

ANDROID APP: VEHICLE TRACKING SYSTEM

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Abstract - The Global Positioning System (GPS) is a space-based satellite navigation system that provides location information. This system uses GPS to track the location of the vehicle. This system will track location of the vehicle and will send details about the location to the admin. This system helps admin to find out the location of the driver driving the vehicle. Admin will know which driver is in which location. This system can be implemented in call taxi to find out the location of the driver driving the vehicle and will help the admin to allocate taxi to the customer. User login to the system using his user id and password. System will track the user's location with the help of GPS and will send this detail to admin. Admin will access the system using his admin ID and password and will view the location of the driver driving the vehicle based on these details he will perform various operations. This application helps the admin to find the location of various drivers. He can keep record of the driver's attendance that will help him to calculate salary of the driver very easily. Driver cannot do any type of cheating otherwise admin can easily find out using this system.

Key Words- GPS, Tracking, Monitoring.

1. INTRODUCTION

Smart phones have become an essential part of human life. They are integrated with multiple and different features that allow us to communicate with the world, organize our lives and document events. One of the most important features is location-based services. Smart phones use different features to get the location of the phone. One of these features is the GPS. The GPS uses satellites to get the exact location of the phone in terms of longitude and latitude.

The smart phone utilizes this coordination and uses them to show the phone's location in a map application. In addition, special mobile applications have been developed with various abilities of navigating. Tracking vehicles has always been a problem for big companies dealing with transport vehicles or cargo vehicles. A GPS tracking device is complicated, expensive and the technologies used in it are monopolized by their vendors. An open source technology with location-based services and free map API is needed to develop a tracking system for multiple vehicles all at once with low expenses.

The purpose of this project is to develop a system with a client Android application that acquires the phone location and sends this location to a server programmed.

The server programmed receives the location of multiple vehicles and displays them on a map, with the ability to track one vehicle or multiple vehicles on the same map

2. CLIENT "ANDROID" APPLICATION

This application represents the client of the system where the location of the vehicle is acquired and sent to the server. It is basically an Android application after installing the application on the targeted Smartphone running on one of the versions of Android OS; the icon appears on the screen along with the other applications' icons. Clicking the icon will open the application the main flow of the client application whereby opening the application leads to a splash screen and after two seconds the login screen is opened.

The main flow of the client application GPS technology is used to track the users' current location. It is the major important function of the application. Whenever the GPS of the phone is enabled, GPS locates the current location point, and the application saves this location to be sent later using other functions. Whenever the location of the phone changes, GPS will track it and updates the current location of the phone. This service starts automatically when logged into the application unless the GPS is disabled whereby a "GPS is disabled" message is popped on the screen. Sending the location of the phone to the server is the second function of the application.

This service uses SMS messages to send the location from the application. The application acquires the location from the location service and the message sending service creates an SMS message with the server phone number and sends it automatically. The time interval between the sending of the SMS messages is determined in the settings as well as the number of messages to notify the user. The sending service sends a message at every time interval as specified in the settings. After a number of messages are sent, the service notifies the user with the total number of messages sent. This service is started by clicking the "start sending" button in the tracking activity described earlier. When the service is started a notification pops up in the notification bar. This notification will be visible as long as the service is running. The sending service starts automatically along with the

2.1 NEED OF A VEHICAL TRACKING

As population numbers in cities increase and gas prices rise, public transportations often suggested as an easy, cheap, and environmentally friendly alternative to driving,

but the uncertainty inherent to the system combined with a lack of communication often prevent its widespread adoption by commuters. Buses in particular can be impractical for those who must adhere to a strict schedule or depend on them for emergencies. Buses that are running particularly behind schedule can lead to late arrivals or missed connections while buses running ahead of schedule can indirectly cause travelers to be late if they end up waiting for a bus that has already passed. While these variations from the official bus schedule are understandable and largely unavoidable, the lack of communication discourages adoption at a rate disproportionate with their actual likelihood. Even if a bus is running exactly on schedule, bus users have no easy way of knowing that information and those that have alternative modes of transportation will be less likely to ride the bus regardless of its actual timeliness.

In this modern era of technological communication, it is increasingly easy for people to stay in contact at all times with the use of smart phones and other internet capable mobile devices. While business has traditionally been conducted during specified business hours and preplanned locations, communication and scheduling software advances in recent years have made it easier to facilitate impromptu meeting or work schedule changes.

2.2 LITERATURE SURVEY

To determine precise location of object Abid Khan and Ravi Mishra have proposed tracking unit which is attached and using GSM modem this information can be transmitted to remote user. This system contains GPS and GSM modems along with ARM processor that is setup in the vehicle. Through SMS the location of vehicle can be reported. GSM and GPS technologies help to track the vehicles exact information. Real time control is provided by SMS system. You can monitor the location from anywhere using this system.

Rodrigo R. Oliveira, Felipe C. Noguez, Cristiano A. Costa, Jorge L. Barbosa and Mario P. Prado has proposed a model to get the exact position of vehicle. The device used for tracking the location of vehicle is named as SWTRACK. The distributor companies use this model to get the location of their respective vehicles. It also provides the mechanism to monitor the detours coming in the planned route and sends a alarm message through the device.

