

Campus Navigation - Mobile Application

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Abstract— Loyola College has a big campus and every year many students and faculty join the college, so it is difficult for both the students and faculty to locate the departments, canteens and other sports facilities inside the campus. Even though there are navigation applications that provide directions from one location to another, it does not provide precise on-campus navigation. To overcome these problems, we have created an Android App using the concept of Global Positioning System (GPS) known as “Campus navigation” to move around the campus premises. The application was built using Android studio and then integrated with Google Maps which will help the user to navigate to the different venues from his current location within the campus.

Index Terms—android, campus, directions, global positioning system, indoor, location, maps, navigation

(i)Introduction:

Loyola college, Chennai is a higher education institute run by the Chennai province of the Society of Jesus. The campus occupies more than 90 acres in the neighborhood of Nungambakkam. The campus consists of academic buildings, canteens and separate fields for each sport. Most of the buildings are connected and some of them are connected through pathways. Even though there are picture maps at some points inside the campus, students do not have a complete navigation platform. Nowadays, almost every student has a smartphone. So to help the students and faculty in finding places on-campus, our newly built android app “Campus Navigator” will provide much more precise navigation than other commercial applications. The user has to register and then access the application through an android phone. The user will be verified through email authentication in order to proceed. There already exist many commercial navigation applications, but the main advantage of our application is that it provides the user with precise on-campus routes.

(ii)Objective:

The objective is to develop an android application which provides the user with navigation inside the campus. The phones that we use nowadays are mostly using android operating systems. As android provides an easy user interface, the developers can develop applications for free and sell them on the app store. This app provides proper guidance and navigation through a simple android app which is easy to use.

(iii)Campus Survey:

Every year a large number of students join this college. Since the campus area and academic blocks are unfamiliar to them, it is difficult to find the desired locations. Everyday a large number of students, faculty and visitors move across the campus by driving or walking. We studied the campus area of Loyola College and recorded the latitudes and longitudes of the different locations to be entered into the database so as to provide precise navigations.

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(iv)Literature Survey:

An android based Mobile Application for University Campus Tour Guide that helps users to take tour of university within android mobile phone [1]. The use of Google maps is increasing day by day. Mihaela Cardei, Iana Zankina, Ionut Cardei, and Daniel Raviv, "Campus Assistant Application on an Android Platform [2]. College campus can be large and confusing but with the help of GPS navigating around campus can be really easy. This paper presents the architecture and design specification for campus assistance application on an android platform. Parking lots and minute details are not present in Google maps these can be included and deleted. An Event-driven University Campus Navigation System" Android based mobile Application for university that helps students and teachers to navigate around campus. Update can be done based on events that happened [3]. GPS is used to get the location of the devices having GPS. Mobile banking with location tracking of the nearest Automatic Teller Machine (ATM) is implemented by Gugapriya A, Vaitheki J and Kaviyarasi S. This application provides mobile banking facilities with location of ATMs as ATMs have GPS installed inside the system [4].

(v)Proposed Work:

The proposed work is to make and add a much more satisfactory system so that it gives precise locations inside the campus. This system will provide information about finding the correct path between the source and the destination inside the campus. This system uses the Firebase and GPS for tracking the user position to guide the route so that he/she can reach their particular destination. At first, the application in the user's app can login and search for a particular destination. Then it will be redirected towards Google maps enabled by GPS for finding the exact route on the user's app. By GPS enabled device of the user's mobile, current location of user is tracked and displayed. A User-app request is sent through the cellular data network services and internet to the Firebase.

(vi)Implementation:

Android is an open source software based on Linux with a Java programming interface. The Android Software Development Kit (Android SDK) consists of all necessary tools that are required for the development of the application. Android Studio consists of an inbuilt compiler, debugger and emulator (virtual android device) through which we run the application. Some changes are done in gradle files for permission issues. After all these steps code implementation and database connectivity is done to get the proper output.

(vii)Conclusion:

An Android application is developed for college campus navigation. In recent times, everybody is using Google navigation system for finding their current location and then travelling to any other places and they can also take the different routes which are provided by Google map. Google map services are not able to provide the exact locations of the places inside the college campus like-seminar hall, departments, library etc. For better navigation inside Loyola Campus, an application has been developed which will help newcomers to college and existing students, faculty etc. Application shows markers at source and destination and with the help of predefined path and GPS users can navigate around the college campus.

(viii)Future Enhancements:

Further we have decided to implement this application in our college premises and will soon develop an IOS application of this system. This application can be implemented for other colleges also. Virtual reality can be implemented in future.

(ix)References:

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