# Location Based Smart System with Android Environment

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## ABSTRACT

Location based services prime components of many location-based applications. Location based alarm represent an emerging location-aware, just-in-time web services, which can propagate information of location to the right users at the right time and the right place. It reminds the user about the location when the user enters some predefined location of interest in the future. All the user needs to have is the mobile phone with android platform, and then the user can select the destination and find the destination on the Google map. The user can even choose from preselected major locations or recently selected locations. The main objective of the project is to develop a location based smart system with GPS (Global Positioning System) based application to handle the requirements: To alert the users through an alarm when the user reaches near a preset location, To retrieve the users current location coordinates (Latitudes and Longitudes), To allow users to set their target location and save that target to the list, Allows user to delete and edit the alarms, To allow user to the put the reminder text along with the alarm. The final system allow user to easily activate alarm in the mobile device. Based on the saved location on the mobile device, alarm will ring automatically and display remainder message when the user reaches the target location. This location based smart system will act as assistance/reminder for the frequent travellers to visit new/near places.

## Keyword;

Target Location, Alarm, Global Positioning System, Android, activity

## 1. INTRODUCTION

In country like India, people find difficult to visit interior places as there no proper hoardings to point out the location. In this situation, user could configure an alarm for the destination location and comfortably search the new locations. It gives the user an alert sound when the users get into the notification area of the device and user can find the place through the use of the mobile phone and alert when approaching the location. This prototype creates a location based alarm service which enable the frequent travelers to initiate an alarm whenever and wherever it is needed thus improving the quality of life. The alarm can be viewed, deleted and edited by the mobile user without any contradiction in data updating. Google Play services used in the project so that the application can take advantage of the latest, Google-powered features such as Maps, Google+ together with automatic platform updates distributed as an APK through the Google Play store. This makes it faster for the users to receive updates and easier for the user to integrate the newest that Google has to offer. This application could be helpful for the frequent long distance travelers in the country like tourist, strangers, especially marketing executives, sales executives, and representatives etc who used to travel for new locations frequently. Also, this application could be used to find the nearest place to market, hospitals, restaurant, hotel or other show with the map and track.

## 2 LITERATURE REVIEW

While the first location-based services (LBS) appeared in the early 1990s (e.g. Active Badge), LBS became a fast-developing research field only in the early 2000s, mainly due to the discontinuation of the selective availability of Global Positioning System (GPS) by the U.S. President Bill Clinton in May 2000. This discontinuation has made GPS more responsive to civil and commercial users worldwide. Since that time, more and more GPS-based applications have appeared, resulting in a strong interest in LBS from both academics and industry. LBS can be defined as computer applications (especially mobile computing

applications) that deliver information tailored to the location and context of the device and the user.

In 2007, provided a state-of-the-art review of the research field of LBS, and outlined several research challenges. Since then, there have been many changes in the field. First, recent years have witnessed rapid advances in its enabling technology, such as mobile devices and telecommunication. Second, there has been an increasing demand in expanding LBS from outdoors to indoors, and from navigation systems and mobile guides to more diverse applications (e.g. healthcare, transportation, and gaming).

Third, new interface technologies (e.g. more powerful smart phones, smart watches, digital glasses, and augmented reality (AR) devices) have emerged. Fourth, there has been an increasing smartness of our environments and cities (e.g. with different kinds of sensors).

Finally, we have seen more and more LBS entering into the general public's daily lives, which greatly influence how people interact with each other and their behaviours in different environments. It also brings many opportunities (e.g. for traffic management and urban planning) and challenges (e.g. privacy, ethical, and legal issues) to our environment and human society. These changes open up a lot of basic and applied research questions to the LBS research community.

.        LBS are a field which currently attracts a lot of commercial interest in parallel, typically having a different focus than in academics. This research agenda does not aim to cover these, but rather focuses on the academic perspectives. As mentioned, in broad terms researchers can 'envisage and embody "blue sky" innovations; explore user experiences and social implications outside commercial implementation; tackle technical problems that lead to system developments without an early return'. In this article, we focus on fundamental issues (either technical or non-technical) that make LBS smarter and more acceptable by the users, as well as on the social implications brought by LBS.

