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SURAKSHA: AN ANDROID APP FOR THE SAFETY OF WOMEN

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Abstract – *Now-a-days mobiles have become a personal assistant. We have been seeing now and then lots of crimes against women all over the world. Although the mobile phone doesn't guarantee safety, it can be used to minimize the chances of becoming a victim and even sending the alert or emergency messages or calls. Medical services has become important aspect of our life. When we have an emergency condition, we are often confronted with unknown variables such as travel distance and time of the medical services near us. There have been several applications developed for women security. This paper aims to develop a location-based service for emergency situation as well as medical purpose with help of Google API which will find user's current location and adding JSON filter to the map which will populate the near by hospitals registered with google. We have also added feature which will show level of crime of the current location of user in India.*

Key Words: **Medical service, Location-based service, Google Maps API, Current Location, Level of crime.**

1. INTRODUCTION

This research is trying to help us find the nearest medical services around us. Medical services can be hospitals, clinics that are currently registered with google maps. The availability of information about nearby medical services is urgently needed by people in densely populated areas such as in big cities that are closely linked to congestion [1] [2]. This is an essential factor in determining which medical services we will choose. This research utilizes GPS (Global Positioning System) a location-based feature using latitude and longitude. GPS has been integrated with Google Maps API. The system will detect our coordinate location based on latitude and longitude, then show the conditions around us. After applying the JSON filter it will inform us about the availability of medical services [3] [4]. The presence of this study is expected to provide information quickly and accurately regarding the determination of a nearby medical service using Google API. The best decision is needed in emergency situations, but frequently when we have emergency conditions, we cannot think logically and this research plans to help people to make the right decision [5] [6].

With the help of data set of crime rates against women in India, we have developed a feature wherein a user can check the level of crime in current location in India. This feature can be of great help when a user wishes to travel to an unknown location.

We have added an "Help" button, by clicking on which SMS containing the coordinates will be sent to each of 5 saved contact numbers. Also call will be made to the contacts in the order of priority. This feature can be of great help.

2.LITERATURE REVIEW

2.1 Previous Research

In 2016, Sheng-Yuan Yang and Chun-Liang Hsu have developed a location-based service for tourism information by using an image recognition technology and Google Maps API. Their research is integrating components including a QR/Barcode reader, smartphone GPS, and cloud database to obtain required web services [7].

Bo Zhang, Jin Peng and Shengguo Li in 2017 did research on a location-based problem for emergency services such as ambulance and fire department. Their research utilizes unpredictability theory to find the location problem of emergency services within an unpredictable environment. Their study aims to obtain the most excellent locations for emergency services so that certain service-level targets are optimized [8].

Now android is budding on some apps for women security purpose. These apps are as follows –

FIGHTBACK: - This app is developed by Mahindra faction. In earlier days, this app was not complimentary, customer have to compensate for this app. But after Delhi gang rape incident, this app is on hand at no cost. This app sends a message to your friend or contacts that "user is in trouble" through E-mail, SMS and GPRS. This app works on those mobiles that support Android Java Programming [9].

SECUREME BETA: - This app is developed by Think MPI Consulting Private Limited. It helps us to raise alert and we can get help in case of life threatening emergencies. After installing the app, initially we have to give a pin number for security purpose and then after emergency contacts must be registered in the app. By pressing a tap on secure button, it notifies the contacts with location co-ordinates [9].

VANITHA ALERT: - This app is developed by ABC Mobile Learning Communication click on '' HELP" button on our mobile's home screen in an emergency situation can deliver a distress text message to the registered mobile number, E-mail id, face book id seeking help and indicating the user's location [9].

RAKSHA – WOMEN SAFETY ALERT: - This app is launched by BJP on May 15, 2014. By clicking on this app, it sends location of the user to the contacts registered and the user can also get the details of the location of the contacts. A distress signal just by pressing a single key sends out a loud buzzer to our near and dear ones. We can add multiple contacts to this app and when there is no data connection, this app alerts the contacts by sending SMS [9].

1.2 Google Maps API

Google Maps API is a robust mapping platform service created by Google. The developers can integrate this mapping service into their application or website. This service also can be integrated with developer's data. This service has information about imagery and detailed street [10]. It is also possible to obtain distance and estimated travel times data. API key is required to embed Google Maps in specific website or application. We must have a Google account to use this service and generate an API key.

3. PROPOSED MODEL

There are number of steps including system design and prototype, data collection. The user's location data is gathered using Google Maps API. The collected data is then inserted into the application where the user can find his/her current location. After the current location is found, the Google API will populate the surrounding location markers so the JSON code is applied as a map filter on this data which will segregate hospitals and display them.

User can also check the level of crime in their current location. First of all, we collected co-ordinates of the current location in India. Using geocoder we get co-ordinates of current location. Using reverse geocoder, we get details of current location such as Country name, State name and District name and Area name. For measuring level of crime, we have used available database for Crime rate against women in India. And using python we have created a model which gives the level of crime in a particular location in India.

