

Android Application for Location Based Reminder

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Abstract— Location based reminder is an android application that helps people to coordinate their day-to-day activities with their demanding schedule. For the everyday person conducting business on the go, there are often many tasks that need to be completed in a given day. Some of these must be completed at a particular time, but others simply need to be completed when the user is at a particular location. So with this help of reminder user gets reminder of what to do when to do and what location.

Key words: Android Operating System; GIS; Google Maps; GPS; Location API

I. INTRODUCTION

Reminders are used every day to help people remember to perform a task at an appropriate place or future time. Common methods for reminding are carefully placed post-it notes, email, to-do lists, and electronic calendars. Unfortunately, these existing methods often lack the ability to trigger reminders at an appropriate place. A grocery list reminder is more helpful while passing the supermarket en route home from work rather than after getting home. Using that can improve the way people use reminders. Among the open issues for location-based reminder systems are how best to provide ubiquitous support for editing, detecting, and delivering location-based reminders to people. Cell phones provide a compelling platform for delivering location-based reminders. A Location-Based Service (LBS) is a mobile computing application that provides information and functionality to users based on their geographical location. Using these services it is possible for the users to find and locate other persons, vehicles, resources and also to provide location-sensitive services, in addition to tracking their own location. The request for location can originate in the mobile device or in another entity like application provider or network operator. It is possible to automatically trigger LBS when the mobile device is at a particular location.

II. SCOPE AND BENEFITS OF LOCATION-BASED SERVICE

The application Creates location based reminders associated to physical locations. It is customizable i.e. Alarms can be selected and locations can have different icons. It has Friendly interface available In English language. With the location based reminder system, a user gets reminder of what to do, when to do, depending on location and time. It is a client server project in which the boss sitting to the office would set reminders for different locations. LBS, provides many benefits for users and service providers including:

1) It aids in filtering the vast amounts of material available on the Internet into relevant information for the user's current context. Users can see important information, enabling them to make informed decisions on the spot, even simple ones such as choosing the best restaurant in an area.

- 2) By pushing relevant information out to users, it not only supports timely presentation of data, to help speed up decisions and activities, but also it could highlight information that users may not normally be aware of; for example, an application could warn people before they enter a high crime rate district or encounter a temporary road closure or traffic incident.
- 3) It reduces the amount of manual data entry required by users to access a service; LBSs can automatically obtain location information and other data from sensors on small form-factor devices like smartphones.
- 4) The movement of users (i.e., their location trace) combined with associated tagged information also represents a vast data source for service providers to build models for improving service.

III. APPLICATION TYPES

LBS can be classified based on the main purpose of the application. Below are some examples that cover many of the LBSs available today:

A. Navigation and Routing:

These are perhaps the most recognizable applications. They provide directions to users to navigate from an origin to a destination, possibly with specific instructions based on mode of transport.

B. Entertainment:

Many games and social networking services can make use of LBS. For example, the Twitter application can capture the location of tweets. Some treasure-hunting-style games have also been created.

C. Information Services:

These provide information to users. For example, a mass market application may be "find me the closest restaurants," or a niche market application may be "get me the session times for movies at the closest cinema." Tourism applications also feature here, as well as transport applications (e.g., find me the closest train station and the timetables for the next few trains).

D. Accident And Emergency Services:

These provide information about people during emergencies, such as "report my vehicle's location to the police" or "patient Smith needs immediate medical assistance at his home."

E. Supply Chain Management and Tracking:

These are typically internal applications, such as for goods tracking or delivery truck tracking and navigation (e.g., direct drivers to the most optimal route). In terms of public applications, one could classify location-sensitive

billing/micropayment applications in this category (e.g., purchasing train tickets based on entry and exit stations).

LBS applications can also combine some of the above features. For example, navigation applications to the nearest train station may also provide information about approaching trains.

F. Other Applications of LBS

LBS is a concept that can be utilized widely. LBS can be applied in public and safety industry, such as emergency service in medical; tracking industry, such as fleet management; personalization information industry, such as query the nearest restaurant; navigation industry, such as digital map; payment and so on. It can be particularly powerful when combined with other user profile information to offer personalized and location sensitive responses to customers; this form is called the context aware system. Some instances can be described below.

