Friend finder navigation android application to meet new people around

Navin D. Waghwani[1], Ravi Jayaraman[2], Umesh B. Waghmare[3]

[1] *BE, Department Of Computer Engineering, GESRHSCOE, Nashik, Maharashtra, India*
[2] *BE, Department Of Computer Engineering, GESRHSCOE, Nashik, Maharashtra, India*
[3] *BE, Department Of Computer Engineering, GESRHSCOE, Nashik, Maharashtra, India*

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Abstract – ***In today's scenario, mobile computing has advanced to such an extent where the user has access to all the information on a single device. Location based services offer many advantages to the mobile users to retrieve the information about their current location and process that data to get more useful information near to their location. Location based friend finder is a mobile social networking application that could be used to locate friend on Google map, share information with each other, create and manage events, create groups with the interest basis. Also it gives notification to the client displaying the nearby events on his interest basis. But the use of this android application is to create activities like meet-up for coffee or meet-up for a drink and the application will display different coffee shops or malls nearby or distant. Choose one option from the given list and select the friends to go with.***

Key Words: *Location based service, Google maps, Android.*

1. INTRODUCTION

With the development in Mobile computing the mobile phones holds most important role in our daily life. A location-based service is a software for a mobile device that requires knowledge to show where the mobile device is located. LBS is a query-based software application which provide user with useful information such as "Nearest HOSPITAL?" or push-based and deliver coupons or other marketing information to users who are in a specific geographical range/area.

This paper implements friend finder navigation android application to meet new people around. We are developing a mobile social networking android application on which user can locate his friends on Google map. Also user can create and manage events, chat with his friends, create groups on his interest basis.

2. EXISTING SYSTEM

1. **Recommendation System for Spots in Location Based Online Social Networks.**
   Location based OSNs, like, e.g., Go Walla, Foursquare, and Facebook Places, are a new and arising trend on the Web, being highly popular by both users and advertisers. Their core concept is the possibility for users to publish that they are at a certain location, vulgo checked in at one of the registered spots. The providers are collecting immense amounts of personal data for this service, including Geo locational and preference information, which they primarily use to generate business value.
2. Bridging the gap between Physical location and on-line Social Networks Social network designers may find this methodology useful for designing social applications, such as location aware information sharing platforms, privacy control mechanisms, and friend suggestion systems. This also raises important privacy questions about how much information location based services leak about their users.
3. **Clustering User Trajectories to find patterns.**
   Sharing of user data has substantially increased facilitated by web and mobile applications, including social networks. Users can easily register to their trajectories also he can share and relate them with trajectories of other users. As a solution, the user's daily routines, can be captured by mobile social applications and shared in virtual communities in order to improve the social connections in real communities. Explore the capabilities provided by clustering algorithms to analyze user trajectories and extract relevant information from them. Focusing on clustering and aggregation multiple trajectories generated by the same user in order to identify habits or preferences. Introducing trajectory correlation algorithm to find similarities between multiple user trajectories based on each user preference and POI.
4. **Location Based Services using android mobile operating system.**

The LBS application can help user to find hospitals, school, gas filling station or any other facility of interest indicated by user changes his/her position.

3. PROPOSED SYSTEM

3.1 Location-Based Service

Location-based services (LBS) provide the mobile clients personalized services according to their current location. They also open a new area for developers, cellular service network operators, and service providers to develop and provide value- added services.

Location-based services offer many merits to the mobile clients. The first publicly available smart phone running Android, the HTC Dream, was released on October 22, 2008.The user interface of Android is based on direct manipulation. It means using touch inputs like reverse, pinching, tapping and swiping to manipulate on screen objects that loosely correspond to real-world actions.

3.2 Components of LBS

Location-Based services (LBSs) comprise the automatic tailoring of information and services based on current location of the user. The availability of various wireless interfaces such as Bluetooth, RFID, Wi-Fi etc. and external positioning technology like GPS in most of the mobile devices motivates the researchers and telecom operators to work in the field of providing LBSs to mobile users.

