

Track the Location by unproblematic way in Android Devices

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Abstract-- *Android is the very well applicable tool having a lot of applications for users. The Location Based Service provides very useful information that is accessible in the mobile phones through the mobile network and it also provides information about the geographical position of the mobile phone. The user need not want to carry the desktop all the way along the journey to retrieve the information of destination places, to overcome this issue this application is used to wrest the information about the mobile phone which is integrated with the applicable Network providers, Google maps and GPS to retrieve the latitude and longitude values. LBS use GPS to place user's current location and user can select the new destination of their attention or they can choose the destination location which is closer to the current location. Through Query processing the user can retrieve the current location. The unproblematic location tracker is deployed in the Android Operating system.*

Keywords—*Android, Location, google maps, LBS.*

HISTORY OF ANDROID

Android is an operating system based on the Linux kernel, and it designed for touchscreen mobile devices like smartphones and tablet computers. In July 2005, Google acquired Android Inc., a small startup company based in Palo Alto. Android's co-founders who went to work at Google included Andy Rubin co-founder, Rich Miner co-founder of Wildfire Communications, Inc, Nick Sears and Chris White. At the time, little was known about the functions of Android Inc. further they made software for mobile devices. At Google, the team led by Rubin, developed a Linux based mobile device Operating System which they marketed to phone makers and carriers on the premise of providing a flexible and upgradeable system. It was reported that Google had previously lined up a series of hardware components and software partners and signaled to carriers that it was open to a range of degrees of cooperation on their part.

ADVANTAGES OF ANDROID

The android user can customize the Google Android platform. The user will benefit from having a wide range of applications to choose from since the monopoly will be broken by Android. It allows you to access features like weather details, live RSS feeds, opening screen will be able to be customized, All applications are equal it does not differentiate between the phone's basic and also third party applications, even the home screen can be replaced, Breaking down limitations mingle information from the web with data on the mobile devices such as contacts or geographic location, to create new experiences, fast and easy development to the user. The SDK contains what you need to construct and run Android applications, including a true device emulator and advanced debugging tools.

LBS COMPONENTS

To make LBS services possible, some infrastructure elements are required, including Mobile applications, communication networks, positioning element, and service servers. Mobile phones are kit used by user's right to use LBS services, to send request and retrieve results to the user. Such devices are portable navigation devices (PND) and Personal Data Assistants (PDA), laptops, mobile devices, and so on. Application is the interface to access the LBS service to user. It is normally software developed by an application developer, downloaded and installed on user's mobile phones. Some specific application is normally developed for LBS service. Sometimes due to the limitations of mobile phones like small screen size, limited processor memory and power, battery performance, Location based service applications need to be battery saving. Communication networks refers to the mobile network which sends service request from user to service provider and also requested services back to the customer. Global System Mobile communications (GSM) is presently the for the most part common standard mobile network and is used by popular mobile devices worldwide. Mobile networks are usually controlled by operators and maintained who give connectivity service for mobile users and charge them for voice and data transmission. The positioning component is typically required in a LBS application to establish the position of user's mobile Phone. The popular of the current LBS services do not need users to give input location manually, like giving pin code or street names. Whereas the user's location can be obtained by using positioning technologies, like satellite positioning, mobile network positioning. Service providers maintain service servers which

offers different types of location based services to users and responsible for processing service requests retrieving results. Servers compute positions and search for a route, or search particular information based on user's location. Service

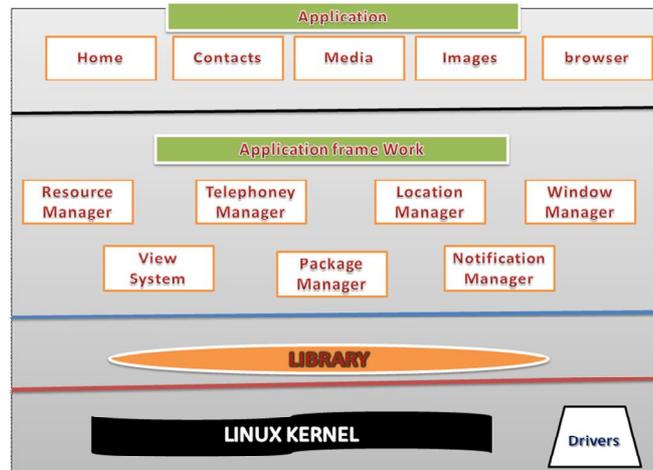


FIGURE 1: COMPONENTS OF ANDROID

DISCUSSION

LBSs include a number of components including maps and Geographic Information System (GIS) information, location collection services. The architecture of LBS can be comprehensive as shown in Figure 2 here.