G. Emergency, Safety and Medical/Health Services:

Many governments are moving to require cellular operators to develop the capability to automatically identify subscribers' locations in the event of an emergency. This data would then be forwarded to the appropriate public safety answering point to coordinate the dispatch of emergency personnel.

H. Information Services:

A query about local theaters might be extended to focus only on those playing a specific movie. Or, rather than look for particular types of businesses, a customer may input a specific product, and ask for all businesses in the area that carry it. If the database includes other product information, such as prices and other terms, then real time comparison shopping may be feasible en route or even inside stores.

I. Navigation/Routing:

In addition to identifying the location of various destinations, LBS can also be employed to guide users along the best routes. If integrated with real time traffic data, such route guide services may also make routes contingent on current traffic conditions.

J. Tracking:

Last minute delivery changes can be made based on truck inventory and location, enhancing efficiency and customer service. Tracking can also be combined with navigation services to help with route optimization for deliveries.

IV. ARCHITECTURE OF LBS SYSTEM

In (a) Pull-based model, a Location Proxy sits between client application and LBS application. When the client initiates LBS request to the LBS application, his/her location information is attached to the request by Location Proxy and then forwarded to LBS application. In this case,

Location aware service is delivered while the client pulls the information from services. Usually Location Proxy is integrated into a middleware infrastructure upon which service is deployed, such as IBM Web sphere Everyplace Suite. This model facilitates LBS developer in building and deploying LBS applications in the sense that the location retrieving is transparent and existing application could be converted to location-aware ones easily.

In (b) Poll-based model, LBS application actively sends location request via well-defined or industry standard location interface to location server (LS), which is responsible for getting the location of requested client. In this model, LBS application keeps polling LS or queries LS on demand, in order to answer questions from client. The advantage of this model is that more advanced location functionalities (such as periodic location report supported by LIF and WAP) could be supported and a standard location interface makes widely distributed location. In (c) Push-based model, the LBS application pushes location-aware information to client according to the user preference by tracking the position of mobile users. Push model enables the scenario of delivering right information to right people on right time at right location.

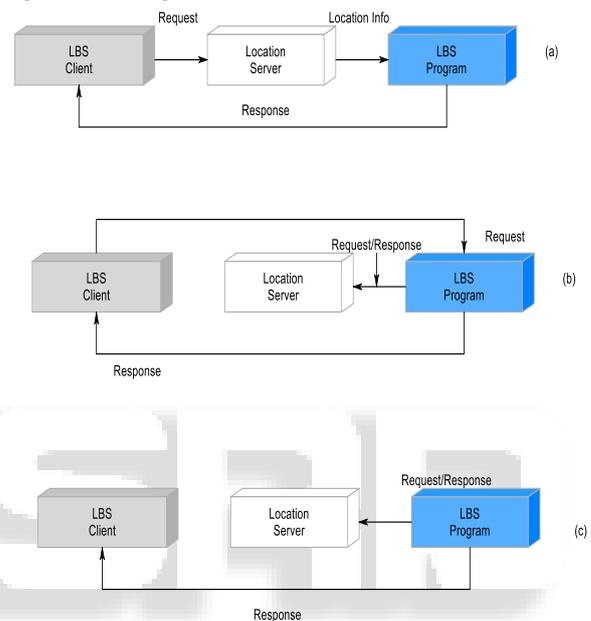


Fig. 1: Represents the Request/Response Mechanisms Between The LBS Client And The LBS Program

V. TECHNOLOGIES FOR STORING LOCATION INFORMATION

Although much of the location information in LBS is stored within the LBS core components, it is sometimes necessary to associate application-specific data with locations, such as geo-tagged photos and videos, and also query data based on location. In the past, location information has been stored as individual latitude and longitude columns within database tables [Rubin, 2006]. User-defined functions and stored procedures can be written to perform necessary geo-spatial calculations such as determining distances and intersection of regions. The major issue with this type of implementation is that storage and indexing of data does not take into account the nature of spatial data. Standard relational database indexes (B-tree and derivatives) store data "next to each other" based on greater than or less than functions. This works well with linear data such as numbers; however, coordinate data can be considered as two- or multi-dimensional, as it represents points on a map that can be divided into regions that contain points. Data points can then be grouped based on region. This concept is the basis behind R-trees [Wikipedia R-tree, 2010], which are implemented by commercial databases that provide spatial extensions such as Oracle and Postgres.13 Researchers have proposed even

more sophisticated structures such as ZB-tree and D-tree, which provide even better performance for location-based queries.

