Vehicle Tracking System via Google Map and Arduino

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Abstract - The vehicle tracking system is use to track the position of a vehicle from any location at any time.This tracking system combines a Smartphone application with a microcontroller. This will be easy to make and inexpensive compared to others. Here we are using Global Positioning System(GPS) and Global System for Mobile(GSM) communication technology which is one of the most common ways for vehicle tracking.A microcontroller named as Arduino is used to control the GPs and GSM.GPS module is used to get geographic coordinates at regular time intervals. In the other hand a smartphone application 'Google Map API' is also used to display the vehicle on the map.

Key Words: GPS, GSM, Arduino, API, Microcontroller ,Google Map

1.INTRODUCTION

Main aim of the VTS(Vehicle Tracking System) is to provide security and safety to vehicles to keep an eye on the moving objects and using surveillance. This improved security system for vehicleswhen vehicles were lost/stolen, the owner often found it problematic to keep track of what was happening. Also to track moving vehicle carrying school children, patients, VIP's, high value material or Bank/ATM Money transportation. There is a requirement of some type of system to determine where each object was at any given time and for how long it travelled .Here we are using GPS and GSM technology along with a microcontroller Arduino .This system enables the owner to track his moving or stopped vehicle and its past activities of the vehicle. This system will offer effective, real-time vehicle location, and report the location of the vehicle.The implementation of this system is attached on to the vehicle in such a way that no one can easily detect it. At the point when the vehicle is stolen the area information from following framework can be utilized to discover the area and can be educated to police and proprietor for additional activity.

2. LITERATURE REVIEW

2.1 Literature Review #1

Title   :An overview on GSM and GPS Based Vehicle Tracking System(VTS)

Author :Dinesh Suresh Bhadane, PritamB.Bharati, Sanjeev A.Shukla , MonaliD.Wani, KishorK.Ambekar

Publication :International Journal of Engineering Research and General Science Volume 3, Issue 2, March-April, 2015

Objective

In this paper an overview is done on different vehicle strategy for following methods utilizing GSM and GPS.Vehicle navigation is one of the most important factors in the context of navigation which is mostly used by many drivers. A vehicle tracking system combines

the installation of an electronic device which is mounted in a vehicle. Vehicle information can be viewed and located on the electronic google maps via the Internet or specialized software.

2.2 Literature Review #2

Title :Vehicle tracking system using GPS technology

Author :KismatPradhan, YogeshLimboo, AnuRai, Avinash Sharma

Publication :International Journal of Advanced Research,Ideas and Innovations in Technology.

Objective

Vehicle tracking is one of the most important techniques mostly used in today's world. Now a day's vehicle tracking systems are normally work on Global Positioning System (GPS) technology for tracing the vehicle,but other forms of vehicle tracing technology can also be used. In this paper, a survey is done on various vehicle tracking method using GPS. Vehicle information can be viewed and located on the maps via the Internet or specialized software. In this paper, study is done on a real-time vehicle tracking system that works using GPS and GSM technology, which would be the easiest and inexpensive source of vehicle tracing.

2.3 Literature Review #3

Title : Survey on Vehicle Tracking Services

Author :Ankush Das, Nisarg Gandhewar, Devendra Singh Nehra, Mayank Baraskar, ShubhamGurjar and Mubbshir Khan

Publication :Journal of Information Technology & Software Engineering

Objective

If a person moves to a new place or a new city and there is some problem to vehicle then it is difficult to find amechanic nearby. This application provides service of mechanic to the user. This application helps to search nearest mechanic available to the user's location. This application allows to trace the mechanic and provide different services to the user and it also provide video tutorial to help the user.This application tracks the mechanic and user location with the help of google maps. Also we have studied some papers and application related to the tracking of the vehicle using some hardware devices, we are planning to use google map and GPS tracking available in mobile to track a vehicle.

2.4 Literature Review #4

Title : Vehicle Tracking System using GSM and GPS Technologies
Author : Prof. (Dr.) Bharati Wukkadada, Allan Fernandes2
Publication : IOSR Journal of Computer Engineering (IOSR-JCE)
Objective
This paper offers an anti-theft system that makes a vehicle more immune by the help of GPS. It allows a vehicle to be tracked using the proposed system in it. This system can also serve for animal tracking, resource tracking as well as robbed automobile. These systems are usually used by fleet operators which help them in simulations, defining their routes and also dispatching. Another application of this system can be monitoring driving behaviour. It can also be beneficial in delivery services and also cops and fire department.

