

# GLOBAL POSITIONING ACCURACY TOWARDS MOBILE PHONE LOCALIZATION FOR EMERGENCY SYSTEM

*Ms. C. Jenifer*  
UG Student

*Mr. R. Balaguru*  
UG Student

*Mr. Y. Syed Ahamad Abraar*  
UG Student

*Ms. A. Roshini*  
Assistant Professor

*Department of Information Technology,  
SNS College of Engineering,  
Coimbatore, Tamilnadu, India*

**Abstract**—The GloCal can achieve 30% improvement on GPS average accuracy, by displaying its promise in real-world workability. It uses a prototype system named Glocal in both crowded urban and spacious suburban areas. In this work the system is triggered for emergency medical condition with the help of Google maps for medical support. The application uses GPS and GIS jointly to fetch the nearby doctor's exact location and hospitals. The system is focused on the time interval for recording location and notification without taking the personal data. In this application we design and yield a high accuracy global positioning solution based on GPS which provides the path for user and driver. To extend the usage of database (Aadhar- In future enhancement) in hospitals and to provide flexibility to the patients, thumb impression is used to retrieve basic information about the patients.

**Keywords**— GPS, GIS, GSM/GPRS, Emergency Android App, Google maps, Thumb Impression.

## I. INTRODUCTION

Lives of many people are under high risk due to the lack of best emergency facilities available in our country. The emergence of technology has also increased the traffic hazards and the accidents on road take place frequently which leads to huge loss of life because of the poor facilities. In this paper, the android application is used to detect accidents in considerably in less time and it sends the geographical coordinates that is latitude and longitude coordinates to first aid centre within a few seconds.

Location Based Services and Geographical Information System together have enabled a new era of the development of a mobile based applications for various commercial and military applications. Unlike the current information services such as those on the web and as mobile apps, the GIS has benefited greatly in the development of various fields in computing.

Better software for database allows the super user to maintain and manage the large amounts of information that is referenced to digital maps. Techniques like Computer graphics provide the data models for the following components such as storage, retrieval and display of geographic objects. Geographic Information Science offers specialized knowledge about spatial data collection, processing and data modelling as well as modelling of spatial processes for analysis purposes.

To extend the usage of database (Aadhar- In future enhancement) in hospitals and to provide flexibility to the patients, thumb impression is used to retrieve basic information about the patients.

## II. LITERATURE SURVEY

Locations can be represented in two ways i.e., spatial terms and text descriptions. The location of the device can be retrieved by either the mobile phone Service Provider Network or by the Satellites [1]. The ability to get relevant information about the location that a user is looking for and is achieved by using an Android mobile which has a (GIS) GPS, Google maps, LBS and LCS in it. LBS have two major actions, that is: 1. Obtaining the location of user and 2. Utilizing this information to provide a service [2]. The location of the user will be updated as soon as his/her position changes alike GPS device.

Finding technology used to find the current location of a device. Using location manager we can find the current location, tracking the movement, checking all the available location providers and setting proximity alerts for specified locations. The result obtained showed the finding of a route between the source and destination addresses in a map[3]. First the study area was chosen as the Enugu Urban area where the population growth is too high that the accessibility to healthcare

© 2019 IJAICT (www.ijaict.com)

facilities was too difficult. The shortest path and facilitylike closest where conducted using the ArcGIS 9.3 to obtain the fastest route to reach a healthcare centre [4]. At last the fastest route was thus found using the network analysis tools. First the study area was chosen and the road networks with the PHC were plotted. All the digitization and analysis were carried out with the help of the ArcGIS software [5]. The network analysis were carried out on the basis of the travelling time, speed and travelling distance required to be [6] covered to approach the nearest space. The finger print machine (scanner) is used to ensure the security to avoid fake and repeated voting. [7] The system uses thumb impression for voter identification in unique pattern. Fig.1.Explains about the survey of death rates in India.

