An Event Driven College Campus Navigation System on Android Platform

Vijay Das
B.E Students
Department of Computer Engineering
K.C. College of Engineering & Management studies & Research, Kopri, Thane(E)-400 603, India

Arpit Jain
B.E Students
Department of Computer Engineering
K.C. College of Engineering & Management studies & Research, Kopri, Thane(E)-400 603, India

Vinit Bagul
B.E Students
Department of Computer Engineering
K.C. College of Engineering & Management studies & Research, Kopri, Thane(E)-400 603, India

Prof. Kavitha Viswanathan
Professor
Department of Computer Engineering
K.C. College of Engineering & Management studies & Research, Kopri, Thane(E)-400 603, India

Abstract

A college campus may be very large or may have many buildings. Also, every year hundreds of students take admission to a college and new staff are recruited every year. In a college, new courses maybe started and some departments may be relocated inside the campus. There does not exist an efficient system to inform one about the events scheduled for the year. Also, in case of relocation or postponement of an event, participants and delegates attending the event need to be notified of the same. Colleges have different seminars and conferences, the college cultural fest, tech fest events in which teachers and students from different colleges may wish to be a part of. But one may faces problems like finding the location, which route should be taken and about updates in an event. To overcome these problems we have created a Global Positioning System (GPS) based Android App known as "College guide navigation" which will give proper notification of the upcoming events to the users. It will also help user to navigate to the event venue from his current location.

Keywords: GPS, Google Map, MySQL database, Android

I. INTRODUCTION

During the last few decades, the development of mobile devices has gained significant progress with respect to memory capacities, advanced processing power and higher data transfer rates. Nowadays, most of the students, faculty members and staff use android phone for personal purpose. A Global Positioning System (GPS) based map application will be most helpful to locate desired place and find the possible path from current location. Nowadays, android operating system mobile becomes the most popular in the smart phone market because android is an open source mobile Operating System based on Linux with java support and it comes with free and open source software licenses.

Location-based services (LBS) provide personalized services to the mobile clients according to their current location. Geographical Information System (GIS) is the heart of LBS to provide all the valuable features of LBS. People can track their own location and also navigate from one place to another very easily. There are lots of technology to track location like Cell Identification, GPS, Various Radiolocation systems, Accelerometers and Electronic Compass etc. GPS gives much higher accuracy of latitude and longitude compare to other techniques. The location tracking techniques can be integrated with smart phones which will work with different networks such as GSM (Global system for Mobile Communication) and GPRS (General Packet Radio Service)

There are many applications and commercial devices that provide directions and navigation such as Google Navigation [Google Maps], Magellan navigation devices [Magellan Smart GPS]. This navigation became easier with the help of Google Maps on GPS enabled android devices. GPS applications allow users to find a destination based on their current location. So, location searching becomes a new trend with the combination of Google Maps and GPS. It provides lots of additional features like displaying congested route, reduces time and energy while going to an unknown place So we will going to provide a system which will track, give information about the upcoming and ongoing events and give notification to users if changes comes in the events. We featured our system with Google Maps and GPS enabled android device which will give information about routes, Traffic on the routes and how to reach the destination.

This project designs the architecture of a Google Map based application on Android Platform. In addition to finding the best route to the event venue, the application will also provide event updates to the user.

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II. EXISTING SYSTEM

In today's scenario, mobile computing has advanced to such an extent where the user has access to all the information on a single device. Today people are always moving with mobile devices like laptops, cell phones, tablets etc. Using the user's geographic location, a lot of information related to the user of the mobile device can be collected. The knowledge of mobile user's location can improve the class of services and applications that can be provided to the mobile device user. These classes of applications and services are termed as location based services. Location Based Service (LBS) is a kind of service that helps in getting the geographical location of the user and more useful information near to the user location. This location based information can be obtained in different terms such as position, vicinity, proximity, context, maps, routes, places etc. Our paper focuses on LBS in detail and identifies key components of LBS for providing this service to the user on the Android platform. It also explains the use and implementation of Google Maps and its APIs in getting various location based information on Android. [1]