The vehicle positioning monitoring system was designed by Zechun Huang, Dingfa Huang, Zhu Xu and Zhigen Xu using CORS and Mobile GIS. The accuracy and precision is provided by CORS service network and Mobile GIS which has also verified the feasibility to integrate CORS and Mobile GIS for mobile location services. GPS helps in to get accuracy and high speed for performing in faster way. It is best suited for taxi monitoring and navigation, vehicle anti-theft and other fields.

Tushar Saxena, Deepak Kumar and J.S. Jadon has presented all the satellite navigation systems available or in process today. Every system from GPS to IRNSS has been properly introduced and signaling schemes and modulation schemes are studied. Satellite navigation now days are what every country desire to have to become on great power as most importantly it serves military applications and rescue operations. The next generation of satellite navigation are giving services to the civil users and hence a very good market for commercial point of view.

2.3 PROBLEM DEFINITION

It is targeted that this project will serve as good indication of how important it is to curb car theft in the country. Surveillance is specified to car alarm system and the means of sending the data to the owner of the vehicle using SMS when the alarm is triggered. Due to the inefficient conventional car security alarm system, the possibility of the car can be stolen is high.

The main reason is that the alarm is limited to the audible distance. Somehow if there is another way of transmitting the alarm to the car owner that is not limited to the audible and line of sight, the system can be upgraded. SMS is a good choice of the communication to replace the conventional alarm, because it can be done and does not require much cost. Although most of people know GPS can provide more security for the car but the main reason people does not apply it because the cost. Advance car security system is too expensive. Cost for the gadget is too high. Besides that, people also must pay for the service monthly.

3. AIM AND OBJECTIVES

The objective of this project can be summarized as follows:

Develop a vehicle tracking system that in general has the ability to:

- i) Get the location of the device in longitude and latitude format.
- ii) Store the maintenance, fuel and location history of all vehicles.
- iii) Display the last known location of the vehicle.
- iv) Display the location of multiple vehicles on one map.
- v) Display the information of the vehicle and the time on the map.
- vi) Track the location history of one vehicle

3.1 SYSTEM ARCHITECTURE:

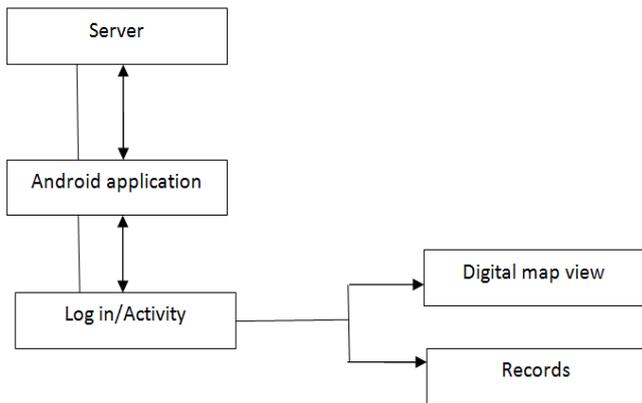


Fig: System Architecture

4. MODULES:

Admin Login: Admin will Login with his admin ID and password.

View Vehicle and Driver Location: - Admin can view vehicle and driver location.

Registration: Admin will register the driver by entering driver details.

User Login: User can login with user ID and password.

Vehicle Tracking: System will track location of both vehicle and driver using GPS.

Send Location Details: System will send location details to admin.

Fuel Entry: It provides a fuel entry form for each vehicle in that keeps track of its fuel entries for every month.

Service Entry: A servicing Entry form is used to maintain the servicing data for each vehicle in per month.

Repair & maintenance Entry: For each and every Vehicle allows us to track its monthly repair / maintenance status.

Vehicle Tracking: The vehicle tracking system uses the drivers GPS Enabled Mobile to track the vehicle on a google maps.

Report: Fuel data, Servicing data, Repair and Maintenance

5. APPLICATION:

[1] This system can be used in call taxi's to track the location of the vehicle

[2] This system can be used in vehicles which carries goods by roadways.

CONCLUSION:

The vehicle tracking system is presented in this paper. The project objective is to develop a system to track vehicles using the Android operating system to get the location of vehicles and send it to the server. The server is a computer programming that receives multiple vehicles' locations through a modem and displays these locations on a map. This objective has been met successfully. The project scope is enhanced to allow users to track one vehicle rather than all vehicles at once.

REFERENCES:

- [1] Android (operating system) [Online].Available: [http://en.wikipedia.org/wiki/Android_\(operating_system\)](http://en.wikipedia.org/wiki/Android_(operating_system)) [Accessed 22 12 2013]
- [2] Android Software development [online] Available: http://en.wikipedia.org/wiki/Android_software_development [Accessed 22 12 2013]
- [3] Application Fundamentals [online] Available: <http://developer.android.com/guide/components/fundamentals.html> [Accessed 3 1 2014]
- [4] Starting an Activity [online] Available: <http://developer.android.com/training/basics/activitylife-cycle/starting.html> [Accessed 5 1 2014]
- [5] Global Positioning System [online Available: http://en.wikipedia.org/wiki/Global_Positioning_System [Accessed 3 8 2014]