MAULANA AZAD NATIONAL INSTITUTE OF TECHNOLOGY

BHOPAL

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that **Jayasree,Dheeraj varma, Mahendra Pratap** and **Ravi Prakash**

Students of B.Tech, 3rd Year(Computer Science & Engineering), have successfully completed their project "WOWEN'S SECURITY APP" in partial fulfilment of their minor project in Computer Science & Engineering.

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DECLARATION

We, hereby, declare that the following report which is being presented in the Minor Project Documentation entitled **"WOMEN'S SECURITY APP"** is the partial fulfillment of the requirements of the third year(sixth semester)Minor Project in the field of Computer Science And Engineering .It is an authentic documentation of our own original work carried out under the able guidance of Dr.Bholenath Roy .The work has been carried out entirely at Maulana Azad National Institute Of Technology, Bhopal. The following project and its report ,in part or whole ,has not been presented or submitted by us for any purpose in any other institute or organization.**We, hereby, declare that the facts mentioned above are true to the best of our knowledge.In case of any discrepancy that may possibly occur we will be the one to take responsibility.**

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ABSTRACT

Today one of the major problems that our country is grappling with is the safety for women. Now a days the travel agencies such as uber,ola ,meru cabs have become the most popular choice for an individual to travel from one place to another place. Most of the unorthodox events(eve teasing, molestation etc) happen during their journeys. To avoid such events and to ensure the safety of women, we are trying to develop an application that immediately identifies and alerts the passenger and their family members when the cab moves in wrong direction or diverts from its intimated path.

Our application-Secure Your Journey, makes use of the GPS services provided by Google Maps to keep track of the cab movement during its travel. It also stores the information of each and every users contact number, their parents, guardians, relatives contact numbers too. So whenever the cab drivers diverts the cab from its intimated path, an alert message is sent to all the people whose data is saved in users list. The alert message contains the cab number, driver number, place where the cab got diverted etc.

1.INTRODUCTION

1.1 WHAT IS ANDROID

Android has a dictionary meaning of being a human that resembles automation .The true character of its name is it's the Google created software stack for creating comprehensive Mobile Applications and Software to realize the full potential of one's Mobile handset and it's possibilities.

Android is a comprehensive software stack of mobile devices that includes an operating system ,middleware and key application .This rich source of software bunch is used in Mobile Technology through its innovation module of the Android Software Development Kit(SDK).

Android is the name that was introduced by Google Inc .It is a very popular technology in mobile phones these days, as it is an operating system which is capable of running multiple application programs. It is a complete revolutionary in the field of mobile technology industry. Android has a large community of developers writing application programs(apps) that enlarge the functionality of the device. There are currently over 1,50,000 apps available for android. The Android can be used as an OS for cell phones, notebooks, tablets etc.

1.2 WHAT IS AN ANDROID APP

A Mobile software application developed for use on devices powered by Google's Android platform. Android apps are available in the Google's Play Store(formerly known as the Android Market),in the Amazon App store and on various Android App-focused sites ,and the apps can run on Android smart Phones ,tablets ,Google TV and other devices.

1.3 UNDER WHAT SECTION THIS PROJECT COMES

Our project comes under the Maps section of Android services in which Google maps APIs are extensively used. Google Maps is a web mapping service. It offers a satellite imagery, street maps, 360 degree panaromic view of streets, real time traffic conditions and route planning for travelling by foot, car ,bicycle etc. With the burgeoning technology, Maps have become a key feature in the smart phones.

Android has 3ways of getting the current location of the user.

1)Through wifi

2)Through your network provider

3)Through the GPS chip in Android device

Out of these the most accurate method is to get the coordinates from GPS. This will get your accurate location in Latitudes Longitudes. But it use most the battery .The rest of the 2 methods are less accurate but also use less battery. If the accuracy of current location is not that important we can use the later two .All of these methods are available through Location Manager of Android

2.STATEMENT OF NEED

2.1 PROBLEMS

Now even cabs are too dangerous for Indian women. For a while ,a recommended alternative for women facing rampant sexual harassment on public transportation ,particularly those travelling late at night, was private cars or radio taxis –which are cabs fitted with GPS ,so they can be tracked. Most offices provide cabs home for female employees working late. But now ,even these trusted options have come under scrutiny.