Due to the high cost of time several methods are proposed to reduce the wastage of time on the bus station or waiting for the bus for more time is not preferred. So, we require one tracking system to track the Complete Transport System. Every GPS tracking system is a common approach to get vehicle location information in real-time. We proposed a GPS tracking system called tRackIt that is composed of commodity hardware i.e. GPS enabled Android Mobile as GPS Device, open source software (GCM Architecture) and an easy-to-manage user interface via a web server with Google Map software. The system includes a GPS/GPRS module for location acquisition and message transmission, GCM to transfer of location information, and third party App Server to temporary store location. Our proposed system is not tested yet. But it will show the correct position of the vehicle to the user on the basis of the location information sent by the GPS Device through GCM. [2]

With the development of mobile Internet, more and more people begin to get convenient service by mobile phones. Obtaining one's current location by GPS positioning or network positioning has become one of the important foundations in most applications of location based service. In this paper, we designed and implemented a personalized positioning and navigation system based on the Android platform. With the combination of GPS positioning and network positioning, and using Google Map API, this system provides the following functions: view the current location, get the navigation route, address query and view historical location records. [3]

Being in the era of Generation IV systems and technology is growing and changing at almost every nanosecond. Smart Phone's and Palmtops are also no exception for the same. Everywhere we keep on listening the word Android & Maps which is at its pick of success amongst young generation. Due to rapid growth and huge changes in Android, we decided why not to design an application which can user prone as per their need. So, we designed a set of multiple applications like Place Marking, Shortest Path Strategy & Weather Predictions for Next 4 days. These applications work with co-ordination with Google Maps in live environment to keep track of the Places and points of interest as per user for future use. Also these applications find the shortest path and weather prediction for next four days in degree centigrade as well as Fahrenheit. [4]

Accounting for more than half of the presently used hand-held devices, Android, as an operating system, has provided users with great opportunity to innovate and get things done in a mobile device. Starting as a phone OS, the array of devices compatible with Android is even driving the market in the direction of PC experience with rumours that Intel and some of the partners are working on laptop prototypes with Atom processors. And so, the need for portability has risen by leaps and bounds. People have started developing apps for every other need. The first part of the project involves Android Application Development of a GPS based Location Tracker in which with the help of any mobile device (app installed); any other GPS enabled handset (app installed) could be located. Though target user may be located anywhere in the world, he must have network connectivity and be GPS enabled. Initially, the app is developed for Android platform only, but can be expanded to cross-platform use with device specific support in terms of Google Maps, Nokia Maps & iOS Maps Service. The app is free and currently online.

The second part of the project involves porting the Attendance System of NIT Rourkela onto Android enabled devices. The present system in intranet only, but with the new application, the extranet system would serve as an effective management tool resulting in the reduction of the no. of man hours spent in uploading the attendance for each of the subjects for the semester. The professors won't have to double up the work as to take pen & paper attendance and then upload onto the online management. Instead a single swipe would take care of everything. Even the intuitive interface is easy to understand so that professors can easily adapt themselves to use it. Also, the application is secure allowing only one user per phone. [5]

The Autonomous position detection and tracking system enhances the accuracy of locating friends and family member's positions by using GPS and standard web technology. This system includes a mobile client, a repository, a web client and a map service. The mobile client is used to find location and send a Popup SMS to user when his/her friends or family members come around the user's area of direction. This location information can be sent to the server and the same information can be managed and viewed using the web client by other users. [6]

Android platform is a new generation of smart mobile phone platform launched by Google. Android provides the support of mobile map and location service, which is probably a concern of vast numbers of developers. So far, the development of mobile map and location applications is complex and difficult, and is often required to pay high copyright fees to map makers. Android is free and open, providing an easy-to-use development kit containing flexible map display and control functions. This paper introduces the architecture and component models of Android, and analyzes the anatomy of an Android application including the functions of Activity, Intent Receiver, Service, Content Provider, and etc. Based on Android, the design method of a location-

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based mobile service is then presented. The design example shows that it's so easy to implement self-location, to draw the driving trace, to perform query and to flexibly control the real-time map on Android. [7]

III. PROPOSED SYSTEM

In the existing system it gives only the information about single campus with no notification. In existing system it doesn't give the exact location of the events. It also doesn't provide any information related to event going in colleges. So we will going to make and add much more satisfactory system so that it will going to work for multiple colleges and their campus at a time.

