Blood Donation Management System using Android Application

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Abstract- Accessibility of blood during an emergency is urgent for each person. Various countries are facing troubles in staying aware of a sufficient stock of blood and ensuring a quick relationship between a contributor and beneficiary, accordingly filling in as an impediment in the current structure. In this study, emphasis has been spread out on application improvement for compact gadgets using accessible programming and henceforth is significant for customers having low gadget memory. In our proposed application, time to perform the task is negligible and all real data about the givers is advised in the beneficiary's cell phones momentarily, consequently laying out a raised interest and legitimate correspondence between the beneficiary and benefactor. Our proposed structure of blood management through an application would be at ease and wastage of blood could be limited at a further degree.

Keywords: Donor · Recipient · Android application · Blood management

I. Introduction

Blood is a basic part of endurance for each living creature and establishes 8% of the complete human body weight. A complete investigation recommends that 119 out of 195 nations face a stunning lack of blood. Further for maternal mortality, wounds and commonness of acquired blood problems like thalassaemia and sickle-cell anaemia, blood requirement assumes a critical part. In any case, differentiating rehearses among blood donation centres can guide unsafe outcomes. Blood wastage is likewise a significant issue causing medical care suppliers get an intense lack of blood units for different operations. Given this setting, the meaning of sending innovations that support proficient administration of blood donation centres can't be downplayed. In this manner, to give better help to the individual looking for blood, a profoundly proficient and deliberate administration system should be contrived which will diminish the time needed to pay special mind to blood contributors.

II. Proposed workflow

This study means to fulfil each blood request by sending a notification using an application designed with the help of Qt designer and programmed using Python. Here the data about the supporters/recipient will be assembled when each individual, will request for blood.

Application Layout: The application layout is developed with the help of Qt Designer which characterizes a page in the form of xml documents. It is a plat-form and program independent framework which creates files in the .ui format. Qt combines a cross-platform software development application, graphical user interface (GUI) framework, and a toolkit for developing apps using C++ standard which increases the speed at which the application operates. Further the

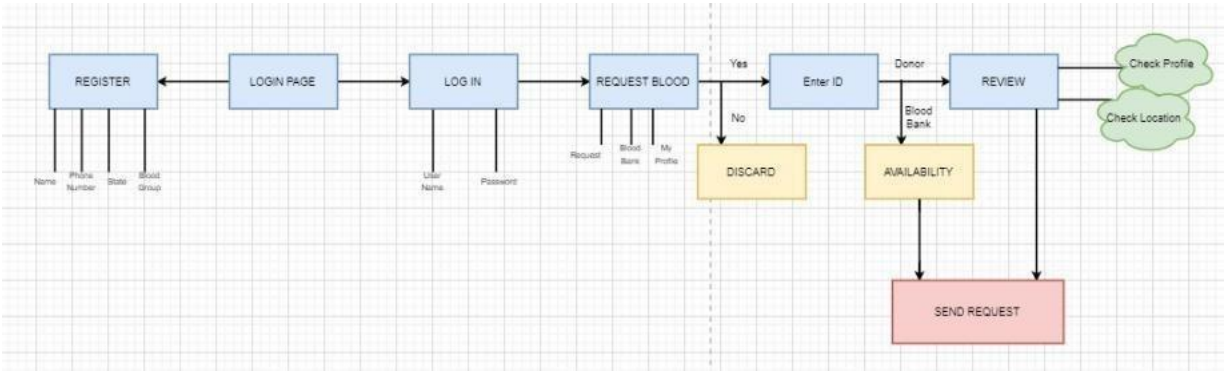
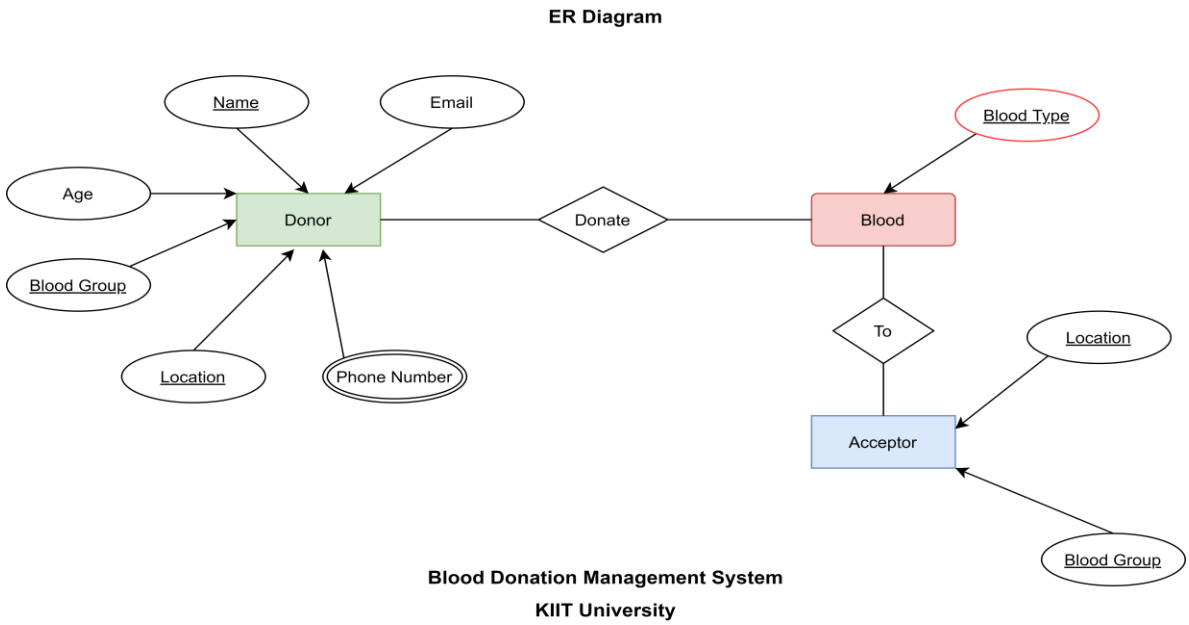


