Real Time Location Tracking Application based on Location Alarm

Adnaan Ghadiyali[1], Ankur Tiku[2], Sumeet Bandevar[3], Ruturaj Tengale[4]

[1][2][3][4]Department of Information Technology

[1][2][3][4]Sinhgad Institute of Technology , Lonavala

[1]adnaan.ghadiyali@gmail.com

[2]ankur.tiku26@gmail.com

Guided By : Prof . R.S.Badodekar (IT Dept. SIT , Lonavala)

Abstract— The motivation for every location based information system is: "To assist with the exact information, at right place in real time with personalized setup and location sensitiveness". In this era we are dealing with palmtops and iPhones, which are going to replace the bulky desktops even for computational purposes. We have vast number of applications and usage where a person sitting in a roadside café needs to get relevant data and information.

A very appealing application includes surveillance where instant information is needed to decide if the people being monitored are any real threat or an erroneous target. We have been able to create a number of different applications where we provide the user with information regarding a place he or she wants to visit. But these applications are limited to desktops only. We need to import them on mobile devices. We must ensure that a person when visiting places need not carry the travel guides with him.

1.INTRODUCTION

Object tracking plays an important role in many applications, such as video surveillance, human–computer Interface, vehicle navigation, and robot control. It is generally defined as a problem of estimating the position of an object over a sequence of images. In practical applications, however, there are many factors that make the problem complex, such as illumination variation, appearance change, shape deformation, partial occlusion, and camera motion. Moreover, lots of these applications require a real-time response. Therefore, the development of real-time working algorithms is of essential importance. In order to accomplish such a challenging task, a number of tracking algorithms and real-time working systems have been developed in recent years.[1]

1.1 LOCATION BASED SERVICES

Location Based Service (LBS) LBS is mobile service that has the capability to provide real time information based

on the user's location. Geographical Information System (GIS) has been the heart of LBS in order to provide all the functionalities in LBS. They also open a new area for developers, cellular service network operators Location-based services offers many merits to the mobile clients.[2] The steps are involved for Google maps are,

First, we may send location information to remote parties. This set of services are commonly used today, e.g., in location tracking applications.

Second, use location information to make communication decisions, e.g., a user agent may automatically disable instant messaging when driving.

Third, location changes can trigger communication actions, e.g., when a person's user agent gets a location notification indicating the person enters a room, the user agent may automatically turn on the light of the room.[2]

2.LITERATURE SURVEY

There are many applications which supports static data not dynamic. In these applications, travelers can enjoy interactive and personalized tours that match their interests. They can acquire better knowledge about the place (within walking distance) and explore the place at their own leisure using this application. Thus, mobile applications are equipped with pre-defined pathways to interesting sights (such as maps), multimedia information about interesting sights (such as photos, audio and video), and mobile positioning (such as current traveler locations and orientations). Recommendation systems, on the other hand, are for travelers to plan and select a suitable service option for their trip. This system calculates a traveler's preference based on his/her profile and current mobile

location. Typical services supported are recommending hotels, sightseeing, restaurants, and tour plans. So, when a traveler enters his/her pre-specified needs into a recommendation system, a list of services closely matched will be shown to him/her. Besides that, the traveler also can share his/her comment by submitting a new review.

2.2 RELATED WORK DONE

a. GPS and Google Maps

With location positioning system such as GPS becoming popular, there is a growing demand for location-based applications. It is easier, these days to utilize map information by connecting GPS receiver to PC and PDA. Corresponding to this momentum, GPS receivers are now embedded into mobile phones and applications using the location of the user in real-time are widely available. GPS chips are now included in many devices to analyze satellite signals and determine the user's location with high accuracy. In a large social event, such as a big conference, since people come to communicate with each other, they are more likely to release their location information and the location privacy is not an essential concern. In addition, people usually need to register to join a conference so a location server can easily get the participants' profiles. Hence, the server-centric mode is an economic way to handle location detection for big conferences. One of the key technological advances for the development of location-based applications is the use and availability of positioning systems.[4]

b. Location Based Services

Location Based Service (LBS) LBS is mobile service that has the capability to provide real time information based on the user's location. Geographical Information System (GIS) has been the heart of LBS in order to provide all the functionalities in LBS. First, we may send location information to remote parties. This set of services are commonly used today, e.g., in location tracking applications. Second, use location information to make communication decisions, e.g., a user agent may automatically disable instant messaging when driving. Third, location changes can trigger communication actions, e.g., when a person's user agent gets a location notification indicating the person enters a room, the user agent may automatically turn on the light of the room. Sending location information to remote parties for location tracking Locations are usually represented in geospatial coordinates or civil addresses for tracking. By enabling to upload real time location and to create the content "on the spot", we can expect more variety of location-based services. [4]

c. Reminders as Per Situation

Different locations may require different communication behaviors. For example, video or text conversation is not good when driving. User agents usually based on location attributes, instead of geospatial coordinates or civil addresses, can choose appropriate communication behaviors. [4]

d. Triggering Actions

User agents may invoke actions when detecting location changes. Location changes can be in an incoming location notification from a location server or retrieved through locally connected location sensors. Actions: triggered by user's own location changes: For example, when a user drives on the way to his office, his user agent may get a location notification and automatically turn on the air-conditioner in his office. Another example, when a user moves from one location to another, his user agent may transfer the on-going media session to the user's new location. For this set of services, users subscribe to their own location information. There is no authorization needed. Actions triggered by remote parties' location changes: For example, in a day care center, when a child leaves the playground, the teacher may get called. For this set of services, users subscribe to others' location information and need to get authorization for acquiring the location information.[4]

