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AN EVENT-DRIVEN UNIVERSITY CAMPUS NAVIGATION SYSTEM ON ANDROID PLATFORM

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Abstract-A university campus may be very large, or it may have many campuses. Every year lots of new students get admitted in the university. Many new buildings are built, new courses are started, and some departments may be relocated inside the campus. There are no facilities to find places like administrative building, departments, library, canteen, etc. in the campus and how to find those places from current location. It creates problem to the new comer to reach easily and timely in the desired location. The new faculty member, staff and visitors also face same problem inside campuses. Moreover, there does not exists an efficient system to inform about any event which will happen just few minutes or few hours later in the university campus with its proper location and shortest path from current location. 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 path from current location of anybody inside the campus. This paper presents the architecture and design of a Google Map based application on Android Platform.

I. INTRODUCTION

During the last few years, the development of mobile devices has gained significant progress with respect to memory capacities, advanced processing power and higher data transfer rates to name only a few performance parameters. Nowadays, android 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. People can track their own location and navigate from one location to another very easily. There are lots of technology to track location like Cell Identification, GPS, Various Radiolocation systems, and Electronic Compass etc. GPS gives much higher accuracy of latitude and longitude compare to other techniques, but it works only in outdoor, not in indoor. The location tracking techniques can be integrated with smart phones which will work with different networks such as GSM (Global system for Mobile Communication), GPRS (General Packet Radio Service) and CDMA (Code division multiple access).

There are many applications and commercial devices that provide driving directions and navigation such as Waze [Waze Navigator], Google Navigation [Google Maps], in-car navigation, Magellan navigation devices [Magellan Smart GPS], and Garmin navigation devices [Garmin Navigation]. 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

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lots of additional feature like displaying congested route, smart driving decisions and improve driving safety and reduces time and energy while going to an unknown places.

But its capabilities are limited inside the university campuses. All the route directions, buildings, playgrounds, parking lots, canteen etc. are not properly available in Google Maps application. For example, if we search for Food Technology & Bio-Chemical Engineering Department, Jadavpur University, it will not locate the place. Therefore, inside Jadavpur University campus Google Maps application is not that efficient.

Timely information is very important in today's life. For example, traffic information, information about accident, road maintenance is known in advance. Similarly, for a "Digital Campus", timely information is very crucial like, where and when football match will be played, place, time and topic of a seminar or venue and agenda of some student meeting etc. These features are not available in Google Maps. If this feature is integrated with Google Maps, it will be very helpful both for existing and new comers of University campus. There will be an administrator who will update event information on server.

II. PROBLEM STATEMENT

There are many applications and commercial devices that provide driving directions and navigation. This navigation became easier with the help of Google Maps on GPS enabled android devices. It provides lots of additional features like displaying congested route, smart driving decisions and improve driving safety and reduces time and energy while going to an unknown place. But its capabilities are limited inside the university campuses. All the route directions, buildings, playgrounds, parking lots, canteen etc. are not properly available in Google Maps application.

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III. LITERATURE REVIEW

During the last few years, the development of mobile devices has gained significant progress with respect to memory capacities, advanced processing power and higher data transfer rates to name only a few performance parameters. Nowadays, android 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 navigate from one location 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, but it works only in outdoor, not in indoor. The location tracking techniques can be integrated with smart phones which will work with different

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But its capabilities are limited inside the university campuses. All the route directions, buildings, playgrounds, parking lots, canteen etc. are not properly available in Google Maps application. Inside college campus Google Maps application is not that efficient.

NFC has some shortcomings like it works in 4cm or less. We have designed our system such a way that user can get event information from any distance, any place. All the existing system follows complex mechanism for storing and updating of location data, but we have implemented a very simple mechanism for the same. Our system provides a very rich and customized menu option to find location and shortest path from current location. We have successfully integrated event information system with basic map features.

IV. EXISTING SYSTEM

The existing system of campus navigation is static system. Admin cannot change the navigation dynamically. Admin must make upgrade the app and provide the changes in app. In existing system there are various applications for college. This application will work for college. In this system user can get information about college. In this application user will also get the information about the infrastructure of college like building position, ground location, etc. It is difficult or not possible to made changes in application at run time. A route on campus can be very long and thus very confusing for a person who is not familiar with this area. It is difficult to understand the route. Also, there is no real time route i.e. route might be different from that shown in app.

Limitations in Existing System

- Each application can be developed for one college only.
- If there is change in infrastructure of college, we have to update in new version of application.
- Admin cannot update the real time changes in application
- User has to wait for new version when there is any change in application.
- User will not receive any update regarding event in college

V. PROPOSED SYSTEM

The proposed event based campus navigation guidance and updated event information alert system will work on GPS based android mobile. We must implement the system for campus of college which is a large place. As GPS works very accurately in large range so we have chosen GPS technology ISSN:

for location tracking. It can be used by existing college students, faculty members, and also by parents, visitors. Google Map API v2 has been taken as a template to show campus map. Map option is provided to see event details on map. It is easy for user to access Google map than other navigation system. We can zoom out and zoom in the map. Admin can update event list and details on Admin panel. User can see all event details updated by admin. User can also see the location of event from user current location on GMAP.

VI. CONCLUSION

We conclude that, 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 to reduce this pain inside college campuses, a very user friendly Google map based on android App "An Eventdriven 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.

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