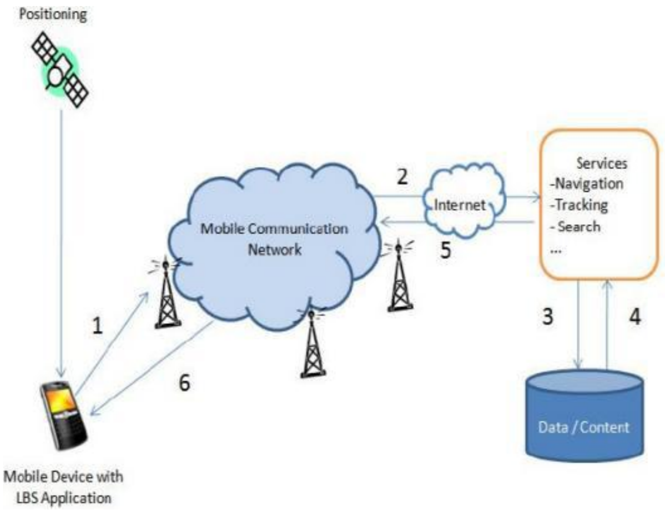


Fig -1: Location Based Service

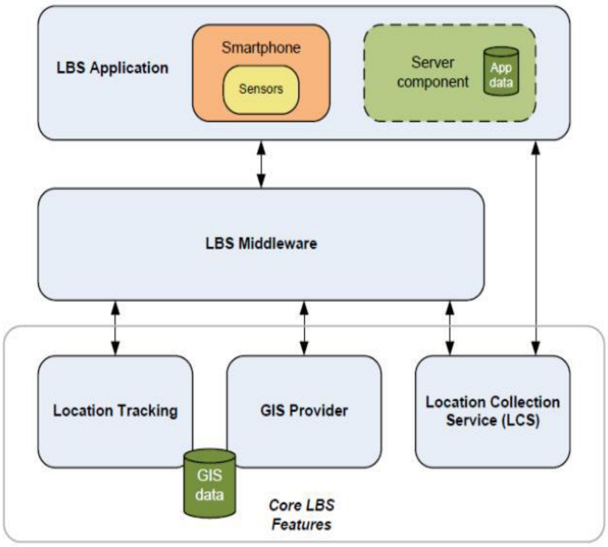
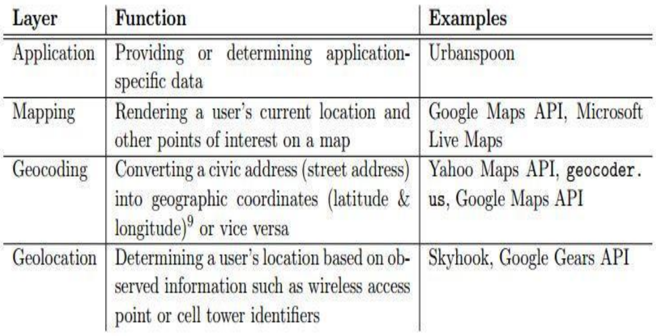


Fig -2: LBS Components



Layer	Function	Examples
Application	Providing or determining application-specific data	Urbanspoon
Mapping	Rendering a user's current location and other points of interest on a map	Google Maps API, Microsoft Live Maps
Geocoding	Converting a civic address (street address) into geographic coordinates (latitude & longitude)[9] or vice versa	Yahoo Maps API, geocoder.us, Google Maps API
Geolocation	Determining a user's location based on observed information such as wireless access point or cell tower identifiers	Skyhook, Google Gears API

Fig -3: LBS Layers

3.3 Global Positioning System (GPS)

A GPS device can answer the question "Where am I?" using coordinates latitude, longitude, and usually elevation.

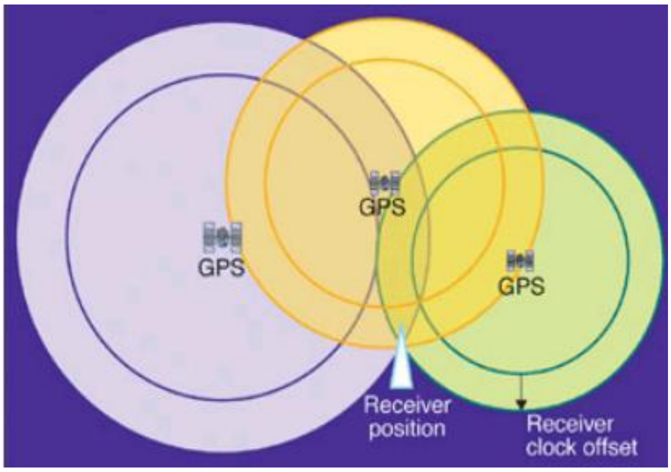


Fig -4: Range of GPS

3.4 Parse Cloud

Mobile Backend as a Service is a model for providing mobile app developers with a way to link their application to the back end cloud storage. The Parse Android SDK allows Developers to store and manage data, manage users, push notifications and more in few lines of code. Track any data point in user's application using Parse analytics. View usage of your application, push campaigns, and custom analytics in the user-friendly Parse dashboard. Filter by date, Overlay graphs, and more to gain insight into the effectiveness of the application.

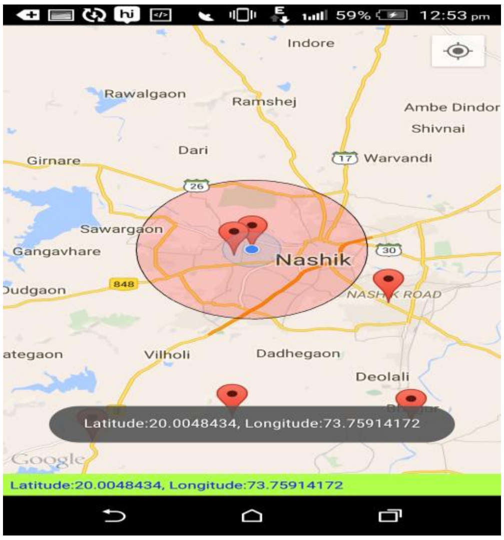
3.5 Android

Android is an operating system which runs apk files for accessing services like LBS using internet, for games, for audio player, video player etc.

