

Automatic Switching of Mobile Profile based on the Location using GPS

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Abstract:-The proposed system allows user to manage alerts and also used to change user's profile (silent, vibrate or normal) based on their mobile's location. This system uses GPS or Network Provider to get the user's location and user can create a task for alert or change in profile based on his current location. A background service will be running to listen for the device's location and will calculate distance between current location and saved location. Once mobile is located to the nearby saved location, a notification will be displayed to show the alert and profile will be changed.

Keywords:- Location(Latitude and longitude), GPS

1. INTRODUCTION

In the smart phone era, cell id's and cell towers were used to find the location of the phone. It has been replaced by the GPS which provides the users with information about their current location and nearby landmarks. GPS is used to search for various places all over the world and nearby places as well. GPS uses triangulation method for calculating user's exact location. The Global Positioning System gives the exact longitude (line parallel to the standard meridian) and latitude (line parallel to the equator) which informs the user about his/her current whereabouts.

The GPS concept became a widely deployed and very useful tool for tracking, scientific uses, etc. Global Positioning System is completely based on time. The satellites carry atomic blocks which are very stable and synchronized. GPS satellites transmit the data continuously which provides the current time and position. A GPS receiver coordinates with a number of satellites and equations are solved based on the values received to determine the accurate position of the receiver and its time delay. The localization techniques have recently started to demonstrate significance in performance.

1.1 Location Based Service

A Location Based Service is an entertainment or information service accessible to mobile devices through the mobile network and utilizing the ability to make use of the geographical position of the mobile device. LBS are used in many contexts such as health, indoor object search, work, entertainment, personal life, etc. LBS can be classified into different categories such as

- a) Consumer Services
- b) Emergency Services/public safety
- c) Maps Navigation
- d) Marketing/advertising

1.2 Applications of LBS

LBS are widely utilized concepts. It can be implemented in public and safety industry such as emergency service in medical, tracking industry such as fleet management, query the nearest restaurant, navigation with digital maps, payments and so on.

1. Traffic coordination and management
2. Shopping
3. Job dispatch and fleet management
4. LBS games and entertainment
5. News to location

Examples of LBS Based Android Applications

1. Personal location tracking by family member (SMS).
2. nearest friend's notification reminder etc.

2. THE TRADITIONAL METHODS OF LOCATION TRACKING:

2.1 GSM Localization

GSM localization means finding the location of a mobile device in relation to its cell site. It involves multi-iteration of the signal from cell towers serving the mobile device.

2.2 Near LBS

This method uses the local range technologies such as Bluetooth, WLAN, infrared, etc to match devices to nearby services.

2.3 Control Plane Locating

Service providers get the location of the mobile device based on the radio signal delay of the closest cell phone towers (for phones without GPS).

Drawbacks of Traditional Methods

The existing system only finds the corresponding location using GPS (combination of latitude and longitude values) and service provider. This is completely a manual system where there is no notification after reaching particular location.

3. A NEW CHALLENGE FOR LOCALIZATION-BASED SYSTEMS

GPS system is used in vehicles, which began to show some undesired problems such as not always being available or not being robust enough for some applications. For this reason, a number of other localization techniques to overcome GPS limitations. Dead Reckoning, cellular Localization, and image/video localization have been used in Vehicular Ad Hoc Networks (VANET's).

Vehicles communicate with each other and possibly with a roadside infrastructure to provide a long list of applications varying from transit safety to driver assistance and internet access with the direct communications.

Drawbacks

The Direct communication affects the localization services. Need to improve the message integrity in a multihop cooperative approach.

3.1 Dynamic Privacy-Preserving Key Management Scheme for Location-Based Services in Vanets

DIKE scheme provides the vehicle user's anonymous authentication. It also enables double-registration detection. Then the efficient LBS session key update procedures is used. We divide the session of an LBS into several time slots so that each time slot holds a different session key. We also integrate a novel dynamic threshold technique in traditional vehicle-to-vehicle (V-2-V) and vehicle-to-infrastructure (V-2-I) communications to achieve the session key's backward secrecy.

Drawbacks

Efficiency is low in terms of average key update delay and average key update ratio during each key update procedure.

3.2 A User Mobility-Pattern-Based Location Strategy for Next Generation Wireless Multimedia Networks

In a wireless network to effectively deliver services to the mobile users, it must have an efficient way to keep track of them. Wireless multimedia networks which provide wide bandwidth services for the next generation. Many strategies have been proposed to reduce the spectrum consumption of the user's location update and paging messages.

- PBS scheme performance under various conditions by simulations.
- A new scheme — MPBS which includes user time information in the profile.

Drawbacks

PBS scheme only works well for very small CMR. The total cost increases quickly with the paging cost.