2.2 RELEVANCE

This app allows the passenger to fix the final position she/he has to to reach and tracks the movement of the cab. If the cab diverts from the path fixed by the passenger a notification or an alert message would be made on the mobile an also sent to the family members.

Here even if passenger is not having a look over the map she would be alerted with the alert message and even the family members would be able to save his/her child from any danger.

2.3 NOVELTY

In the online booking cabs, each cab driver is provided with the GPS tracker app and all these cabs are tracked by cab operator but still there is no safety. So our aim is to provide safety for passengers travelling late in night especially women by introducing an android app which gives a notification when the cab goes in wrong direction so that the he/she would be alert.

3.THEORITICAL ASPECT

3.1 WHAT IS AN API

Application Program interface (API) is a set of routines, protocols and tools for building software applications. An API specifies how software components should interact. Additionally ,APIs are used when programming graphical user interface (GUI) components. A Good API makes it easier to develop a program by providing all the building blocks. A programmer then puts the blocks together.

Android is developed by Google, but can also be used without any Google services. So the Android platform SDK can be used for developing Android applications. If you however want to use any Google services in your Android Application, you should use the Google API Java Client library

3.2 Different types of APIs

There are many different types of APIs for operating systems, applications or websites. Windows, for example, has many API sets that are used by system hardware and applications- when you copy and paste text from one application to another ,it is the API that allows that to work.

Most operating environments , such as MS-Windows, provide APIs, allowing programmers to write applications consistent with the operating environment .Today ,APIs are also specialised by websites. For example, Amazon or eBay APIs allow developers to use the existing retail infrastructure to create specialized web stores .Third-party software developers also use Web APIs to create software solutions for end-users.

Popular API examples:

i)Google Maps API: Google Maps API lets developers embed Google Maps on web pages using a JavaScript or Flash interface .The Google Maps API is designed to work on mobile devices and desktop browsers.

ii)YouTube APIs: Google APIs lets developers integrate YouTube videos and functionality into websites or applications .YouTube APIs include the YouTube Analytics API ,YouTube Data API ,YouTube Live Streaming API, YouTube Player APIs and others.

iii)Twitter APIs: Twitter offers two APIS.The RESET API allows developers to access core Twitter Data and the Search API provides methods for developers to integrate with Twitter Search and trends data.

iv) Amazon Product Advertising API: Amazon's Product Advertising API gives developers access to Amazon's product selection and discovery functionality to advertise Amazon products to monetize a website.

v) Flickr API: The Flickr API is used by developers to access the Flick photo sharing community data.The Flickr API consists of a set of callable methods,and some API endpoints.

3.3 WHAT IS GPS?

GPS or Global Positioning System is a network of orbiting satellites that send precise details of their position in space back to earth. The signals are obtained by GPS receivers, such as navigation devices and are used to calculate the exact position, speed and time at the vehicles location.

GPS is well-known for its military uses and was first developed by the US to aid in its global intelligence efforts at the height of the Cold War. Ever since the early 1980's , however the GPS has been freely available to anyone with a GPS receiver. Air Lines , shipping companies ,trucking firms, and drivers everywhere use the GPS system to track vehicles ,follow the best route to get them from A to B in the shortest path.

3.4 HOW DOES GPS WORKS?

GPS satellites circle the Earth twice a day in a precise orbit. Each satellite transmits a unique signal and orbital parameters that allow GPS devices to decode and compute the precise location of the satellite. GPS receivers use this information and trilateration to calculate a user's exact location. Essentially, the GPS receiver measures the distance to each satellite by the amount of time it takes to receive a transmitted signal. With distance measurements from a few more satellites, the receiver can determine a user's position and display it electronically to measure your running route ,find a way home or adventure anywhere ,map a golf course.