3. WHAT IS TO BE DEVELOPED

Traditionally this technique is used as an Android application only for Tourism Industry. We wish to develop a system using a basic ideas from the above system and modify the application and make it a two-way system. We develop an application on Android as well as a PHP Application on Desktop. We can track location on Real-Time basis and create activity log for user. A special feature in this project is "Restricted Zone". This feature limits the user to a particular area, if at all the user enters an area made restricted by the admin, an Alarm will ring on the Desktop application signaling the administrator that the user isn't doing his task as told to do.

3.1 MODULES:

a. Registration and login: User will register in this application and only registered users are permitted to use this application with their credentials. Validation of each user is done during login.

b. GPS location tracking of users: In this module, the application tracks the longitude and latitude of the user using the application. Based on the GPS location the application creates a log or the complete record of user activity.

c. Admin Login : Admin will login into the application from browser and will get the data of their sales people roaming all over. Admin got an option to select the user he wants to view the complete ways.

d. Location based reminder : User has an option to set any alarm or reminder based on location. They will feed the details as what they want to remember or to-dos at that location. So basically whenever they will visit that location then application wilm itself notify the user about the to-dos at that location.

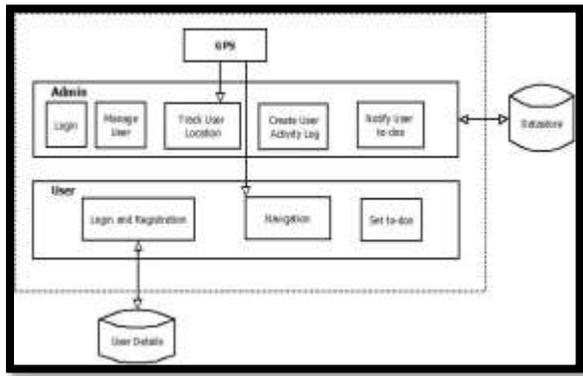## 4.DESIGN

4.1 SYSTEM ARCHITECTURE

Figure 1 : System Architecture

5. MATHEMATICAL MODEL

System S=Android Application
System S={S', I, $\square$, O}
S' = {GPS, Google Earth}
I = {PD, SD, RA}
$\square$ = Function
O = Output
I 1 = PD $\rightarrow$ Places Directory
I 2 = SD $\rightarrow$ Smart distance
I 3 = RA $\rightarrow$ Restricted Area
[1] I 1 = {'Hotel', 'Hospital', 'Bank', 'café Area' ,'ATM',………..,n}
$\square$ 1 = I 1 $\rightarrow$ O 1
O 1 = {Phone no. , Address, Map, Distance, Reviews and Ratings}
[2] I 2 = {Source, Destination}
$\square$ 2 $\rightarrow$ Cal
Let, F(M) = $\square$ Cal i
Cal = {R, Dist}

[R = Routes, Dist = Distance]
R = {R1, R2, R3, ……….,Rn}
R1 = {Source, C1, C2, C3,……….,Cn}

[C = City]

Dist = {D1, D2, D3,…………,Dn}

[D = Distance/Route]

Source = Distance [Source] + $\square$ Distance-

Between [Source, Ci]

$\square$ Ci = Source

If R= = Null

$\square$ Di = Source

Min-Distance = min (Di, Di+1)

O 2 = {Min-Distance}

[3] I 3 = {City, Area}

Let, P = Pincode

L = Lane

$\square$ 3 $\rightarrow$ P, L

O3 = {areas restricted. }

[6]

6. ACKNOWLEDGEMENT

have been constant source of inspiration during the preparation of this project work and technical paper.

7. CONCLUSION

In this report of project we discussed its architecture and its work flow. We will make one application based on location based information. We will summarize and categorize different location-based communication services. Location information gets used more and more often in people's daily life. This project focuses on communication related location-based services, GPS and system Architecture. In Internet telephony systems, communication services can be enhanced by the integration of other Internet services, such as email, web, and network gaming, which also involve location information handling. In Future we can extend this with context based information and their preferences. restaurant queries, traditional restaurant queries only consider the distance, while we aim to change to provide better results by considering not only distance but also user preferences (e.g. prices, area rating and restrictions, history selection etc.) and environmental context (e.g., time, weather and current traffic condition etc.).

We propose a new Mobile tourism application using situation awareness. We extend the features used in the traditional Context awareness application which deals with the static data and make the features such as they can work dynamically with Real-Time information

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9 . AUTHOR PROFILE

Adnaan Ghadiyali

Pursuing B.E in field of I.T from Sinhgad Institute of Technology , Lonavala.

Ankur Tiku

Pursuing B.E in field of I.T from Sinhgad Institute of Technology , Lonavala.

Sumeet Bandevar

Pursuing B.E in field of I.T from Sinhgad Institute of Technology , Lonavala.

Ruturaj Tengale

Pursuing B.E in field of I.T from Sinhgad Institute of Technology , Lonavala.