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Smart Blood Donor System using Android Studio, Firebase Database and Google Maps API

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Abstract: ***In case of emergency needs the most important lives saver necessity is Blood. Blood Banks are the main providers of blood who receives blood from various donors, monitors the blood groups database and in case of emergencies makes the available to the hospital whenever needed. The major problem faced by the main blood providers and the need is the availability of donor at right time. We hereby took a step forward to build a system to create a network of people who can help each other in need. We propose an application where the Blood donors can register on the app and using the data extracted from social media we can provide the donor the location and information where the blood is required . In the urgent time of a blood requirement; user can quickly check the app for nearby donors. Application tends to provide list of blood donors in user area. A large number of blood donors are attracted using an Android application. Since almost everyone carries a mobile phone with him, it ensures instant location tracking and communication. Registered user, who is willing to donate blood can pledge him/her to donate and will be able to access the service. In this application we are using the GPS technology that will be used to trace the way to the blood bank. The user will get the route to reach the desired location and he/she won't have to ask manually, therefore time can be saved.***

Keywords: Blood, Android, Application, GPS, Location.

I. INTRODUCTION

Machine or deep learning algorithms can assist researchers comprehend big data. Loads of information can be extracted about humans in this age but acquiring that information was previously impossible. Machine learning algorithms help predicting effectively and detecting nearby users by applying text extraction techniques to SM (social media) data, we can extract a large amount of data as per our requirements. Social networking sites are great tools for connecting with people worldwide. However, as social networking has become widespread, it becomes easy to reach out to a larger audience with the help of the internet. Nowadays it's difficult to find a blood donor who is nearby. Gradually the requirement of blood has risen. Requirement of blood by a patient is very important as the patient's life depends on it. In our Country, even though there is economic development, there are still many patients who do not get blood on time. Technology is the finest way to achieve this. With the help of the internet, we can control and access the machines and things which are connected to the internet even if the distances are too long. Without the human-human and computer- human interaction, we can send and receive information. There are many NGO's which constantly keep giving information about patients who require blood also there are many donors who donate blood time to time thus by providing this information to these donors it will be helpful for the patient. This can be done by extracting the information from social media provided by NGO's and the using natural language processing to keep the data which is required then using geolocation to remove its exact location and then using KNN algorithm to track the nearest possible donor and then display it on maps to the user.

II. RELATED WORK

1.In this system twitter data is mined and pre-processed and using that pre-processed data best path way is found to the destination using KNN algorithm. **2.** This application is use to search blood donor during the time of emergency. The accepted donors are tracked by Gmaps. The Gmaps is used in mobile application where it is use to map the donor. **3.** In this integration of google maps API is done and the pathway between the location and destination is being displayed. **4.** The proposed method is to create a website with an android application is developed so that the blood donors are available easily within the required time. The donors who are nearby location are tracked by the android application by GIS. The purpose of website is to update the relevant information regarding the donors who have already donated blood in various hospitals, so that when it is needed for any others, they can view other donors.

III.METHODOLOGY

A. Modules

1) *User:* Via this module user can login and register to the application and fill in his details. Database: This module is used to the extracted tweets from twitter. Firebase: This module is used to store the user details and patient details. Text Extraction: This module is used to extract tweets using the tweepy module. Geolocation: This module is used to get current location of the donor and the patient's location from the twitter tweet. Machine learning: This module uses KNN algorithm to predict the nearest donor. Google maps API: This is used to display the all the required locations on google map.

B. Working of Application

Install the application the smart phone and start it. If you haven't registered, then first register. Once you have registered you can login using your credentials. The current location is displayed in a fragment for ease of navigation, along with the information in text format. On the home screen you will get two options 1) Donate blood 2) Search Donor. If you click on donate blood then it will redirect you to google maps which displays the location where blood is required which is obtained by extracting information from social media provided by NGO as destination and the user's current location as source. You will get the information of where blood is required through text message. And if you click on Search Donor then it will search for the nearest donor from the registered users in the database. And the locations are displayed on google maps. You can also check the locations of nearby bloodbanks, bloodcamps or hospitals directly from the application.

IV.EXPERIMENTAL RESULTS

Figure. 1

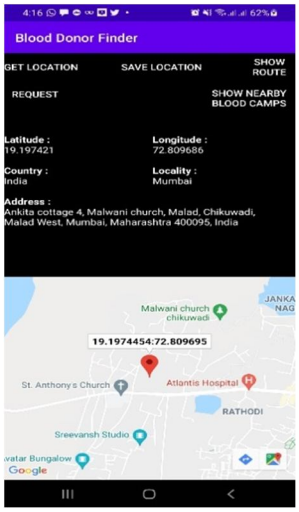


Figure. 2

Figure. 3

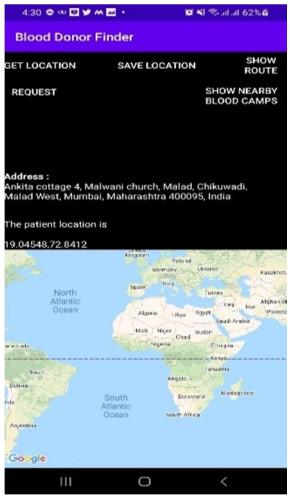
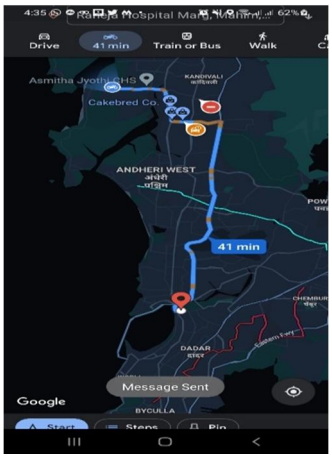