To calculate your 2-D position (latitude and longitude) and track movement, a GPS receiver must be locked on to the signal of at least 3 satellites. With 4 or more satellites in view, the receiver can determine your 3-D position (latitude, longitude and altitude). Generally, a GPS receiver will track 8 or more satellites, but that depends on the time of day and where you are on the earth. Some devices can do all of that from your wrist. Once your position has been determined, the GPS unit can calculate other information, such as: Speed, Bearing, Track, Trip distance, Distance to destination, Sunrise and sunset time and more.

3.5 OTHER GPS's

Although standard GPS can provide accurate location data the limitations it impose make it difficult for mobile devices to use it. So modern devices make use of assisted GPS (A-GPS)and possibly simultaneous GPS(S-GPS).

A-GPS uses the mobile network to transmit the GPS almanac along with other pieces of information to a mobile device. This use of mobile network allows for faster transmission of the almanac, which may lead to faster determination of device's current location .it will also improves the time it takes to acquire the gps location.

Devices that use standard GPS may use the same hardware to communicate with GPS satellites and make mobile phone calls .This means that on of the actions are performed at a time. S-GPS adds additional hardware that allows gps radio and cellular network radio to be operated simultaneously .The ability to have two radios speed up data-transmission because it allows the data to be received while the cellular network radio is active.

In case the GPS does not work, we can also use the network provider to extract location. In android network-based location can use different methods for determining location of a device .T he network location provider can provide location information using cell towers ,or based on wireless network information.

3.6 LOCATION AWARENESS

One of the unique features of mobile applications is location awareness. Mobile users take their devices with them everywhere, and adding location awareness to your app offers users a more contextual experience. The location APIs available in Google Play services facilitate adding location awareness to your app with automated location tracking, geo fencing, and activity recognition.

Android location APIs make it easy for you to build location-aware applications, without needing to focus on the details of the underlying location technology **.**This becomes possible with the help of **Google Play services**, which facilitates adding location awareness to your app with automated location tracking, geo fencing, and activity recognition.

Get the Current Location

To get the current location, create a location client which is **LocationClient** object, connect it to Location Services using **connect()** method, and then call its **getLastLocation()** method. This method returns the most recent location in the form of **Location** object that contains latitude and longitude

− coordinates and other information as explained above. To have location based functionality in your activity, you will have to implement two **interfaces** −

- **GooglePlayServicesClient.ConnectionCallbacks**
- **GooglePlayServicesClient.OnConnectionFailedListener**

These interfaces provide following important callback methods, which you need to implement in your activity class-

abstract void onConnected(Bundle connectionHint):This callback method is called when location service is connected to the location client successfully. You will use **connect()** method to connect to the location client.

abstract void onDisconnected():This callback method is called when the client is disconnected. You will use **disconnect()** method to disconnect from the location client.

abstract void onConnectionFailed(ConnectionResult result):This callback method is called when there was an error connecting the client to the service.

Get the Updated Location

If you are willing to have location updates, then apart from above mentioned interfaces, you will need to implement **LocationListener** interface as well. This interface provide following callback method, which you need to implement in your activity class –

abstract void onLocationChanged(Location location):This callback method is used for receiving notifications from the LocationClient when the location has changed**.**

To find whether a point lies on a given path or not:

isLocationOnPath

public static Boolean isLocationOnPath(LatLng point,
java.util.List<LatLng> polyline,
boolean geodesic)