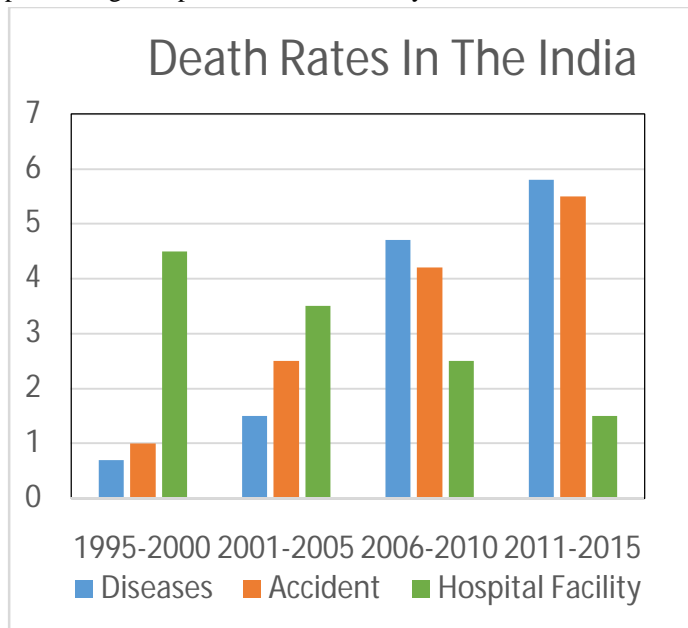


Fig 1 : Survey of death rates in India

Over 3,37,000 people were killed in road accidents in 2015. In the state Tamil Nadu were maximum number of road crash injuries. The top 10 Cities with the highest number of Road Crash Deaths are Bangalore, Mumbai, Kanpur, Luck now, Agra, Delhi (City), Chennai, Jaipur, Hyderabad and Pune.

### III. SYSTEM OVERVIEW

In the existing system the user have to intimate ambulance services, need to give the details of desired location. The exact location cannot be viewed by the driver. The user cannot able to search the nearest [8][9] hospitals as well as nearest Doctor's. There are many websites portal, and the user can get information about the searched location in web sites. If user

searches some location the information will be displayed on the screen with take more time.

#### 3.1 Issues of the Existing System

- In this existing system user cannot able to fetch the hospitals address and cannot able to get the accurate location.
- The information does not reach people at the time of emergencies. The user can update the location manually it will be store the server.
- The user will not add any data (Location) to the server manually.
- Provides less accurate location as it takes one shot location wherever needed.

In proposed system, the design of an application is in such a way the user can get the ambulance with one touch access. With the help of GPS (Global Positioning System) [10] the user desired location will pass to the server, the server will check the nearest ambulance driver automatically then it will pass the location to the driver's application. Fig.2. Explains about the overview of Functional representation of proposed system.

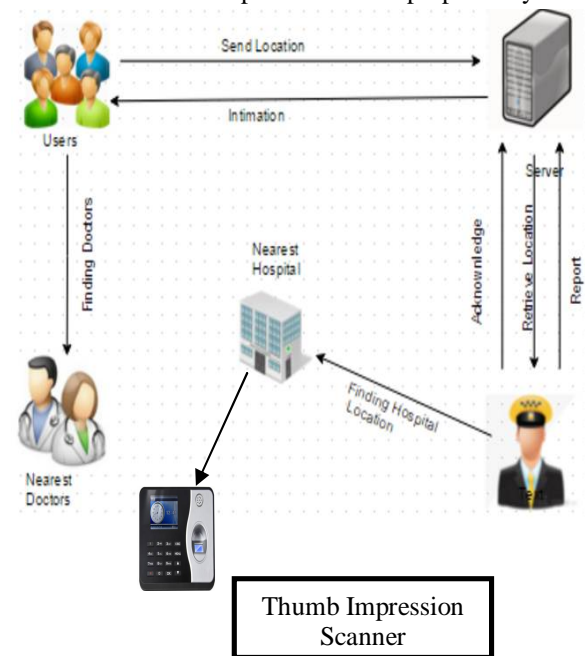


Fig 2 : Functional Representation of System

A path will be drawn which will intimate the user where the driver is. And with the help of GIS (Global Information System) driver can able get the details of nearest hospitals and Doctors.

#### IV. SYSTEM DESCRIPTION

The working process of the system is listed as follows,

1. Send Location to Server
2. GIS based nearest search
3. Retrieve Location from Deployment server
4. Navigation from source to destination
5. Report and Status Generation
6. Retrieval of data using thumb impression

**Send Location to Server**-User can send the location to the deployment server with the help of GPS (Global Positioning System). The GPS uses the location service through which the exact position gets bind up, and then it passes to server. An application accessed by the [11] location services is supported by the device through classes. The Location Manager System services are the central component of the location framework, which supports APIs to determine location and bearing of the underlying device. Concerning that whether local positioning could produce precise depiction of users' real trajectories, we now fuse the outcome of geocode where latitude, longitude value are passed.

**GIS based nearest search** - The Geographical Information system is responsible for fetching the nearest hospitals and as well as doctors. The GIS uses k-nearest algorithm with the help of Google places API it finds the nearest hospitals. GIS is a system designed to capture, manipulate, store, present, manage, and analyse all types of spatial or geographical data. The algorithm is designed in such a way that it easily fetches the nearest doctors, hospitals.