These system will provide information about events, their location and give notification about events and colleges.

These system uses the MySQL database and GPS for tracking the user position to guide the route so that he/she can reach to their particular destination.

IV. METHODOLOGY

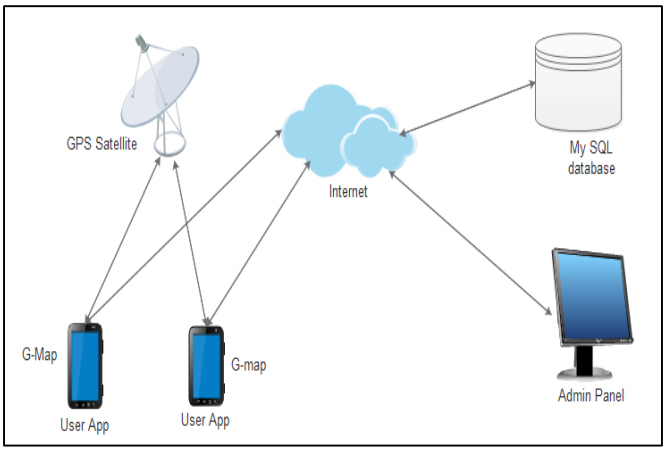

Fig. 1: Architecture of the System

The architecture of the entire system is shown in figure. At first, the application in the user's app, requests for Google API from GPS satellite. Then the map is loaded on user's app. By GPS enabled device of user's mobile, current location of user is tracked and displayed on map. A User-app request is sent through the cellular data network services and internet to the MySQL.

A. Working

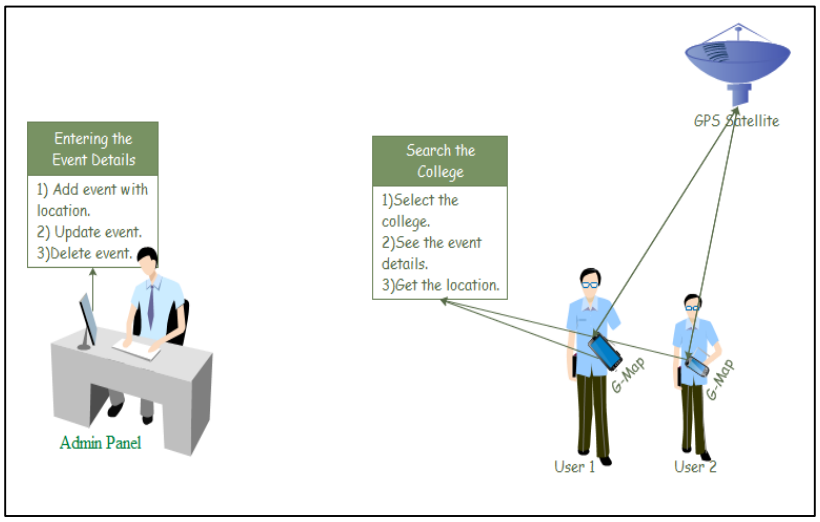

Fig. 2: Working of the System

Updated event and location events are sent to the user's mobile in response to User-app request from MySQL. Then the event and new location are displayed on the map of User. There is a web page for Admin-panel. Through the form options of web page, Administrator regularly updates the event information and new location information to database which resides in MySQL. He/she deletes the backdated event information or information about relocated department during periodic maintenance.
MySQL is a database to store event and location data.