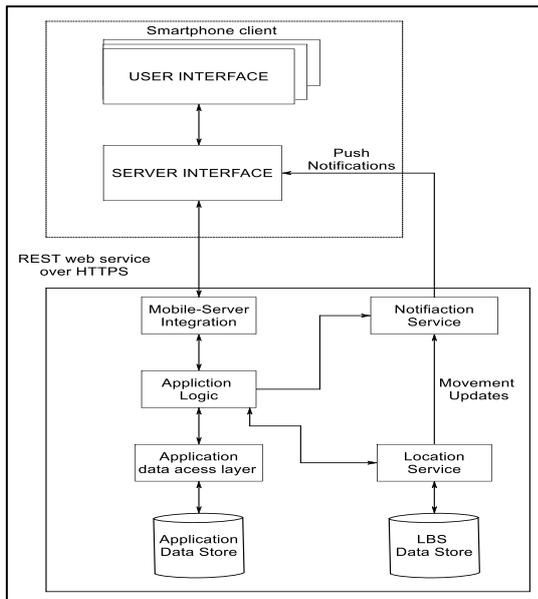


Fig. 2: Is a Representation of LBS Data Storage

VI. SCREENSHOTS OF THE APPLICATION

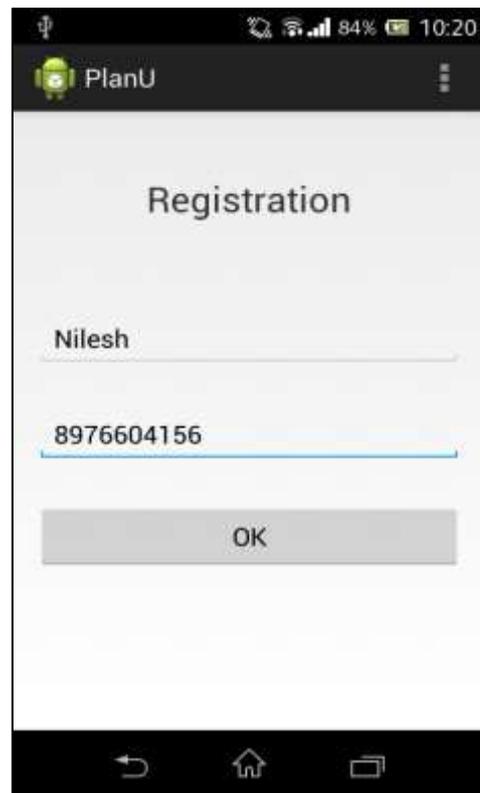


Fig. 4: Represents The Completion Of The Registration Process. You Enter Name and Your Phone Number As Your Login Credentials.

