Plasma Donor Application

Abstract

With rapid increase in the usage of social networks sites across the world, there is also a steady increase in plasma donation requests as being noticed in the number of posts on these sites such as Facebook and twitter seeking plasma donors. Finding plasma donor is a challenging issue in almost every country. There are some plasma donor finder applications in the market such as plasma app by Red Cross and plasma Donor Finder application by Neologix. However, more reliable applications that meet the needs of users are prompted.

Problem Statement:

During the COVID 19 crisis, the requirement of plasma became a high priority and the donor count has become low. Saving the donor information and helping the needy by notifying the current donors list, would be a helping hand. In regard to the problem faced, an application is to be built which would take the donor details, store them and inform them upon a request

Introduction:

In 2019, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), was identified amidst an outbreak of respiratory symptoms in Wuhan, China.[1,2] This disease spread rapidly into an epidemic during the early winter of 2020. It wasn't until March 11, 2020, that the World Health Organization (WHO) declared that corona virus disease 2019 (COVID-19) was now a pandemic .

Convalescent plasma therapy uses blood from people who've recovered from an illness to help others recover.

The U.S. Food and Drug Administration (FDA) has given emergency authorization for convalescent plasma therapy with high antibody levels to

treat COVID-19. It may be used for some hospitalized people ill with COVID-19 who are either early in their illness or who have weakened immune systems.

Blood donated by people who've recovered from COVID-19 has antibodies to the virus that causes it. The donated blood is processed to remove blood cells, leaving behind liquid (plasma) and antibodies. These can be given to people with COVID-19 to boost their ability to fight the virus.

Qualification

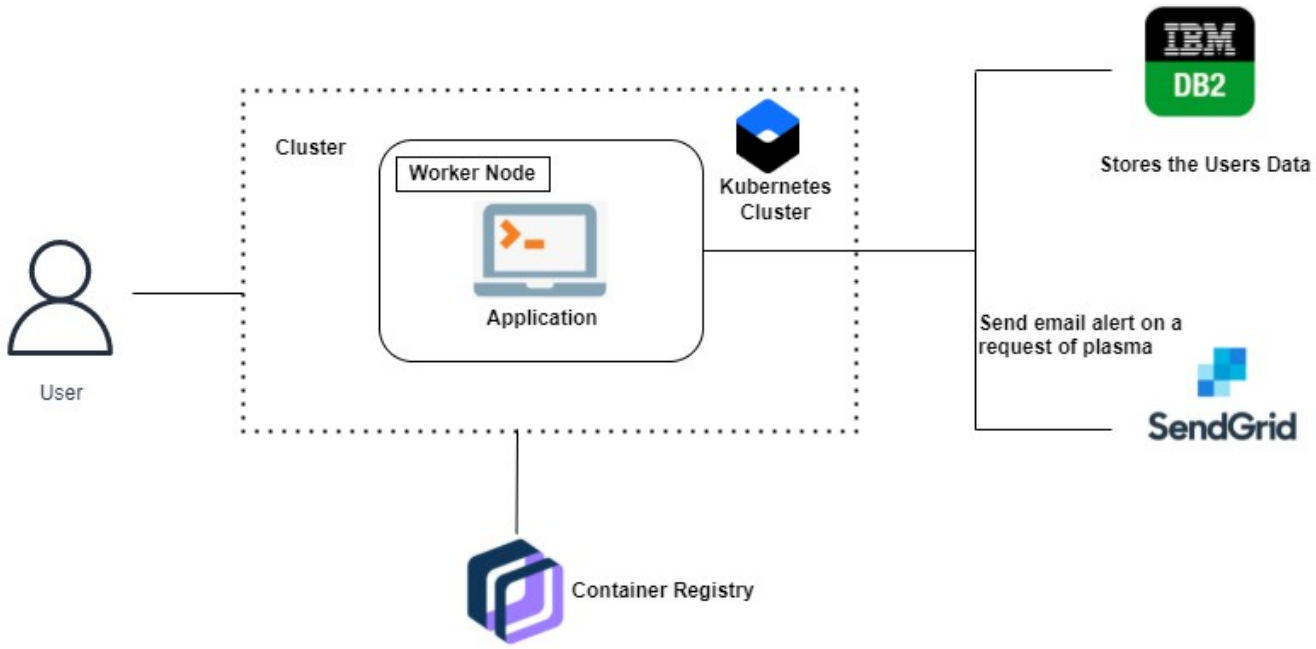
Donors had to meet the following requirements as specified by the American Red Cross (ARC).A confirmatory COVID-19 laboratory test either through nasopharyngeal RT-PCR or antibody serology of IgG anti-SARS-CoV-2.Symptom relief of at least 14 days with a negative RT-PCR test after 14 days or symptom relief of greater than 28 days