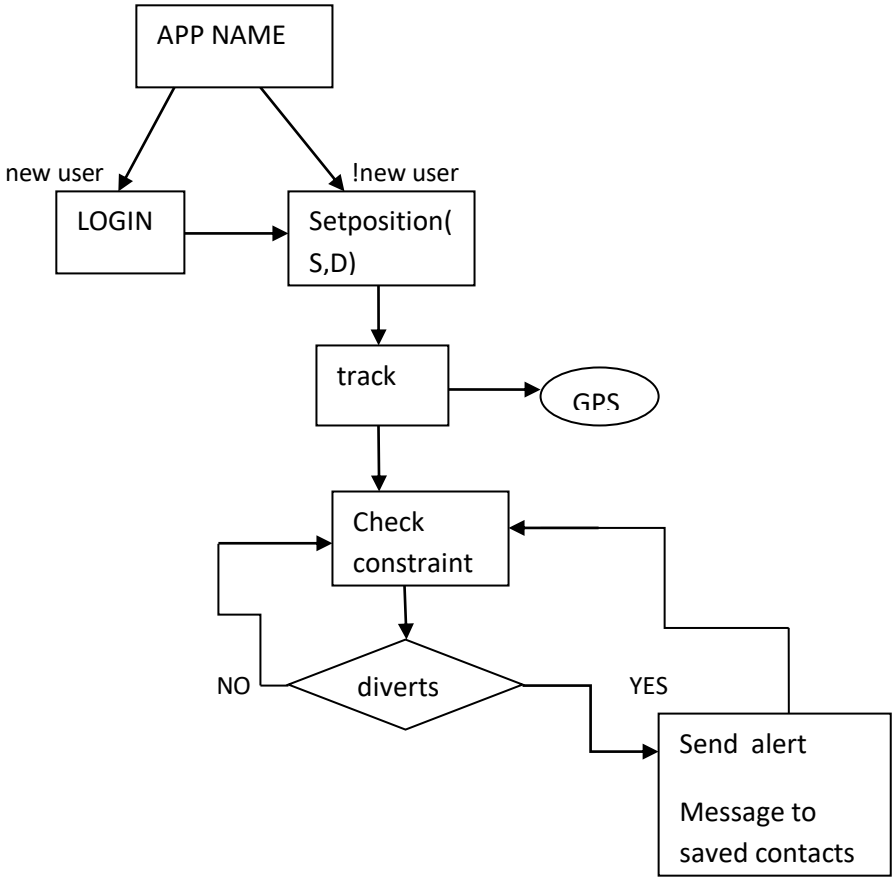
Same as isLocationOnPath with a default tolerance of 0.1 meters.

isLocationOnPath

public static boolean isLocationOnPath(LatLng point,
java.util.List<LatLng> polyline,
Boolean geodesic,
double tolerance)

Computes whether the given point lies on or near a polyline, within a specified tolerance in meters. The polyline is composed of great circle segments if geodesic is true, and of Rhumb segments otherwise. The polyline is not closed -- the closing segment between the first point and the last point is not included.

4.FLOWCHART



S-SOURCE

D-DESTINATION

5.EXPERIMENTAL SETUP

5.1 ANDROID STUDIO 2.3.1

Android Studio is the official integrated development environment (IDE) for the **Android** platform. Based on JetBrains' IntelliJ IDEA software, **Android Studio** is designed specifically for **Android** development.

5.2 SYSTEM REQUIREMENTS

ANDROID STUDIO Version 2.x

	Windows	OS X/macOS	Linux
OS version	Windows 10/8/7 (32- or 64-bit)	Mac OS X 10.9.5 or higher, up to 10.11.6 (El Capitan) or 10.12.3 (Sierra)	GNOME or KDE desktop
RAM	4 GB RAM minimum, 8 GB RAM recommended		
Disk space	500 MB disk space for Android Studio, at least 1.5 GB for Android SDK, emulator system images, and caches		
Java version	Java Development Kit (JDK) 8		
Screen resolution	1280x800 minimum screen resolution		

5.3 ANDROID SOFTWARE DEVELOPMENT KIT(SDK)

A **software development kit** (**SDK** or dev kit) is typically a set of **software development** tools that allows the creation of **applications** for a certain **software package**, **software** framework, hardware platform, computer system, video game console, operating system, or similar **development** platform.

6.CONCLUSION

Outcome of this project is an Android Application-Secure Your Journey.

Now a days with the advent of technology, the use of mobile phones has been rapidly increasing.70% of the mobiles use Android as their Operating System. So we decided to build an Android App to tackle one of the major problems that our society is facing today i.e., women safety.

By this app users will automatically notified if the cab moves in the wrong direction also an alert message will be sent to users saved contacts.