

Android Application Vehicle Tracking System

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Abstract: Android, as an operating system, has provided users with great opportunity to innovate and get things done in a mobile device. This paper presents how to use the GPS technology in Android devices to complete an interactive application which can be used to monitor a fleet of vehicles and display their positions on Google Maps. By using SMS messages, this information can be transmitted to the server. It provides a tele monitoring system for distribution or transportation vehicles owned by a specific company. The whole system is made of two key parts. The first one is the client, which represents an Android application that is installed in the vehicle. During a vehicle's motion, its location can be reported by SMS messages. The second is the server, which is a computer programmed representing a map using Google Maps to show the last known locations of all tracked vehicles. The current system is able to provide the monitoring process from anywhere.

Keywords: Java, android studio, GPS

1. Introduction

Title: 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. Need of a vehicle 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. Busses 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 busses 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

3. Objectives

The objective of this project can be summarized as follows:

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

1. Get the location of the device in longitude and latitude format.
2. Store the maintenance, fuel and location history of all vehicles.
3. Display the last known location of the vehicle.
4. Display the location of multiple vehicles on one map.
5. Display the information of the vehicle and the time on the map.
6. Track the location history of one vehicle.

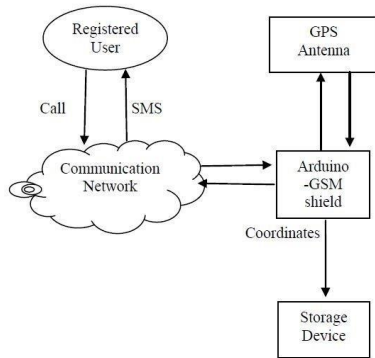


Fig. 1. Block diagram of the system

The block diagram of a vehicle control system including an intelligent personal minder for any control system, the plant model plays an essential role in designing an effective control strategy. Similarly, a driver model is important for generating effective and appropriate driver advisory signals. Hence the driving style characterization is needed. This paper discusses a method identifying drivers' characteristics based on his or her vehicle handling capability. Driver modeling and driver behavior characterization have been studied intensively [8- 17], however; the current paper suggests a unique approach in which the driving behavior/style and/or the driving experience level is deduced in real-time based on the frequency and the duration of driving close to the handling limit. The paper is organized as follows. Section II provides a brief discussion about the variables used for vehicle stability controls including anti-lock brake system (ABS), traction control system (TCS), and electronic stability controls.

4. Module representation

- MODULE – 1: Login.
- MODULE – 2: Admin
- MODULE – 3: client.
- MODULE – 4: GPS track.
- MODULE – 5: Notification sent
- MODULE- 6: log out / exit

5. Requirements specification

A. Functional Requirements

- 1) *Doctor Authentication:* The system can be accessed by only authenticated doctors. Inputs: Inputs include username and password submitted by the doctors. Processing: Username and passwords are checked against the database to ensure valid user. Output: Valid users are allowed to access the homepage.
- 2) *Patient Authentication:* Patient module can be accessed by only valid patients. Inputs: Inputs include username and password submitted by the patient. Processing: Username and passwords are checked against the database to ensure valid patient.

Output: Valid patient only is allowed to access the patient page where he can create accounts for users.

B. Non Functional Requirements

- 1) *Performance of the system:* Response time is very good for given piece of work. The system will support multi user environment.
- 2) *Reliability of the system:* The system will be highly reliable and it generates all the updates information in correct order. Data validation and verification is done at every stage of activity. System recovery will also be speed.

C. Behavioural Attributes

- 1) *Security* - The system is developed in Python and extends security features of web browsers.
- 2) *Availability* - The system will be available 24X7.
- 3) *Maintainability* - The system will be able to meet new requirements (additions/ deletions).
- 4) *Portability* - This application will be portable on any system and can be opened in any browser.

D. Web Application

- 1) Generate database of booking appointment.
- 2) Notifications, events and events prove to be very successful.
- 3) Patient can find best specialized doctor in nearby region.
- 4) Patient can save his precious time.

6. System evaluation

Of the application. Once introduced, this application will remain into the gadget for all time until the client erases it or uninstalls it. After the establishment when the client taps on the application symbol, the main thing that will show up on the screen is sprinkle screen that contains the application's.

Facilities required for proposed work:

- 1) Hardware
 - Mobile, PCs, Laptop
 - 1GB RAM
 - I3, I5 processor 1GHZ
- 2) Software
 - Android Studio
 - Java
 - Windows 7, Windows 8, Windows 10 or MAC Ox 10.8,10.9, or 10.11, LINUX

7. 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 program 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.

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