Our area had, at first, faced a delay in the availability of testing to community members. For those individuals who had had COVID-19-like symptoms, but had not been tested due to a lack of previously available testing, serology tests were ordered. However, those who needed serology tests were delayed two weeks because such a test had not yet been available. This hindered the quickness and ability to test eight individuals. Those who did not meet the aforementioned requirements were deferred.

Over roughly two months, 26 individuals met screening requirements and were referred to the ARC website (53%). Of the qualified donors, the most common self-indicated blood type was A+ (23%), however most did not know their blood type (46%) There were equal amounts of individuals who were male and female and there were no transgender volunteers. Twenty-eight individuals (47%) did not meet qualification guidelines for a variety of listed

reasons . Noticeably, 45% of those who did not qualify, were disqualified due to a negative COVID-19 serology test. Interestingly, when these volunteers were notified of their negative serology test results, many displayed some level of frustration in the result. It is unclear as to why this may be.

For every second someone needs blood to save their life. The task of blood bank is to receive blood from various donors, to monitor the blood groups database and to send the required blood during the need to the hospital in case of emergencies. In developing countries, especially like India, the blood resource lacks in quantity which is a barrier to others life. The willingness of donor and the closeness of the donor to the place from where the call is coming are also accounted for in defining this algorithm. Based on the algorithm the most eligible donor is found out. From the server the call from the required person is routed to the eligible donor's number. We utilized the cloud computing service for keeping the application data available anywhere and anytime. The superior feature of our application is to use it as a volunteer blood donor as well requester. Requester can broadcast the message along urgency sign of required blood to the registered users and notification message will send to all the volunteer blood donors Architecture



A user will register by providing all his details such as user name, email id, phone number, location, password, infected status, and blood group. once the user has successfully registered to the web application, they can view the availability of blood group and the count. once a user register to the web application an API request will be called which invokes one of the functions with which the user's details can be stored in IBMDB2. When API invokes the lambda function where the program will be written to store the details of the lambda to store the details of the registered users in IBMDB2. When a user request for a particular blood group an API will invoke the lambda function and the lambda function will trigger operation and fetches the information of a particular blood group donor from the IBMDB2 and it will then fetch it back to the API and this API will display the information in the user interface. when a user requests for a particular blood group a request SMS will be sent to the particular blood group donor

Proposed Model:

The proposed method helps the users to check the availability of donors. A donor has to register to the website providing their details. The registered users can get the information about the donor count of each blood group. The database will have all the details such as name, email, phone number, infected status. Whenever a user requests for a particular blood group then the concerned blood group donors will receive the notification regarding the requirement.

LITERATURE SURVEY :

Several experiments have been carried out over the years by different groups of researchers. Here are some of the following groups:
[1] Michela M. Fabricius, BS - COVID-19 Convalescent Plasma: from donation to treatment – A Systematic Review & Single Center Experience. [2]Sander Bekeschus, Anke Schmidt, - Basic Research in Plasma Medicine - A Throughput Approach from Liquids to Cells. [3]Vamsi Krishna Tatikonda and Hosam El-Ocla - BLOODR: blood donor and requester mobile application

[4]Mr. Shreyas Anil Chaudhari - A Secure Cloud Computing Based Framework for the Blood bank [5]Aishwarya R Gowri - Developing a plasma donor application using Function-as-a-service in AWS [6] Almetwally M. Mostafa - A SMART SOCIALBLOOD DONATION SYSTEM.