

Location Based Mobile Services, Importance and Related Issues: A Review

Shikha Chandrakar¹ Aakansha Choubey²

^{1,2}Department of Computer Science and Engineering

^{1,2}Shri Shankaracharya Technical Campus, SSGI (Faculty of Engineering and Technology)
Bhilai(Chhattisgarh)

Abstract— Everyone uses smart phones and day to day many new features are added by the venders. The GPS positioning system is one of the most popular features which provides many useful services to the mobile user's. With the help of GPS features in mobile phone many attractive and useful applications are developed. Cab services and many e-commerce application use this features. There are many mobile operating system are developed and Android is very popular mobile operating system which provide many attractive feature to run the GPS based applications. With the use of GPS system the developed application can able to get the users current location. Location based service provide many facilities to smart mobile phone users. User can navigate map, set location while driving and many more. with help of location based service, the user to send their current location to others in emergency. There are many areas for developing application with location based service, depends on the programmer and the applied algorithm.

Key words: Location Based Service, LBS, Mobile location finder, Importance of LBS, Location services

I. INTRODUCTION

Internet is backbone of technology. Any organization cannot run efficiently without internet. Internet is everywhere just like our nerves system. In this era all are connected via some medium of connectivity like social media and this will happened, because of internet and the technological revolutions. Today smart phone play an important role to share anything anywhere on the earth in social media. The location based services is one of the most important feature provided by Smartphone venders. If someone want to share any data with location then it possible with smart phones only on just one click. The System uses the GPS based positioning system to get latitude and longitude of current location of users. Location based administrations utilize constant geo-information to provide data about the specific location. Location-based services use a Smartphone's GPS technology to track a person's location, if that person has allowed the service to do that. After a Smartphone user allow the location tracking, the service can identify his or her location down to a street address without the need for manual data entry [2].

Numerous mobile applications can also be connected to existing online system and social media to provide the information and for adds services by integrating the third party venders or developers based on their locations. There are many applications which uses the location service for example finding the particular city or district on map and the most popular is root finding while driving developed by Google. Also the e-commerce mobile application use the location based service to know the user's current location and for delivery option. Social sites also uses the location based

service, which allows the users to check themselves and their friends location.

- GPS: The Global Positioning System (GPS) uses the space-based navigation system. It helps to get the accurate location all the time and anywhere in the earth[3]. The GPS system provides many facilities to many organizations like military, civil, and commercial users around the world. GPS satellites circle the earth twice a day in a very precise orbit and transmit signal information to earth
- Longitude: Longitude defined as +180 degree to -180 degree east or west of the meridian.
- Latitude: Latitude defined as +90 to -90 degrees north or south of the equator.

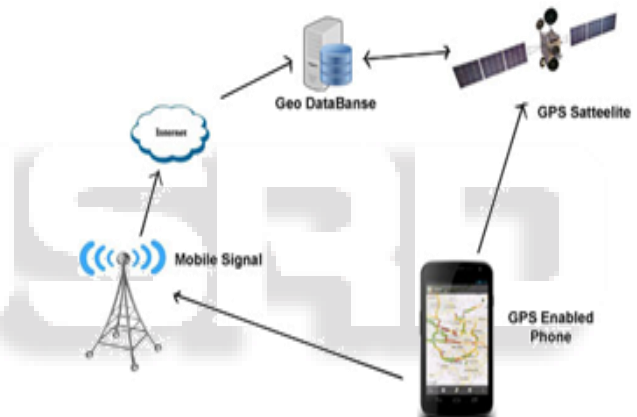


Fig. 1: GPS Working System.

A. Importance:

The GPS location are represented with the help of longitude, latitude point which show the current location on map. The location detail of the users, uses the simple text information of particular location of the user like city name, district name, pin code or any other text description of user current address or any searched address. With the help of this anyone can get the accurate detail of a particular location. Also it helps the user to get the approximate distance between the locations. Help to finding the route information while driving and many more.