4. FLOWCHART

Flowchart for hospital and contacts are as shown below:

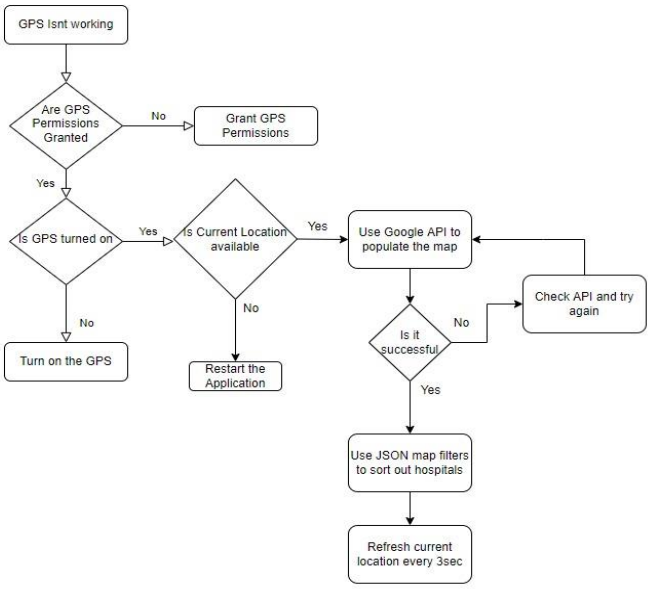

Fig -1: Flowchart of hospital.

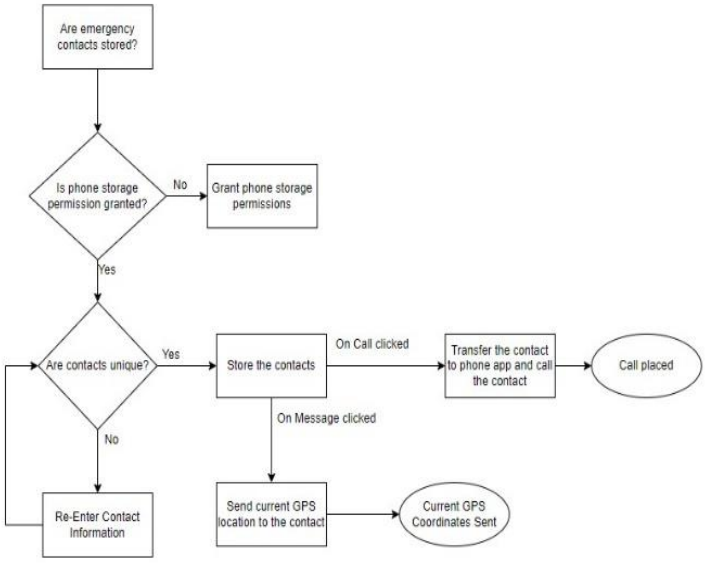

Fig -2: Flowchart of hospital.

5. RESULT

Here is the result of search for Location in Mumbai.

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Number of crimes reported in Maharashtra: 251476
Level of Crime in Maharashtra: Level 4 ('Alert')
Number of crimes reported in Mumbai Suburban: 619
Level of Crime in Mumbai Suburban: Level 3 (High Crime)
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Fig -3: Screenshot of Result in Jupyter Notebook .

6. LIMITATIONS

Currently we have used database till 2015 for crime against women. We don't have recent database. Also, the level of crime that we found is at district level. We need information more in detailed location. We have to make sure there is network in the mobile in order to make calls and send SMS to registered contacts. A part of system for sending SMS, making call fails if there is no proper network, no recharge. System is not smart enough to automatically send the SOS in case of trouble. Person has to open the app and press the alert button, which might not be possible in some situation.

7. FUTURE WORK

There is always a room for improvement in the future. For example, this proposed method can be integrated with other Google Maps API features such as traffic direction, traffic congestion, and transportation system in a particular area. Google API can also be used to draw a shortest route to a selected hospital. Make system so that it can automatically send alert message to registered contacts in case of emergency. This details must be sent every 5 minutes so as to get the knowledge of changing location of the victim. Also make system dynamic such that it automatically alerts user if he or she enters an unsafe location. Make system independent of the network signal to send help/alert message. Allow user to check level of crime on the basis of particular crime in a particular area. Also include age group and various other parameters to give more idea of level of crime in an area.

8. CONCLUSION

In this paper, we have described an application for safety of women, wherein a woman can send alert or help message and call to 5 registered contacts. This application helps in live tracking of the location of victim in case of emergency. Also, a woman can check the level of crime in the current location. Getting information in prior can help us prevent possible crime and help us be prepared for the same. The proposed method gives various data of hospitals around the user without having to manually find one.

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