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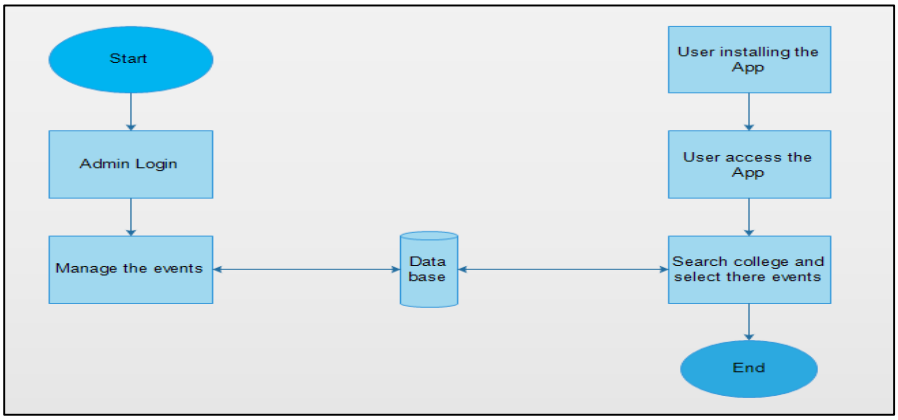

Fig. 3: Flow Diagram

1) Admin will add Events with their details and manage the Events.
2) This information will going to save in Database via Internet.
3) First User have to install the App after that he/she will search the college and select there events.
4) A request is send to the database and collect the information.

B. Advantages of Campus Navigation

1) The user can find the proper location with proper description.
2) The user can get information of different college events.
3) They can get updates for the events, venue and time of the events held at different colleges.
4) User can also be notified if there is any change on the venue for any of the events.

C. Disadvantage of Campus Navigation

1) These App require an Internet connection.
2) A user should have Android phone.

V. CONCLUSION

In recent years with the help Google maps, location searching becomes a new trend when people are not aware of their location. Google maps provide lots of functionalities like showing any location, alternative path from any location to other location and estimates time to reach the location. But it is not well developed or so much helpful for college campuses. At time of any event in some other college, we face many problem regarding navigation and there is also less chances to know about other college event. Also sometime there may be change in event location, time, etc. There is no such system to inform all existing students, teachers and staffs about any event very quickly with its proper place, which may going to start within few minutes or few hours later. As a result, there is a high opportunity to miss any valuable event or some valuable information like accidents, strikes etc. Departments, library, canteen may change its locations. It is very painful both for existing students, teachers, staffs and new comers to miss such an important event, seminar, conferences or any technical or cultural fest.

To reduce this pain inside college campuses, a very user friendly Google map based on android App “An Event-driven college campus navigation system on android platform” has been designed. This application provides route guide for users from his/her own location to desired location and event updates with its proper information and place.

VI. FUTURE SCOPE

In recent years with the help of Google maps, location searching becomes a new trend when the people are not aware of their location. Google maps provide lots of functionalities like showing any location, alternative path from any location to other location and estimates time to reach the location. But it is not well developed or not much helpful for College campuses. It is very difficult to find and get a convenient path from current location to any location inside college campus like entrance gates, departments, canteen, library, playground, parking lots, events etc. for the newly admitted students and visitors.

There is no such system to inform all existing students, teachers and staffs about any events very quickly with its proper place, which may start few minutes or few hours later or early. As a result, there is a high opportunity to miss any valuable event or some valuable information like accidents, strikes etc. Departments, library, canteen may change its locations. It is very painful both for existing students, teachers, staffs and new comers.

To reduce this pain inside college campuses, a very user friendly Google map based Event-driven college campus navigation system on android platform has been designed, implemented and tested successfully in this work. This application provides convenient route guide for users from his/her own location to destination and event updates with its proper place. It also provides a scope to customize maps by adding changed locations and new locations.

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This work can be extended including the following topics.

1) Audio Controls

If speech activated control is added with this architecture, visually impaired persons will be benefitted. Frequently audio alert on changing location can direct them to navigate proper locations. This can reduce their stress for searching place or ask an unknown people.

2) Multimedia Based Advertisement

Rich multimedia based advertisement like poster, audio promotion and video promotion etc. of any event can be added with map with the proper location of event. This can be very effective and can reduce the need of physical posters.

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