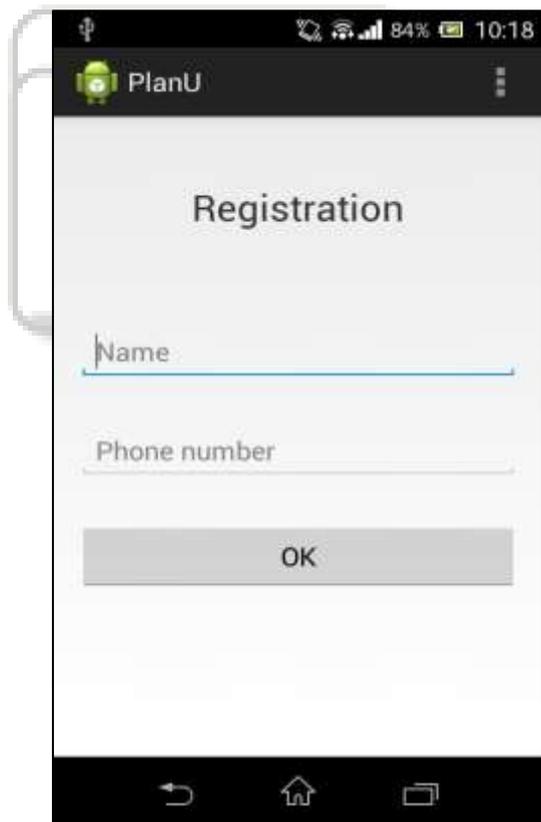


Fig. 3: Is The Registration Paging Of The Application. When You Install The Application In Your Android Phone, You Need To Enter Your Name And Phone Number To Continue Using The Application.



Fig. 5: is the screen that appears after the registration has been completed successfully. Image 5 displays a calendar with the focus on current day. The top two tabs P+ and G+ denote the Personal and Group event respectively.

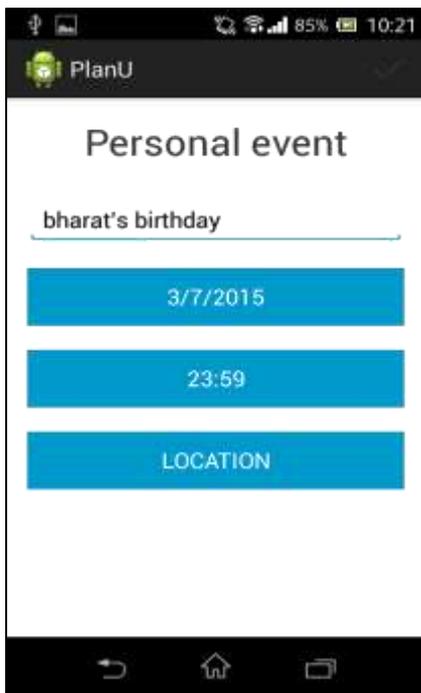


Fig. 6: Is Depicts The Personal Event Screen.

We Enter The Name Of The Event In The First Field, Which Has Been Selected Has Bharat's Birthday. We Select The Date Of The Event In The Second Field. The Time Of The Event Is Entered In The Third Field. The Last Field Represents The Location Of The Event.

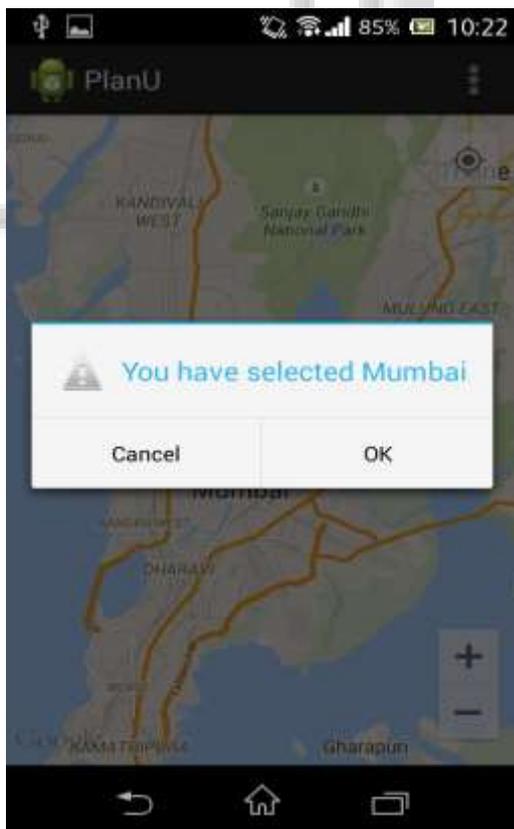


Fig. 7: Represents The Selected Location Of The Event.

When the location tab is clicked, Google map is opened and the preferred location can be selected.