Fig 1: Flow diagram of the proposed workflow

Qt translation system enables one to have a multilingual application. The source code of the application is developed using Python. It is one of the most widely used dynamic programming languages and supports a rich set of packages, GUI libraries, and web frameworks that enable the user to build efficient cross-platform applications. PyCharm is the IDE that enables developers to write efficient code by integrating the most common tools. PyQt is a GUI widgets toolkit. It is an interface between python (backend) and Qt(frontend) (i.e.) it is a blend of Python programming language and the Qt library.

Firebase Realtime Database: A Firebase Realtime Database has been utilized to help the process of collection, management and alteration of client information. It is a cloud-based with NoSQL based data set where the organized information gets held in the form of JSON reports. The constant functionalities give synchronization across related platforms and are available when there are no framework networks through a nearby reserve. To get and show the rundown of every expected benefactor and their blood requests in a specific field, a format for the rundown see is set up and subsequently another design asset record is created. The application further completes an onStart technique which engages execution each time any data is changed inside the data set. Pyrebase is a python interface library utilized to integrate Firebase in the application. It provides the user the liberty to use python in order to manipulate the Firebase Realtime Database.



III. Result

The suggested architecture of the application in terms of donor and recipient has been visualized. After sign-in, user is redirected to the login or registration page, according to the need. The user is advocated to provide the fundamental details that will get added in the database and will aid in faster information processing. Google Maps recognize the nearness of registered potential donors in the desired location and displays the necessary subtleties utilizing which, the recipient can easily contact the donor. The recipient will be directed to the "Request Blood Page" where the user will provide the required blood group following which a notification will be sent to that individual following which the donor will receive a blood donation request. Upon acknowledgement, the recipient receives a Unique Identification Number facilitating the communication process. The primary purpose of creating the database using Firebase Real-time Database is that it entails a code to change the database on the client-side while on the contrary, SQL expects a server-side code to be developed.

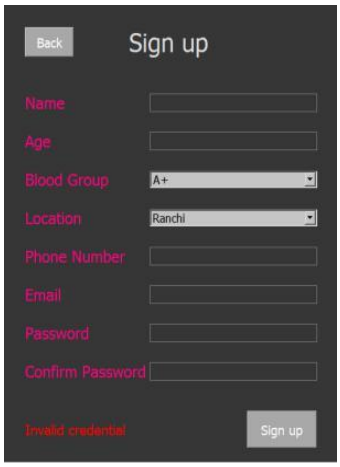


Fig 1: Create account page

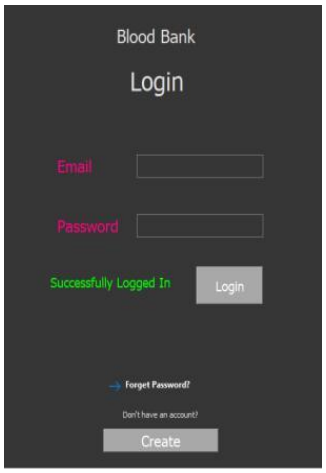


Fig 2: Login page

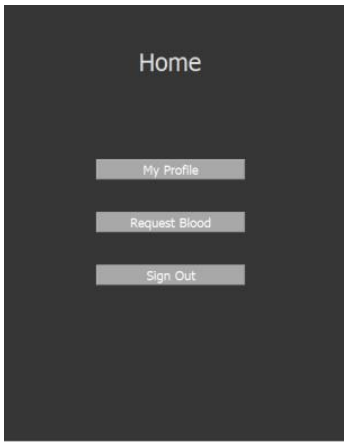


Fig 3: Home page

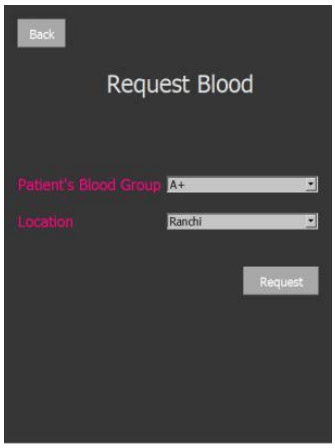


Fig 4: Request blood page

IV. Conclusion

The study adds to recognize individuals with blood necessities by making an easy-to-use interface that will associate all benefactors and beneficiaries in an extraordinary and particular structure. The work of Google Maps in the application will perceive the benefactors who are accessible nearby the beneficiary and henceforth build up successful correspondence inside a concise timeframe. This updates the current standard methodology to an accommodating and customer consistent framework which is monetarily successful and can save thousand lives. Likewise, advancing the availability of the proposed portable application without the necessity of Internet to get the job done the need of blood in common territories is viewed as a future extent of this investigation.

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