Figure. 4



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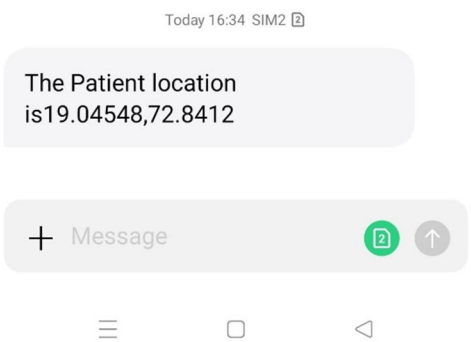

Figure. 6

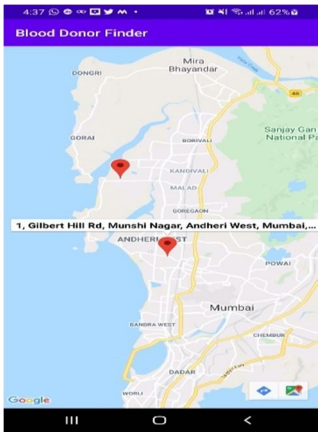

Figure. 7

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V. CONCLUSION

The proposed solution is to help provide as much as blood as possible by contacting the nearest and reliable blood banks/donors with help of an automated system using machine learning, data mining and google services. Existing systems requiring manual work from the admin can be useful in some cases but the efficiency of these systems can be increased by using automation techniques which would decrease the manual workload as well as increase the throughput of the whole system along with the output. The main aim would be to involve automation as much as possible. The existing system of finding a blood donor is decent but much more can be done to improve.

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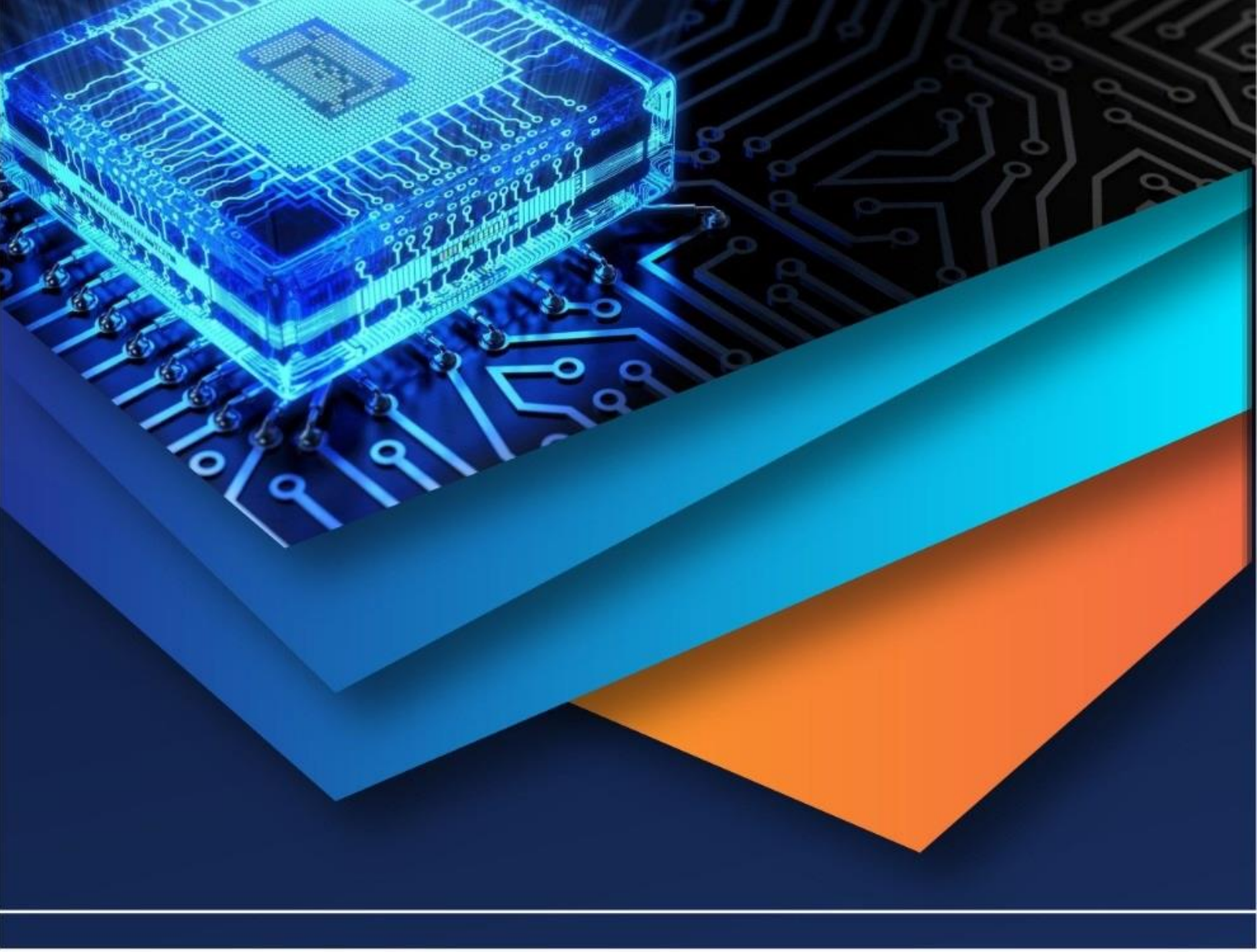

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