APPLICATIONS OF LBS

This represents a particular application like 'find my friends' application. It consists of a Smartphone component, which has an amount of sensors, and a server component that contain application specific data like location tagged information.

Middleware This access LBS Features like Location Tracking, to provide a reliable interface to Location Based applications.

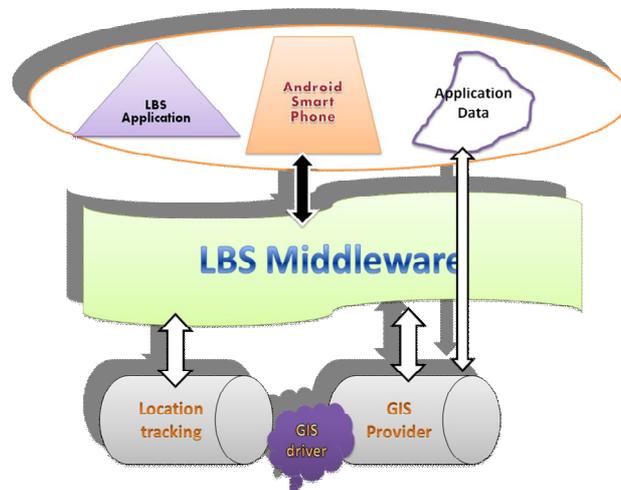


FIGURE 2 LBS COMPONENTS

TRACKING OF LOCATION

This module stores the location trace of individual customers. It represents a primary component in new generation LBS as it contains data that allows a user's direction to be determined and predicted. In this component would naturally support the following functions:

1. Keeping records on user's present and past locations.
2. To notify other components when a particular user has moved or when they move in or out of a specific area and also it supports location based notifications being sent to mobile users.

3. To determine which users are within a specific location this supports various features.
4. Location Queries to trace and find user's movements.

COLLECTION OF LOCATION SERVICE

This service to perform location collection to get a latitude and longitude for a particular user devices. Depends upon the technology, this services may be accessed via the Location based Middleware like mobile network service provider or directly via GPS receiver in Smartphones. Android provides access to facilitate the implementation of LBS services through with the help of some classes:

1. Google map
2. Location Provider,
3. Location manager,
4. Geocoding.

GOOGLE MAPS IN ANDROID DEVICE

Android gives a amount of things to handle maps in Location Based System like MapView which displays the maps. To Handle Map Activity class. It provides sacking by which one can create easily and display various layers above the map. In addition, enough provisions are there to zoom the maps, focus the map by using MapController.

Code to show Handling Map in Android Device:

```
<com.google.android.maps.MapView  
android:id="@+id/map_view"  
//For different attributes/>MapController mapController = myMapView.getController();  
mapController.setCenter(point);  
mapController.setZoom;  
//For present overlays  
List<Overlay> Overlays = MapView.getOverlays();  
// For new overlays  
MyOverlay MyOverlay = new MyOverlay();  
Overlays.add(MyOverlay);  
mapView.postinvalidate();
```

LOCATION PROVIDER

It represents the technology to find the physical location. Location Provider component is a present to make easy the resolve of available provider and selection of suitable one for user. locating the List of present Location Provider To get names of list for all providers available on the smartphone device, using a boolean to indicate if you want all or only the enabled providers to be returned to user:

```
boolean enabledOnly = true;
```

```
List providers = locationManager.getProviders;
```

In adding together to this GPS provider and Network provider will be accessed directly by using the some sort of variables defined by the LocationManager class: LocationManager.GPS provider

```
LocationManager.NETWORK_Provider
```

Moreover finding the network provider based on some criteria user can use this criteria class and then can find the best network provider for defined criteria using the Best network Provider Method as mentioned in the following code:

```
Criteria criteria = NEW Criteria();
```

```
criteria.setAccuracy;
```

```
criteria.setpowerRequirements(Criteria.power StringbestProvider=locationManager.getBestProvider(true);
```

Incase if more than one Network provider is available satisfying the given criteria then the one with best performance will be returned to the user. At the same time no provider is found then criteria will be loosened in order Power use, Ability to return bearing and Accuracy, and speed.

