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News Alert System Using Geofencing

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Abstract

Abstract: This paper provides a smart phone application idea using the concept of geo-fencing. The idea deals with receiving of news notification within a geo-fenced area. As soon as a person enters a particular area he will receive the local news alerts within that area. This will provide information about the current situation in the entered area, which will help the user of the application in his personal endeavours. The application uses network based geo-fencing technique to monitor the location of the person.

Keywords: Geo-fencing; News; Network based; Alert system; geo-fenced; location

Introduction

Geo-fencing uses the global positioning system (GPS) or radio frequency identification (RFID) to define geographical boundaries. A geo-fence can be considered as virtual boundary. A network based geo-fencing will be used by the system.

The goal of the application is to use the properties of geo-fencing system to detect whether the user has entered a particular area by keeping track of his location. Once the user entered the geo-fenced area he will be provided with the news notifications within that area. This helps user to rectify the hurdles coming in his routine activities. For example if a user enters the geo-fenced area where there is an accident and traffic jam due to the accident he may opt for the alternate route.

Proposed system structure

This application will make use of a web server; network based geo-fencing module and a mobile phone. The entire area under consideration will be divided into geo-fenced unit. It can circle anything/ any area you like – a retail store, a stadium, a neighborhood. The main advantage of this application is that it uses network based geo – fencing which does not require the end user to use a smart phone it can work on any feature phone.

The modules of the project are

- Web server
- Geo-fencing module
- Mobile phone

- Web server will have the web site for the application. The web site will be a social networking site wherein any person can register on this site and any person who has an account on this site will be able to post any news. The information posted will be as per the geo-fenced units appearing in the pop down menu of the web site. Web site will also have to maintain the list of registered end user who wants to receive news notifications.

- Geo-fencing module will detect the physical location entered by the user of the application using the geo-fence technique and check if it matches with the units provided on the website. You can build an App-based Geo-fence that, as the name suggests, requires you have an app to access GPS data. Or you can build a Network-based Geo-fence that uses carrier-grade location data and is not app dependent. This application uses Network based geo-fence technique.

This module will send all the notifications to the mobile phone related to the geo-fencing unit a person currently entered.

- A mobile phone user has to first subscribe for the notification by registering himself on the site. There is a need for permission to locate a mobile device. Once the user mobile is registered, the web server will send text message to confirm whether the user is ready to share his location. The registered user will have to reply the text

message if they want to share their location. Once this is done the end user mobile will get all news notification regarding a particular geo-fenced unit whenever he enters that geo-fenced unit

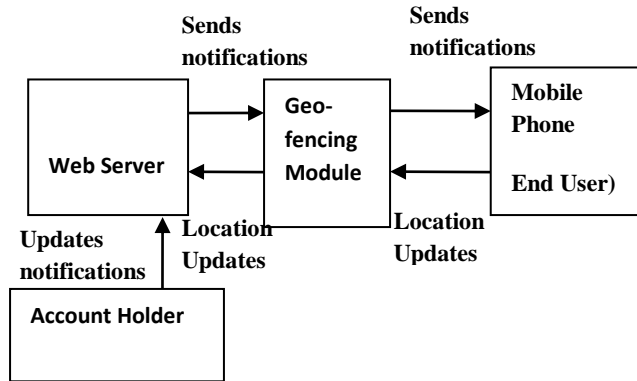


Figure: Architecture of the system

Literature survey

Geo-fencing

Many mobile users that, as they pass a coffee shop on the way to work, their phone beeps and a coupon offer pops up with savings on their favorite beverage there. That's because the coffee shop created a geo-fence--a virtual location-based marketing corral--specific to the advertiser's store.

However, consumers might also receive a similar message from a competing shop, because that advertiser's geo-fence includes its competitors in pursuit of a geo-conquest, where the advertiser targets (and attracts) people who are shopping at competing businesses.

This capability is not new, but it's growing. Most of the marketing are in the mobile space, push marketing through geo-fencing and mobile location data.

Geo-fencing is already moving past traditional location-based applications and check-ins to embracing a full range of smart phone capabilities. Retail, push marketing/notification, local search, social networking, and more will all come together to connect consumers with brands and offers, almost anywhere, at anytime--well, anywhere that digital fence is drawn.

The possibilities are endless; marketers can create highly precise audience profiles.

Why use Network based Geo-fencing

You can build an App-based Geo-fence that, as the name suggests, requires you have an app to access GPS data. Or you can build a Network-based Geo-

fence that uses carrier-grade location data and is not app dependent. Network-based Geo-fence campaigns can target any mobile user connected to a cellular network. There are various other advantages of network based geo-fencing. The following table shows the comparison between the App-based Geo-fence and Network-based Geo-fence.

	App-based Geofencing	Network-based Geofencing
Location Source	GPS	Network Location
Customer Reach	57% of cellphone users	100% of cellphone users
App requirements	Dependent on not only having, but running an app	No app needed
Battery Life	Constant access of GPS data (required for geofencing) via the app drains battery life fast	No Impact on customers' battery life
Location Acquired	User initiated	On demand
Cost	Upfront costs to not only build an app but also to maintain	No upfront costs involved. Cost is determined on a per-location lookup basis and can be dialed up or down as required

Figure Comparison between network and App based geo-fencing

Conclusion

The idea described in this paper is to develop a system that will use a network based geofencing to technique to receive news alert of a particular area. By making use of the location-aware capabilities of smart phones, mobile computers, and other devices, events can be triggered when a device enters, leaves, or approaches a geo-fence. That opens up new application possibilities. For a mobile workforce, this means that companies can develop apps that send messages based on user action and location.

This system will help user to

- Get the current affairs within the area of his interest.
- Obtain the local news of a region.
- Plan the daily chores of life.
- Alert other people.

Further Enhancements

The System can be extended for different application areas for example a mobile phone owners use their devices to retrieve information related to their location—driving directions, dining suggestions, weather updates, the nearest ATM etc.

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