Location based service provide many facilities some of them are listed below which are very helpful for social life.

- Location Based Reminder: By using the concept of location based services, provides the mobile application user's to personalized services according to their current location. It also open a new area for developers, mobile service network operators, and service providers to develop and provide value-added services to their client like advising clients of current traffic conditions, providing routing information, helping the users to find nearby shopping malls and many things[1].

- Store Locator: With the help of location based service(LBS) user can easily find the nearest store location. There are many applications which help the user to find the nearest location.
- Location based Marketing: Advertising is one of the most popular way of marketing. Location based services provide an interactive way of marketing. It display the advertisement related to user's current location.
- Traveling Information: While driving if someone want to find the location and route information the location based services helps the user to find the shortest way with complete route information.

The real time positioning system is used to get the current location of user. The real time positioning system is known as GPS positioning system. The accuracy of the obtained latitude and longitude is based on the methodology used and the vendors.

II. LITERATURE REVIEW

Location based service comes with many advantages to retrieve the user's information based on their current location by using the latitude and longitude. The android based smart phones provide a set of location based applications and services which helps the users to access the multiple services based on the user current location. The services like map navigation, marketing, advertisement, location based reminder services, to fetch preferred location and current location are the features, provided by smart phones. Google places API provides four fundamental service to user's. The service are place service, place detail, place check-ins and place reports[5].

Authors proposed a technique bases on location based services for indoor and outdoor positioning system to get the user's location[6]. The services for location based system is based on wireless communication system with mobility. There also described the different types of location based services to get the actual location based on positioning technique for self positioning, remote positioning and wireless positioning technique.

Hierarchical approach is the approach to routing the nodes on area that it occupies and by dividing it into a hierarchy of region. According to this the lowest level regions are called cells. Regions of one level are aggregated to form a region on the next higher level of the hierarchy. Regions on the same level of the hierarchy do not overlap. Hierarchical location service defines the area partitioning which containing the ad-hoc network in cell known as partitioning nodes. The all network cells are grouped hierarchically into region of different levels. A network cells form a region in level, like level one, and the level one again form a region level two, level two region form a level region three and so on. The system places location information for a node T in a set of cells, these cells are called as responsible cells of T. A node T selects one responsible cell for each level in the hierarchy[7].

Consideration the problem of routing in large ad-hoc network for mobile host when geographical based location service. Also the efficiency and performance analysis in both case when nodes are not moving and when the nodes are moving. The proposed technique is responsible in way where, no node should be a bottleneck means location service should be spread evenly over the all nodes, The failure of one will

not affect the reachability of all others node in a cluster. Each node in a contains its own geographical position based on its latitude and longitude values. Each node announces its presence, position, and velocity to its neighbor nodes by broadcasting packets and each node maintain a table of its neighbor nod

III. ISSUES WHEN USING LOCATION BASED SYSTEM:

Location based monitoring system provides many features to normal user and as well as very helpful to organizations. Also the organization noticed this trend in geo-development and reacted with an increasing availability of location based services that mainly run on our mobile devices to provide and interactive features to user[4]. But is has also some issues while using location based services. When focus to privacy, the most important issue comes to users. There are many third party application which is not easily acceptable by the users.

Transparency: Transparency is one of the most important issue with the location based service. Location based enabled applications stores all the information about the users if user enable the location option on their device. The third party or any other can use this sensitive personal information like users location where they go at what time and many more, which means the application with location based service not transparent and not faithful with the personal and important data in some cases, the data may hacked.

Privacy: privacy is the most important for everyone. No one want to share their personal information. So the privacy most concerned issue with the location based services. The application developed by any organization knows that what its LBS service does, what type of data it collects, and whether that data is shared with social media or partners or third parties. The location based service enable application directly transfers the users' location information to their servers and stored it into the database. By using this, no one can imagine that lots of information are send to third party, is stored, analyzed and used for many purposes which not beneficial for users. So all the information about the users are stored in the third party server. What we search? Where we go? if all this data are stored in third party server then it will not good when concerned with privacy. For example suppose user want to plan for know the driving route between locations and enter the source and destination location, with this generated and saved information of spatial data the third person know the entire plan if database are hacked.