Android support LBS APIs. Location service allows to find out current location of a device. Also device can request for periodic update of the device location. It can also register a proximity alerts like device is entering and existing from a range of given longitude, latitude and radius.

3.6 Calculate distance between two locations

Using GPS user location is taken and stored on parse cloud. This process is done for all users. When a particular user try to locate his/her friend on Google map then current location of that particular user and current location of all his/her friends are taken as an input and distance is calculated between all friends. Then all friends location are shown on Google map. Also user can set range in km. We have developed and application which shows friends within the given range by user.



Latitude:20.0048434, Longitude:73.75914172

Latitude:20.0048434, Longitude:73.75914172

Fig -5: Radius on Google map

Distance between two locations are calculated using formula as shown below:

```
earthRadius = 3958.75; // miles (or 6371.0 kilometers)
dLat = Math.toRadians(lat2-lat1);
dLng = Math.toRadians(lng2-lng1);
sindLat = Math.sin(dLat / 2);
sindLng = Math.sin(dLng / 2);
a = Math.pow(sindLat, 2) + Math.pow(sindLng, 2)*Math.cos(Math.toRadians(lat1))*Math.cos(Math.toRadians(lat2));
c = 2 * Math.atan2(Math.sqrt(a), Math.sqrt(1-a));
dist = earthRadius * c;
```

3.7 Android Location API

Different classes under Location API package are:-

1. **Location Manager** - This class is used to access the location service. Also it provides facility for getting the best Location Provider ex. GPS or Cell Network.
2. **Location Provider-** It is an abstract super class for location providers. Also it provide periodic reports for the geographical location of a device.
3. **Location Listener-** This class provides callback methods. When location gets changed this class is called.
4. **Criteria-** This class is used to choose suitable Location Provider.

Android provide an API to access Google maps. Using this user can find places on Google maps also can use different services of location based service.

3.8 System Architecture

Location- When GPS is enable current location of user is taken as an input to the application.

```
String bestProvider =
locationManager.getBestProvider(criteria, true);
Location location =
locationManager.getLastKnownLocation(bestProvider);
double latitude = location.getLatitude();
double longitude = location.getLongitude();
```

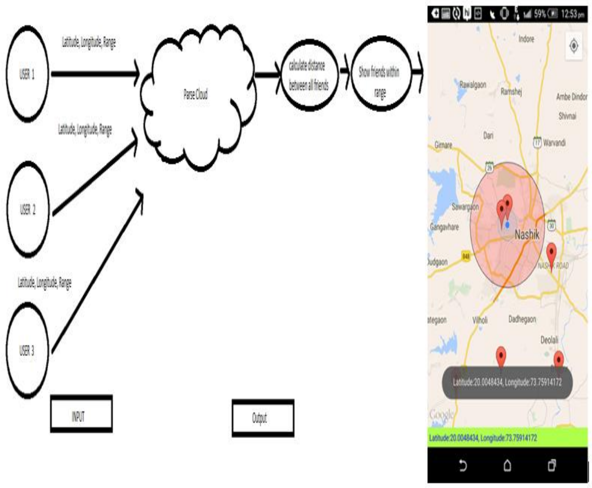

Latitude, Longitude, Range
USER 1
Latitude, Longitude, Range
USER 2
Latitude, Longitude, Range
USER 3
Parse Cloud
calculate distance between all friends
Show friends within range
INPUT
Output
12:53 pm
Indore
Rawalgaon
Ramshej
Ambe Dindor
Shivnai
Dari
Girnare
Warvandi
Sawargaon
Gangavhare
Nashik
NASHIK ROAD
Dudgaon
Vilholi
Dadhegaon
Deolali
Latitude:20.0048434, Longitude:73.75914172
Google
Latitude:20.0048434, Longitude:73.75914172

Fig -6: System Architecture

Parse- Parse cloud is used as an database for storing location of users.

Send Data:

```
ParseObject details = new ParseObject(”Details”);
sn=name.getText().toString();
sa=latitude.getText().toString();
sm=longitude.getText().toString();
details.put(”username”, sn);
details.put(”latitude”, sa);
details.put(”longitude”, sm);
```

4. CONCLUSION

Input of the system is current location of user (Latitude and longitude) which can be taken if GPS is enabled. Also, user has to specify range as per their convenience. All the locations of friends are sent to parse cloud. Next step is to find the nearest user to the client by comparing two geo-points and stored in an array of nearby users, after the users are listed the common interests between the users is checked based on the client's interest the users with at least one common interest and prioritized first, this process of finding nearby users is repeated until all users within the specified range and displayed on map.

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BIOGRAPHIES

Navin D. Waghwani is currently a student of GESRHSCOE, Nashik From the University of Savitribai Phule Pune. His main research interests include: a)Android application development, b)Java

Ravi Jayaraman is currently a student of GESRHSCOE, Nashik From the University of Savitribai Phule Pune. His main research interests include: a)Android application development, b)Networking

Umesh B. Waghmare is currently a student of GESRHSCOE, Nashik From the University of Savitribai Phule Pune. His main research interests include: a)Database, b) Software Testing