

LOCATION BASED ONLINE BLOOD BANK SYSTEM

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ABSTRACT

Location Based Online Blood Bank System using Global Positioning System and nearest neighbour algorithm used for primary blood transfusion services. The main aim is to provide fast and efficient way to gain attention of potential donors in the need of hour. We are including SMS and email services such that the donors can locate the requires when the request is generated for blood. Online Blood Bank (OBB) System assists in the process of blood donation. It consists of an application which is present on the donor's website which acts as an interface for the users of the system and it also uses database for storing the donor's data, blood bank details and hospital details. If there is need of blood, the donor with the required blood group is identified and notified of the requirement. It includes algorithm which detects accurate location of the donors, identifies the donors who are available nearby to the location of requester and notifies them. By creating an online location based web-portal where blood banks and hospitals can look for donors in their nearby area who will be available in quick time. And also keep record of donor's health report to evaluate quickly.

KEYWORDS: Online Blood Bank, Potential Donors

INTRODUCTION

Location based online blood bank system it is proposed in order to save the lives of the people who are in need of blood. It is mainly useful in the case of emergency situations who are in the need of blood, for the implementation nearest neighbour algorithm and global positioning system to trace the people who are in nearby locations.

The nearest neighbour algorithm was the algorithm used to determine a solution to the travelling salesman problem in the beginning. The salesman starts at any city and repeatedly visits the nearest city until all have been visited. It quickly yields a short distance, but usually not the optimal one.

Below is the application of nearest neighbour algorithm on TSP

These are the steps of the algorithm:

- Start at any arbitrary vertex as current vertex.
- Find the shortest edge from current vertex and an unvisited vertex V.
- Set current vertex to V.
- Then mark V as visited vertex.
- If all the vertices in the given domain are visited, then terminate.
- Go to step 2.

The pseudocode steps are as follows

Input: two Point co-ordinates x_1, y_1, x_2, y_2

Output: distance between two points

Method: Return squareroot $((x_2-x_1)^2+(y_2-y_1)^2)$

End Method

Input points and store them in points(n,2)

For $i < 0$ to n

For $j < 0$ to n

$Dist(i,j) < distance(points(i,0), points[i,1], points[j,0], points[j,1])$

End for

End for

For $i < 0$ to n

$Kn(i).dist = dist(x-1, i)$

$kn[i].pos = i$

end for

call Method selectionsort (kn)

for $i < 0$ to k

print points($kn(i).pos$)

end for

OBJECTIVES OF THE STUDY

The objective of this project is to develop and deliver a new blood donation system, increases the efficiency to trace the donors located in various places. Nearest Neighbor algorithm is used to trace the persons basing on the phone number by using GPS, alerts will be send to the person through SMS, email and in emergency situations through phone calls.

METHODS

The system will efficiently eliminate all the problems from the present blood donation system. Most importantly the donors would come to know about the emergency situation. The system will accelerate the current process of blood donation.

Registration

The interested blood donors, hospitals, Blood banks will be registered in the system by giving their details into website.

Web Application

The application provides an interface to the user so as to enable him/her to be a part of the system and the details

are stored in the database.

Request Generation

The request for blood is to be done using the website of OBB. The user or hospitals has to go to the website and make a request through the GUI provided. In the GUI the requester will enter the details then the request will be sent

Location Detection

Retrieval of user's location will be done using GPS. With the help of this information the system will identify the nearest location of the required donor (blood group).

Notification

Once a valid (blood group, medical requirements) donor is identified and detected, he/she is notified about the need of the blood. The notification is done by a Email, SMS or call.

Authentication

An authentication set of keys are given to the hospital by the administrator, the hospitals will give this key to the requester, if the key matches with the key in the database

then the further processing takes place.

RESULTS AND DISCUSSIONS

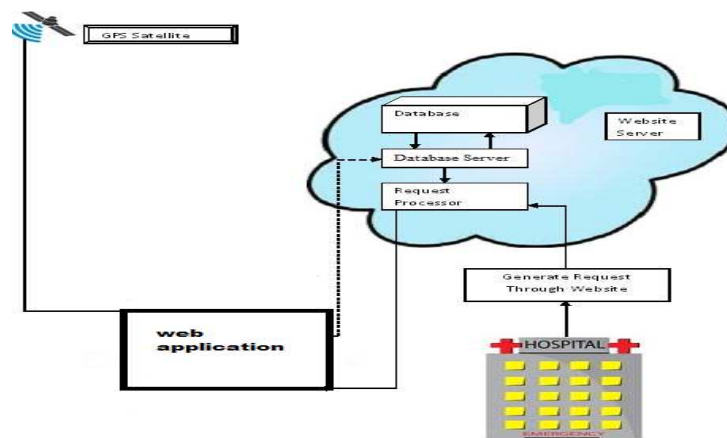


Figure 1: System Architecture

Here the web application is connected to GPS to find the location of the person by using the phone number that was given during the process of registration. The Database server stores the details of the donors who are willing to give the blood and the requester details who are in need of blood. Hospitals and blood banks also registered to the website after the request is generated the data in the database will be processed according to the blood group required. Then the notifications will be sent to the person. Request processor will take care of the generated requests. The donor details are not visible to the requester so that the person is not disturbed only alerts are sent to the donors.

The blood banks are also register into this website by giving the details.

CONCLUSIONS

Through this study the availability of blood in emergency condition is increased so that it can save the lives of many people. To get the attention of the donors who are willing to give the blood alerts will be sent to the person either by

SMS or email. By implementing nearest neighbor algorithm the persons who are in nearest location can be traced and the alerts will be sent using GPS. The blood should be given to valid person so that authentication to the requester is required otherwise it may lead to misuse of blood.

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