

Location Based Alarm System Depending on Longitude and Latitude

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Abstract- Location based alarm using GPS is an attempt to add an alarm facility for mobiles, based on the location of the device and to find the nearest places from the current location of the mobile device. The location based alarm will give you alert when you reach your desired destination. Location based alarm is a GPS based alarm, If you set an alarm, it will make a sound and notification once it's detected you are within the user defined range from the destination. The user needs to save the current location using longitude and latitude, the alarm will ring when the user is near to the location. This location based alarm is useful for the traveling sales persons and persons who are traveling in a train. The traveling sales person needs to do different kind of works in different places. It is difficult to remember all the places for him. So by using this application he can set an alarm to the places, where he need to go. The GPRS settings must be enabled on a mobile device to use this application. we are using a SHA1 signature to generate a key google map api key and google play service API for displaying the map in mobile device. The generation of SHA1 signature will be discussed in the methodology.

Keywords-GPS (Global Positioning System), GPRS (General Packet Radio Service), Android.

I. INTRODUCTION

The location based alarm system is an android application. The use of android mobile devices vastly increases in the present generation because Android is an open source operating system and there are more than 4,00,000 apps available in the Android market. Android is a Linux based operating system for mobile devices such as Smartphone's and tablet computers. The android can run multiple applications at the same time. There are different versions in android i.e. Android 1.0, Android 1.1, Android 1.5 (Cupcake), Android 1.6 (Donut), Android 2.0 (Éclair), Android 2.2 (Froyo), Android 2.3 (Gingerbread), Android 3.0 (Honeycomb), Android 4.0 (Ice cream sandwich), Android 4.1 (Jelly Bean). Our application can run only above the version 2.3.

The location based service allows software to obtain the phone's current location. This includes location obtained from the Global Positioning System (GPS) satellite constellation. In this application, we will try to get the user current location using the longitude latitude.

II. MAIN TITLE

With the location based alarm system depending on latitude and longitude, a user gets reminder of what to

do, when to do and thus work depending upon the location.

- Application side has the Google Map which contains list of locations of any particular city.
- Stores the database in the form of table which contains message of place and work for location based on alarm system.
- While moving every time the location changes will be observed by the mobile through the GSM connection.
- Application checks the database if it matches through the mobile connected via serial port the alarm is raised in the form of message.

III. RELATED WORK

There exists a lot of location/proximity-based systems that can automate the simple tasks such as locking/unlocking your mobile devices, computers and launching various applications by using Bluetooth enabled computer and mobile phone. There are even many home automation area that allows users to control just about every piece of electronics, including security and surveillance system. However, most of these systems are not location based. Nor Alarm has developed in a mobile application that enables users to control an alarm system through a Android devices based on the Location.

This application allows the user to manually place an alarm and then the alarm will trigger when the location is arrived, it includes automatic activation of the alarm and deactivation based on the location of the user.

IV. PROPOSED METHOD

To set an alarm user need to enter the location. The alarm will raise when the user is near to the location. (the default radius is 500meters, user can also change the radius according to his desire).

The mobile device is a hardware equipment which enables the usage of the location based alarm system.

The GPS is a space-based satellite navigation system that provides longitude and latitude of location in all weather conditions, anywhere on or near the Earth where there is an unobstructed line of sight to four or more GPS satellites.

It will also enable the user to view the nearby places and place the alarm at any of the desire location which be tracked by the GPS. The main aim of this system is to provide an alarm facility in the mobile devices based purely upon the Location.



IMPLEMENTATION

This application includes two modules

1. Set Alarm
2. Find Nearest Place

Set Alarm: User needs to enter the desired location, where he wants to get an alert. The alarm will monitor the mobile screen. The alarm will raise When the user is within the radius of 500meters. By default, the radius will be 500meters, user can also change the radius according to his desire. Along with the alarm, alarm description and route map to the destination location is also provided.

Finding a nearest place: In this application we can find nearby ATMs, Restaurants, Movie theatres, Shopping malls, Schools/ Colleges, Police Stations, Hospitals, Railway stations/ Bus stations/Airports and few other modules. First user needs to enter the current location by using the Google map which we will provided in our application. If user click on “find a nearer place” all the nearest places within the user specified radius will be displayed. Here we will use the concept of clustering. Clustering means grouping of similar objects. By using this concept, all the nearest ATMs will be displayed as one cluster and all the nearest restaurants will be displayed in another cluster, like this each nearest place is displayed in separate clusters. So user can select any one of the clusters according to his requirement. Suppose, if user selects ATM near to his current location, then our application will provide the longitude and latitude and also the address of that particular ATM and route to reach the ATM, the distance between the current location and desired location and the time taken to reach the particular location, all the related information will be displayed. To implement this we need different API's and Google map API key. Process to generate Google map API key is shown in methodology section. To implement Login we are using parse web service, in this we are storing user details in server. To fetch Location results we are using Places API, it will give places information. For maps we are using Google maps.

METHODOLOGY:

Locate "Keytool.exe" in your java\jdk\bin folder. With the help of this keytool.exe SHA1 certificate is generated.

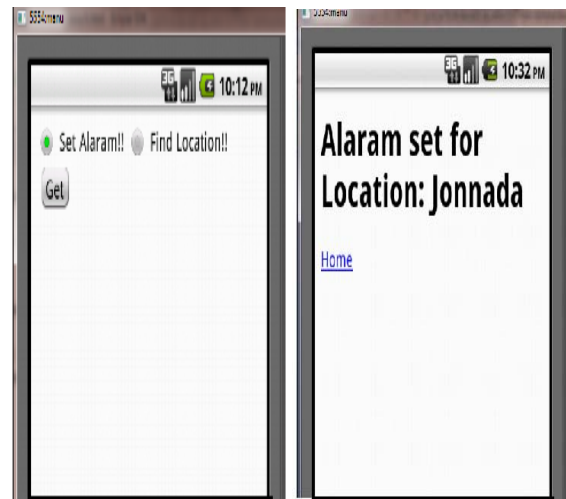
For Example:

```
"C:\Program Files\Java\jdk1.6.0_18\bin\keytool.exe" -list -v -alias androiddebugkey -keystore
```

```
"C:\Users\LINDI\android\debug.keystore" -storepass android -keypass android
```

This command will generate a SHA1 certificate signature like this
 HA1:E4:DE:65:56:5F:1F:39:D0:58:D2:BF:71:AB:2A:48:89:EC:AF:32:2B.Now we need to paste this signature in android developer's website, we will get a Google map API key.

Google-play-service API: Google play service is a proprietary software development kit and application programming interface set for Android devices. The layer provides APIs that allow apps for Android to provide functionality that directly integrates with Google services, such as account syncing, Google+, Google Maps and many more services.



CONCLUSION

The overall purpose of this application is to remind the works which we are having in our daily life based on the work location to which we are going. In this location based alarm system based on the location of the mobile devices user will automatically retrieves the notification in relevant situations allowing them easily to activate or deactivate the alarm system. Till now there were so many applications for reminding the work schedule which are working based on the time. But in our application we have introduced a new thought for reminding the daily works by using the GPS location system for placing alarm based on the location and

by using clustering concept, we are able to place the alarm to the nearby places according to the user's desire. For the future enhancement of our application we are planning to add the Data Mining concepts for better understanding of the user

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