User Consent: It is the agreement between the user and the vender of installation app. When the user install mobile apps which is not trusted, and accept all the term and condition then the app can access all the user's information which is provide by app. If the app access the location based service then it will be able to get user's location. So there may be privacy concern with the user's, because these will get all the user's information like where you go at what time, and what the user's current location. These may be harmful to users with this type app which is not trusted.

IV. TERMINOLOGIES TO IMPLEMENTS LOCATION BASED SERVICES

Number of technologies and given by number of vendors to implement the location based services. Location based

services can be developed like Android operating system and technologies, IOS operating system, Windows for mobile and many more. Here there are some terms documented by Android to develop the Location based services[9].

- GpsSatellite: This class represents the current state of a GPS satellite. This class is used in conjunction with the GpsStatus class.
- GpsStatus: This class represents the current state of the GPS engine.
- Geocoder: It handles the geocoding and reverse geocoding for the mobile application.
- LocationManager: The class provides access authentication to the location service.
- LocationProvider: It's an abstract super class for location providers. A location provider provides periodic reports on the geographical location of the device.
- LocationListener: Used for receiving notifications from the LocationManager when the location has changed.
- Criteria: This class represents the current state of a GPS satellite. Criteria class indicates the application criteria for selecting a location provider. Providers maybe ordered according to accuracy, power usage, ability to report altitude, speed, and bearing, and monetary cost.

V. CONCLUSION

Location based services are very useful for the user. It provides a lot of facilities to mobile user. They can navigate location while driving, Search places and many more. The location base services uses the GPS satellite to get the location and retrieve the location and the mobile must be enabled with the GPS system. Also it has some issues related to privacy, transparency and with use consent.

REFERENCES

- [1] M. Singhal and A. Shukla "Implementation of Location based Services in Android using GPS and Web Services", IJCSI, vol. 9, no. 1, pp. 237-242, 2016.
- [2] V. Zeimpekis, G. Giaglis and G. Lekakos, "A taxonomy of indoor and outdoor positioning techniques for mobile location services", SIGecom Exch., vol. 3, no. 4, pp. 19-27, 2002
- [3] U. Bareth and A. Kupper, "Energy-Efficient Position Tracking in Proactive Location-Based Services for Smartphone Environments", 2011 IEEE 35th Annual Computer Software and Applications Conference, 2011.
- [4] www. geoawesomeness.com , Security and privacy issues of LBS <http://geoawesomeness.com/security-and-privacy-issues-of-lbs-geo-apps/> [Last Accessed: 19-march- 2016]
- [5] M. Singhal and A. Shukla "Implementation of Location based Services in Android using GPS and Web Services", IJCSI, vol. 9, no. 1, pp. 237-242, 2016.
- [6] V. Zeimpekis, G. Giaglis and G. Lekakos, "A taxonomy of indoor and outdoor positioning techniques for mobile location services", SIGecom Exch., vol. 3, no. 4, pp. 19-27, 2002.
- [7] W. Kieß, H. Füßler, J. Widmer and M. Mauve, "Hierarchical location service for mobile ad-hoc networks", SIGMOBILE Mob. Comput. Commun. Rev., vol. 8, no. 4, pp. 47-58, 2004.
- [8] J. Li, j. Jannotti, D. Couto, D. Karger and R. oris, "A Scalable Location Service for Geographic Ad Hoc Routing", ACM, pp. 120-131, 2016.
- [9] developer.android.com, android.location , Android Developer Console <http://developer.android.com/reference/android/location/package-summary.html> / . [Last Accessed: 19- march- 2016]