LOCATION MANAGER

Location Manager is a one of the Class of android present to manage all other components are needed to establish a Location Based system.

GEOCODING AND REVERSE GEOCODING

It provides a method to translate geographical coordinate's longitude and latitude into Address of street and forward geocoding gives a mean to get geographical coordinated using street address. To forward geocoding we can use getLatitude() & getLongitude() methods using the following code :

Block

```
Double latitudes = Location.getLatitude();  
Double longitudes = Location.getLongitude();
```

For reverse geocoding following code:

Block

```
geocod is geocoder variable  
address = geocod.getFromLocation(latitude, longitude, 50);
```

GPS IN ANDROID DEVICE

Android devices use global positioning technology as Google maps and mostly third party GPS tools. It allows users to locate themselves on map to find and navigate from one destination to another destination via details directions, and also map searching using a number of methods

1. Time based Triggering:

If this feature is enabled in android device then the background service will look for the GPS location in a regular interval. Time interval in this feature list in setting tab. Current min time triggering interval is 30 sec. and the maximum time will be triggering interval is 4600 sec.

2. Distance based Triggering:

If this feature is enabled GPS location continuously look for specified amount of distance traveled by the user, post the data service to the server. Distance interval in meter is also configurable on setting tab under this feature given to user. Present min distance interval is 100 meter and maximum distance interval is 6000 meter. In future the distance triggering need to be reform for allowing values in meters as well as kilometers

USE OF THE LBS:

It refer to a set of applications that exploit the knowledge of the present position of a mobile device to provide services based on the information.

It classified in three categories given below:

1. Public emergency services: The location of the end user can be provided by the carrier, the mobile devices is a valuable, access point in the emergency. In the United States, Europe and Japan, it is mandatory by law for user to be able to provide such information.

2. Android Consumer services

- Navigation: Mobile users get route maps to a specific destination, real time traffic routing and congestion patterns etc.
- Location based on advertising: advertisements of discounts and offers from a business store as the user comes within the place.
- c. Location reminders: It allows users have to enter in to-do lists and then whose location information is activated when the user sends by, pick up shopping or laundry etc.
- Friends and family finder: It allows mobile users to keep track of the current place of their friends and relatives, with the informed consent of this kind of subscribers.
- Location based search: It allows mobile users to access local services and to find even more detailed information like cricket score and ratings of the any movies playing in theaters nearby.
- Location based gaming: It allows the user began and positioning the game and handset technology have improved worldwide.

3. Android Enterprise services:

Location Based Service or LBS enables asset tracking, field service dispatching one place to another, route and delivery optimization. This has proved to be extremely useful for small businesses and medium businesses for various purposes.

Advantages of android OS

• Multitasking: Android phones can run many applications which mean you can browse various applications like, Facebook while listened to the song.

- *Ease of Notification:* Notification on the Home Screen allows user to check Any E-mail, SMS, latest articles from an RSS Reader, so you will not miss a single SMS, Email or even Misscall .
- *Applications via the Google Android App Market:* If you want to install applications or games, through Google's Android App Market, user can download applications for free of cost. There are thousands of applications and games that are ready for download on Android phones various purpose.
- *Phone options:* Android is available on mobile phones from various manufacturers like, from Samsung, Sony Ericsson , HTC etc. And each mobile manufacturer also presents an Android phone in the various styles of each,
- *Widget :* with the widgets on the home screen, the mobile user can easily access a variety of applications quickly and easily.

CONCLUSION

Location Based Services are those services which offer information and are accessible via mobile devices through the mobile network. They make the most of the aptitude to make use of the geographical position of the mobile device. It can utilize some technologies such as the GPS, WiFi, mobile networks. These services obtain the current location using GPS and in the nonappearance of GPS using query processing the end user can identify the destination place. This application also provides destination detachment from the current location, additionally it contains the Phrase book to language interpretation, and Map view to all destinations with Most visited locations with informations like (availability of ATM, Educational institutions Hotel and park like that) view about destinations on place to another. This application is a real time journey helper for the end user based on Android mobile devices.

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