## 3. METHODOLOGY USED IN LOCATION BASED SMART SYSTEM

The system has used Android Google API, Android Development Tool plugin, Eclipse, Sun JDK to develop the application. Android platforms give a world-class platform for creating applications for Android users. It also gives tools for creating applications that look great and take advantage of the hardware capabilities available on each device.

### 3.1. Development with android and SQLite

Android is a Linux-based operating system designed primarily for touch screen mobile devices such as smart phones and tablet computers. It is an Open Handset Alliance's (OHA) mobile operating system. This application platform is very similar to Java SE. Android uses Apache Harmony's class library where only a few of the original Java SE packages have been removed. These have been replaced by GUI packages that are more suited for the reduced screen sizes used by mobile devices. The Android SDK is available for Windows, Linux and Mac OS X, free of charge. Developers can use popular Java development tools like Eclipse and Ant. Existing Java SE based code can also be ported to Android with relative ease, as long as it does not interface with any of the packages that have been removed.

- **SQLite**

Android provides several ways to store user and application data. SQLite is one way of storing user data. SQLite is a very light weight database which comes with Android OS.

- **XML**

Extensible Markup Language (XML) is a markup language that defines a set of rules for encoding documents in a format that is both human-readable and machine-readable.XML is used for the creation of UI layouts in Android. Android provides a straightforward XML vocabulary that corresponds to the View classes and subclasses, such as those for widgets and layouts. UI descriptions are external to the application code, which means that the user can modify or adapt it without having to modify the source code and recompile. For example, XML layouts can be created for different screen orientations, different device screen sizes, and different languages. Additionally, declaring the layout in XML makes it easier to visualize the structure of the UI, so it's easier to debug problems

- **GPS**

Global Positioning System (GPS) is a satellite based, medium earth orbit (MEO), navigation technology. GPS relies on a constellation of at least 24 satellites to provide location, speed and direction information to its users. It works by using a technique called

Trilateration combined with atomic clocks in the satellites in order to accurately determine the correct location. GPS finds the user position by calculating differences in the times the signals, from different satellites, take to reach the receiver.

### 3.2 Design the Project Requirements

**Hardware requirement of the project System:** processor Pentium IV 2.4 GHz. Minimum, Hard Disk will be 40 GB. (Minimum space 100mb required)
Basic Monitor is 15 VGA Color and Mouse key board RAM Minimum required is 1 GB

**Software Requirements of the project system:**
Development Language: Java 1.6 Tool Kit, Android 2.2 IDE, Eclipse 3.6.2 (Helios) or greater, Back End is SQL lite
Also required the operating system for running the system will be Windows XP (32-bit) Vista (32- or 64-bit) Windows 7 (32- or 64-bit)

expect on the way to perform from the mobile tool person software. Which is remind the location and alert for the activities of person required the person can set the alarm and to activate the pre GPS remind the activities to avoid the repeat visited location

Home display screen affords four options: Saved Alarms, Map, Activate alarm and Deactivate Alarm. "Saved Alarms" presentations the alarm name along with its longitude and latitude values. This display screen offers options to "Delete" and "Edit" alarms. Delete and edit because it calls implies used to delete and edit the alarm name and message. Map button is used to display the map where the user can select the target location which retrieves latitude and longitude values from location provider (GPS/ Network) and prompt user to enter the alarm name and message.

   Activate Alarms is used to set off the alarm which enables the alarm and shows the Issuer call (GPS/Network) inside the display. Deactivate Alarms