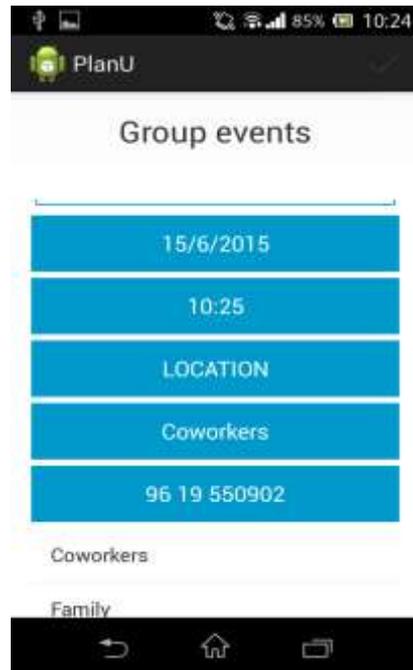


Fig. 8: Shows The Group Event Screen.

The first field represents the date of the group event. The second and third fields are for time and location respectively. The fourth field is used to select the type of group for which the event is being planned. The various types of group that can be selected are: 1) Coworkers 2) Family 3) Friends 4) Colleagues.

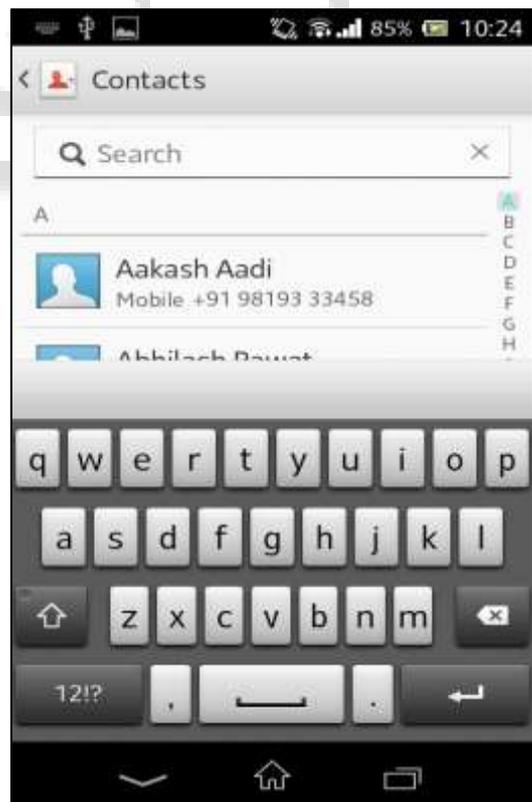


Fig. 8: Is The Screen That Is Displayed On The Click Of Add Members Tab In The Group Event.

Here you can add members from your contact list that would receive the notification about the reminder.

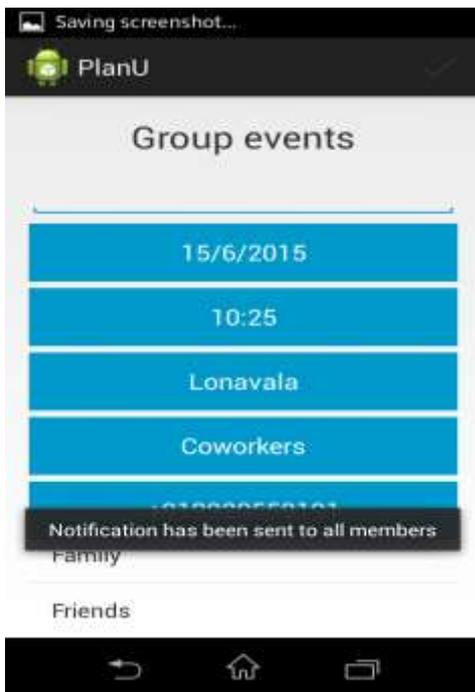


Fig. 9: is the screen which sends you a notification to all the members of your group to make them aware of the event planned.



Fig. 10: Displays The Message Notification On Your Mobile At The Time That You Had Set For The Group Event.

VII. CONCLUSION

We can configure the two Mobiles to provide peer-peer LBS services through SMS or MMS with the use of appropriate intents. Depending upon the suitable model we can configure a LBS system to work in any of the three discussed models. Android has opened a huge opportunity for GIS application Developers. The Location Based reminder would work as a bane in the life of people who

want to keep a note of all the events on the tips of their fingers, helping people remember to perform a task at an appropriate place or future time to coordinate their daily activities.

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