3.3 Key Establishment Using Secure Distance Bounding Protocols

Key establishment is one of the major challenges in Wireless Personal Area Networks. Traditional security mechanisms often do not cope with the dynamic characteristics of wireless ad-hoc networks. **Diffie-Hellman** protocol enables mutual device authentication through presence and establishes a session key between personal mobile devices. It won't share any authenticated cryptographic material.

Drawbacks

We require the user of a mobile device to visually verify within a small physical space the presence of the other trusted device. A secure communication channel has to be established in the absence of other (untrusted) nodes or adversaries.

3.4 A New Location Management Strategy based on User Mobility pattern for Wireless network

In a wireless network to effectively deliver services to the mobile users, efficient way is to track them. The location management fulfils this task through location registration and paging.

In PBS scheme, the system collects the user mobility history and stores the information in the user profile. The Mobility Pattern scheme (location update), which incorporates both the mobility pattern and time information in the profile.

Drawbacks

We require the user of a mobile device to visually verify within a small physical space the presence of the other trusted device. A secure communication

channel has to be established in the absence of other (untrusted) nodes or adversaries.

4. PROPOSED SYSTEM

Location services provide the user location based services such as profiling. Profile of mobiles like configuration parameters for many things and examples of profiles are silent, outdoor etc. People needs to manage these profiles as per their schedule but needs to be done manually and always needs an update after the action is over, thus an application is proposed to solve this problem. In the proposed system user manages profile automatically. This is based on the location centric profiles (LCPs)

i.e. on latitude and longitude values. A database is maintained which contains some of the LCPs and corresponding locations. The user creates a profile for each location and can also create many profiles. In the proposed system user needs to select a location in which the profile, ringtones and wallpapers that has to be changed. Once when the saved location is reached, a background task will be running to calculate the distance between current and saved locations (as shown in fig1). When the certain range is reached, the profile will be automatically changed according to user.

The following which shows the block diagram of the proposed system automatic switching of profile based on the location using GPS.

4.1 Modules

- Creating user profile
 - a) Wallpaper module
 - b) Ringtone module
- Monitoring user location
- Proximity matching / changing user profile

ARCHITECTURE DIAGRAM

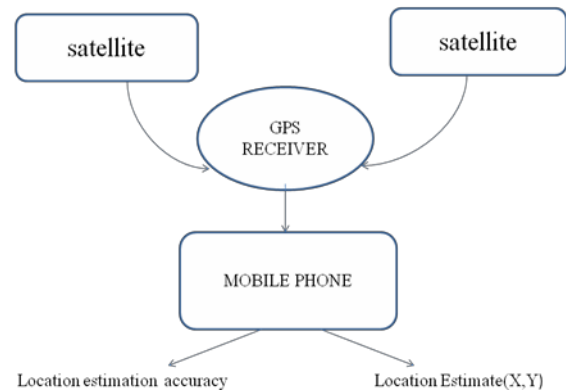


Figure 1

4.1.1 Creating User Profile

In this module the user must update the mode and must provide the particular wallpaper which must be updated. Also must set the destination where all this must be applied. The user must be online and must connect to the server, and also been tried it must work offline too.

a) Wallpaper Module

In this module, the wallpaper for profile is been chosen. When user clicks the wallpaper setting area it shows the option of getting wallpaper either from phone memory or from SD card. The user need to select the wallpaper. The Wallpaper name to be displayed in the profile once the destination is reached the wallpaper will be changed.

b) Ringtone Module

In this module, the ringtone for profile is been chosen. There is option of getting the ringtone either from the memory card or from phone memory. The ringtone chosen is to be displayed in the profile. User can set the profile to silent mode. When the silent mode is chosen ringtone need not to be chosen. Then the profile needs to be saved.

4.1.2 Monitoring User Location Module

In this module, the user will get the current location through GPS. The user can set the destination location by dragging the icon displayed in the current location. The destination location address is stored in created profile.

4.1.3 Proximity Matching / Changing User Profile

The application uses GPS or Network Provider to get the user's location and user can create a task for alert or change in profile based on his current location. A background service will be running to listen for the device's location and will calculate distance between current location and saved location. Once mobile is located to the nearby saved location, a notification will be displayed to show the Alert and Profile will be changed. In the proposed system user can manage the profile and alert automatically based on the location value (latitude and longitude values). Whenever the condition satisfies it will automatically convert prefer mode as user saved mode and sends alert also.

5. CONCLUSION

There have been many applications out in the market for tracking one's location using GPS. But what holds them back is that the existing applications are either used only for location tracking or route tracking. There has been no such application that can manage user profiles dynamically based on location. Hence the Automatic Switching of Mobile Profile Based on the location using

GPS offers the user a unique way of tracking locations and managing different user profiles according to their respective locations. It also provides a feature of notifying the user about the change of profile.

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