**System Architecture of Location Based Smart System**
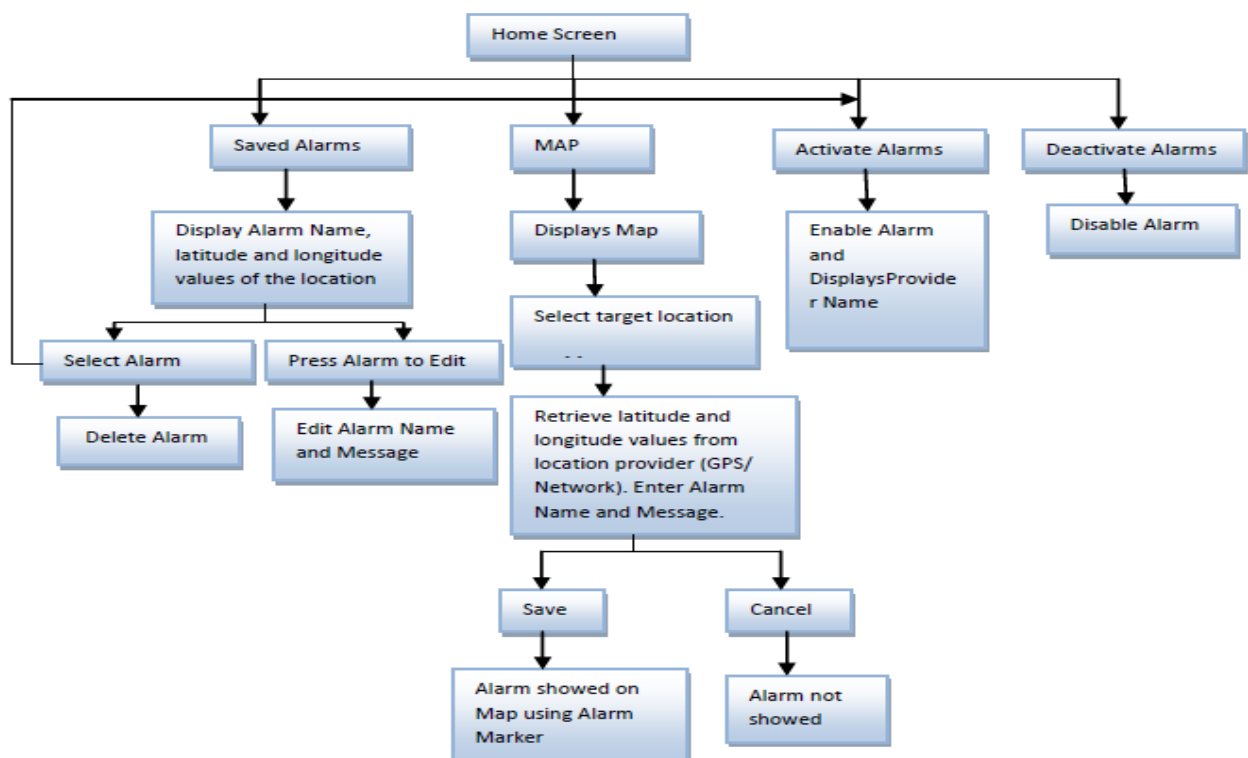


are used to disable the alarms.

- **SYSTEM ARCHITECTURE**

   The general architecture of Location Based Smart system, It shows the moves that a consumer could fairly

## THE ADVANTAGES OF LOCATION BASED SMART SYSTEM:

Pre-requisite of the smart system GPS of the cell phone should be activate for the location

The advantages of using system are as follows: Multitasking: Android phones can run many applications, i.e., the user can browse face book while listening to the song.

**Ease of Notification:** Any SMS, email, or missed call there will always be a notification on the home screen android phone, so the user will not miss a single SMS, Email or even Miss call.

**Easy access** to thousands of applications via the Google Android Android App Market: Thousands of applications and games are ready to be downloaded on Android phones.

Can install a modified ROM: There are many custom ROM that can be used in mobile phones Android.

**Widget:** With the widgets on the home screen, the user can easily access a variety of settings quickly and easily.

**Google Maniac:** Android phone has integrated with Google services, so the user can quickly check e-mail from Gmail

## IMPLEMENTATION OF LOCATION BASED SMART SYSTEM

The system is developed as three modules which are described in the following sections:

- **Master Icon Application :**
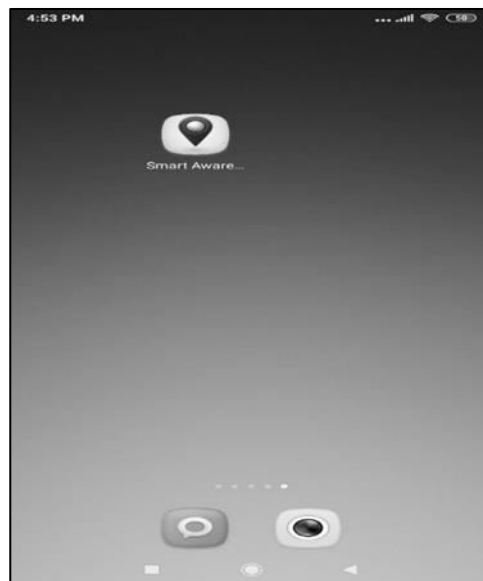


**Master Icon Application Screen .1**

Implementation of the "Location Based Smart System" with the help of Android Development tool ( Android Studio) Apk file install in the Android operating system  device and create icon as per Conveniences  Then you will see icon like this By clicking  thus you will go in side this the app