**Retrieve Location from Deployment server** -In this user send their location to the server with the GPS(Global positioning System). Server evaluates the received latitude, longitude value, and then the values are passed to the driver's application. Driver's application retrieves the location from the deployment server and the location of the user is viewed in map. Once the GPS estimates the desired location of drivers from the deployment server, details of the drivers is passed to server. On one hand, we suspect that such results benefit from the better transformation residual errors under larger unit distances.

**Navigation from source to destination** -Once the location is retrieved from the deployment server, a pathway is drawn from source to destination. A Google maps is drawn from the user location (source) to the driver's exact location (destination).

The Application Programming Interface automatically handles access to Google Maps servers, map display on the map. A Marker will be shown on to the map, which makes the easy for user and driver to get accurate location in the path. With the help of map, the pathway is provided for drivers to nearby hospitals which reduces the workload.

**Report and Status Generation** - The reports are generated. The content, user description all details are thrown to the server for further process. Once the server gets the location of the user, it sends the value within desired location to driver's application. If the driver gets the users location, the driver's details are passed to the server. Easily Retrieve the Particular data into database.

**Retrieval of data using thumb impression**- To extend the usage of database (Aadhar- In future enhancement) in hospitals and to provide flexibility to the patients, thumb impression is used to retrieve basic information about the patients. Here thumb impression of the individual is considered as unique id which is required to retrieve his/her data from database.

#### V. CONCLUSION

In this paper, with the help of GIS we can able to get the nearest hospitals. In existing system contains only the low level data but it contains the deep level data because those data are collected from globally. Satellite information is easily incorporated. It Increases Communication, Productivity & Collaboration. This application is just ONE TOUCH ACCESS for user and Ambulance driver. It enlarges the scope of Aadhar.

#### IV. FUTURE ENHANCEMENT

Aadhar cards have already been introduced in India which consist of an individual's fingerprints and retinal scan for unique identification. In future every Indian citizen is going to have Aadhar card and their respective information's are maintained by government of India. The main objective of this project is to extend the usage of database.

#### References

- [1] Singhal, Manav, and AnupamShukla. "Implementation of Location based Services in Android using GPS and Web Services." IJCSI International Journal of Computer Science Issues 9, no. 1 (2012).
- [2] Kushwaha, Amit, and VineetKushwaha. "Location Based Services using Android Mobile Operating System." International Journal of Advances in Engineering & Technology 1 (2011): 14-20.

- [3] Rani, ChRadhika, A. Praveen Kumar, D. Adarsh, K. Krishna Mohan, and K. V. Kiran. "Location Based Services In Android." International Journal Of Advances In Engineering & Technology (2012).
- [4] Ejiagha, Ifeanyi R., Johnbusco C. Ojiako, and Chijioke G. Eze. "Accessibility Analysis of Healthcare Delivery System within Enugu Urban Area Using Geographic Information System." Journal of Geographic Information System 4 (2012): 312-321.
- [5] C.Prabha,R.Sunitha,R.Anitha. "Automatic Vehicle Accident Detection and Messaging System using GSM and GPS Modem."International Journal of Advances in Engineering & Technology Issues 7, no. 3 (2014).
- [6] Chenshuwu, Zheng Yang, Yu Xu, Yiyang Zhao, Yunhao Liu. "Human Mobility Enhances Global Positioning Accuracy for Mobile Phone Localizaion." IEEE (2015).
- [7] Shanu Agrawal, Pradeep Majhi, VipinYadav." Fingerprint Recognition based Electronic Voting Machine." International Journal of Engineering&Technical Research.
- [8] A.Xavier Raj." Saving lives through rural ambulance services: Experiences from Karnataka and Tamil Nadu states, India." Transport and Communication Bulletin for Asia and the Pacific (2014).
- [9] Jie Liu, Bodhi Priyantha, Ted Hart, Yuzhe Jin, Woosuk Lee, Vijay Raghunathan, Heitor S. Ramos. "Co-GPS: Energy Efficient GPS Sensing with Cloud Offloading." IEEE (2015).
- [10] Augusto Luis Ballardini, Lorenzo Ferretti, Simone Fontana, Axel Furlan, Domenico Giorgio Sorrenti. "An Indoor Localization System for Telehomecare Applications." IEEE (2015).
- [11] Sri Krishna ChaitanyaVarma, Poomesh, TarunVarma, Harsha. "Automatic Vehicle Accident Detection and Messaging System using GPS and GSM Modems." International Journal of Scientific & Engineering Research, Issues 8, no. 4 (2013).