that gets willing donors and those in need of blood to a standard operating stage in the blood donation process. The goal is to meet all of the nation's blood supply needs using a promising Android app and to encourage people who are willing to donate blood. For this proposed project, a simple Raspberry pi and minimal effort are used to connect the sponsor and the beneficiary immediately. As it stands, it requires a Micro USB 5V/2A power supply. SMS (Short Messaging Service) is the best method of communication out of the many available options. "The trust of every Indian who is looking for a deliberate blood donation" is the goal of the organization. does not focus on donor reactions while donating blood.

## II. LITERATURE SURVEY

### Introduction

1] One of the main goals of this study is to improve the health of blood donors by collecting and analyzing data related to donor responses. It uses the Donor Hart instrument and Data Mining techniques to improve the well-being of its donors. The limitations of this structure are that the benefactor is not provided with early preventative strategies.

2] The Blood Bank Management System using Cloud Computing for Rural Area provided in this research provides a blood supply at any time and in almost any condition to a searcher isolated from that searcher. emergency. The limitations of this system are it just maintains Blood Bank data and

3] This paper presented by focuses on the reaction types and various parameters of blood using different techniques like Donor Hart using Donor Hemvigilance Method and Data Mining methods

### EXISTING SYSTEM

Raspberry Pi B+ kit is used to implement the already completed work. In order to power the device, it requires a Micro USB 5V and 2A supply. The technology is aimed to bring together people who want to donate blood and those who need it on a single platform. With this software, anyone can search for a blood donor who is willing and able to help others in urgent need of it. All the blood's needs must be met. request in the country with a promising web portal and motivated individuals who are I'm willing to give blood to those in need. It is an open source operating system based on Debian that is specifically designed for the Raspberry Pi. The operating system is built on the Linux kernel and utilizes the lightweight ARMv6 instruction set, which is compatible with most Broadcom processors.

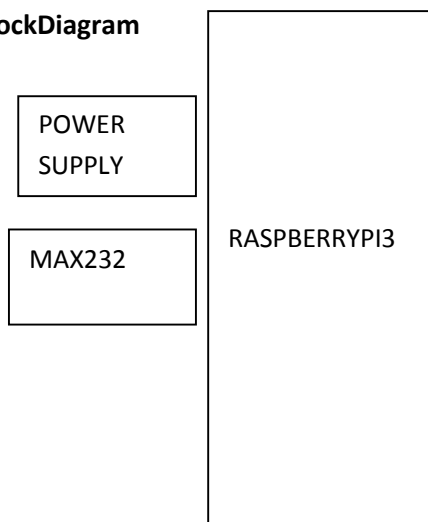
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## PROPOSED SYSTEM

Instead of relying on manual updates, the blood bank will implement an automated system that communicates with the central database via an Android mobile application. Donors can update their information via the app and have it stored in the SQL database. People who need blood can then use the app to request it and the database will search for potential donors and send them an SMS with their contact information. QT creator, a program for creating GUI applications, is the tool used in the design and development process. Using Qt Creator as a case study, it is possible to see how multiple user interface technologies can work together. As a matter of fact, it employs all three of the methods listed below.

### Block Diagram



### MODULE DESCRIPTION



### Raspberrypi3board:

One of the main goals of the Raspberry Pi Foundation is to promote computer science education by producing credit card-sized single-board computers that can be easily distributed to classrooms around the world. The Broadcom BCM2837 system on a chip powers the Raspberry Pi 3. (SOC). It can be used for many of the same tasks as a desktop

computer, such as word processing and gaming, when connected to a television and a keyboard. Power consumption is reduced, making it more affordable.

### RaspberryPi3Specifications:

- 1.2GHz64-bitquad-coreARMv8CPU(Broadcom BCM2837).
- 802.11n Wireless LAN andBluetooth 4.1
- 1GBRAM.
- 4USBportsand40GPIOpins
- FullHDMIportandEthernetport.
- Combined3.5mmaudiojackandcompositevideo.
- Cameraserialinterface(CSI).
- Digital serial interface(DSI).(displayunits)
- MicroSDcardslot
- VideoCoreIV3Dgraphicscore

### GSMMODULE

When used with a mobile phone subscription, a GSM modem is a specialized modem that accepts a SIM card and runs over a data network similar to a mobile phone. GSM modems appear to be mobile phones from the operator's perspective. It is possible to utilize a GSM modem to communicate via a mobile network when it is linked to a computer. Figure 3 depicts the situation. Many of these GSM modems can be used to send and receive SMS and MMS messages in addition to connecting mobile devices to the internet.

### WORKINGPROCEDURE

- GSMchecksconnectionitselfbyusingAT commands
- Displayshowsokthenitshows,,waitfor ms"on the screen
- Usersendsthemessage(typeofbloodgroupandemailid) toGSM.



- Thentheuserfoundthedonorslistalong withmobilenumberande-mailid
- Afterthatthree-mailsosenttotheuser

## CONCLUSIONANDOUTPUT



As soon as there is an urgent need for blood, individuals may not have the ability to access the internet to search for online blood database systems. The guest is immediately connected to the donor if this approach is adopted. In light of the interest, consider an SMS-based database system in which an SMS is sent to future senders at any time. There will be a significant delay in the recipient's review of the SMS and subsequent response here. There is always a chance.

There are no costs incurred by either party as a result of setting up the proposed structure. Another big advantage is that the estimate takes into account the locational specifics of planned contributions. This ensures that the nearest blood donor can be found and that the blood requirement may be met quickly. There is no procurement in other comparison setups, which again entails the delay in obtaining a contributor.

### FUTURESCOPE

The system can be expanded to a lot more powerful system that can access several sms and answer much more quickly. An SMS-based blood donor database will be built, and the donor's information will be stored on a central server. To connect to this central server, you'll need a mobile phone number. Using the Android app, donors can see a list of potential contributors and sign up for the

database. The existing system will be implemented in real time using the new system. The algorithm utilized to identify a potential donor in real time is an important part of the system.

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