- **Reminder Application  :**



**Set Reminder Application Screen.2**

These icons help to configure mobile device to current latitude and longitude
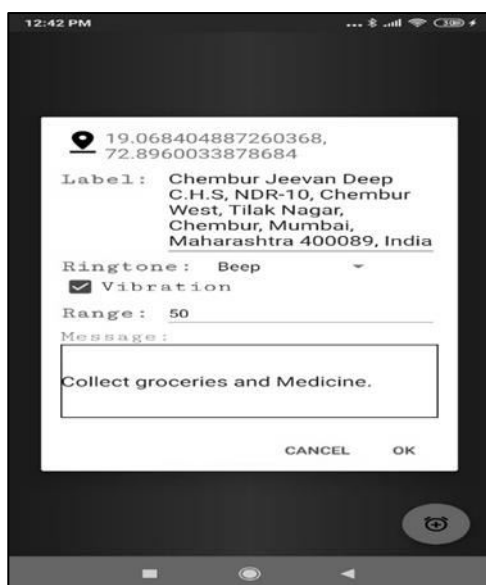
- **Set Location Application**



**Set Location Application Screen.3**

Location Select with respective latitude of the location and activity of location based smart system will be on/off.Select the current location for reminder set for alert next needed visit nearer location

- **Set Activity Detail Application**



**Set Activity Detail Application Screen.4**

Confirm the location and set the Reminder when you approach nearer to the location next time Select the

ringtone alert and range of the location You can also updated the popup message when you will reach the nearer location

- **Location Alert Activity :**



**Location Alert Application Screen.5**

Reminder alert will be popup in the device when you will reach the nearer location (which one selected and confirm for alert reminder activity)

Specific Ringtone and message will popup on the device screen up to clicking off button

**FUTURE ENHANCEMENT OF LOCATION BASED SMART SYSTEM**

### 3.4.1.1 Scope of Future Application

The future application of this system is to include voice message. Voice message enhances the usability of the application. Currently, system ringtone is used as the default ringtone in the application. However, choice of ring tones could be provided from the audio gallery, since it has volume control and vibrates mode control settings.

### 3.4.1.2 Scope of Improvement

The possibility of improvement of the system includes: improvement of the precision of the GPS system positioning, activation of alarm within a

certain date and time, determining the distance from the point at which the application is to alarm us, sharing of alarm with other users (sending/receiving) etc.

## CONCLUSION

The final system allow user to easily activate alarm in the mobile device. Based on the saved location on the mobile device, alarm will ring automatically and display remainder message when the user reaches the target location. The system will also integrate additional settings into the system. This mobile alarm service will act as assistance for the frequent travelers to visit new places. Android provides a very nice platform for developing LBS applications. Location Based Services are those services which provide information which is accessible with mobile devices through the mobile network.

The main goal of this study is to develop a mobile application that allows the user to set desired destination and be reminded upon the arrival on that certain location and provides information about the reminder works of the user had passed through around Cagayan de Oro City with real time guiding information. After everything is done, it is then concluded that with the development of the Location Based Smart System application, which help the reminder works of the users with alert. Users can easily monitor their current location since some of the tourists are not familiar with all the places around Cagayan de Oro. So by installing and using this application, users are now aided and guided through all the places around the City.

The final system ensures user friendly, attractive, efficient and it lessen the manual effort and it ensures data integrity for demonstration purpose. The reliability and accuracy depend primarily on the GPS system which gives us a large dose of security. The user interface design and easy installation makes the application available at any moment.

This paper introduce a smart location based system for alert and remind the activities which the person want to recall for the next time travel to the location or near on the rout .

The person cans also the set various manual alert for different alerts with the tracking location using android application which use location as the core component of the Smartphone.

The area is set for alert using GPS using Android application or the Smartphone

We are focusing on developing this system for iOS platform as well in neat future.

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