2.DESIGN

The block diagram of the vehicle tracking system is shown below. The block diagram shows the overall view

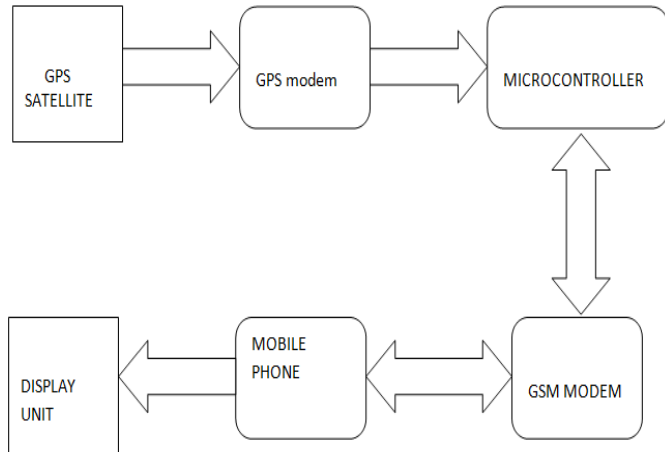of the system. The blocks that are connected here are GPS,Microcontroller, display, GSM .

Fig -1: Block Diagram

3.SOFTWARE/HARDWARE REQUIREMENTS

* Arduino UNO : Arduino UNO is a microcontroller based on the ATmega328P. It has 14 digital input/output pins, 6 analog inputs, a 16 MHz quartz crystal, a USB connection, a power jack, an ICSP header and a reset button

* GPS Neo 6m : It provides location and time information in all weather.

* GSM 900A : A GSM modem is a specialised type of modem that accepts a SIM card and operates over a subscription to a mobile operator just like a mobile phone. It requires in Vehicle Tracking System because GPS can normally only receive location from satellites but can't communicate back with them.

* Jumper cable : Wire used to interconnect the components.

* Arduino IDE : It is an IDE on windows used to write the the code and upload it into the microcontroller board.

2.1 Four ways to power up the Arduino

* Using USB cable GPS Neo 6m

* Using an AC to DC adapter plugged into the barrel connector

* Using 5V input

* Batteries (9v) with a battery connector

2.RESULT

The implementation of the project is shown below-

Fig -2: The whole circuit without power connection

Fig -3: Circuit after getting power supply through USB cable
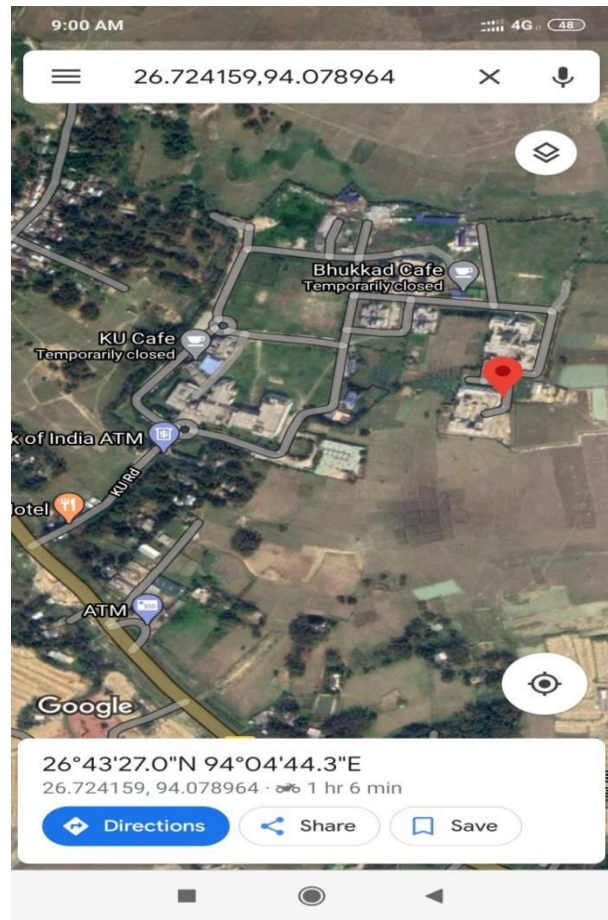

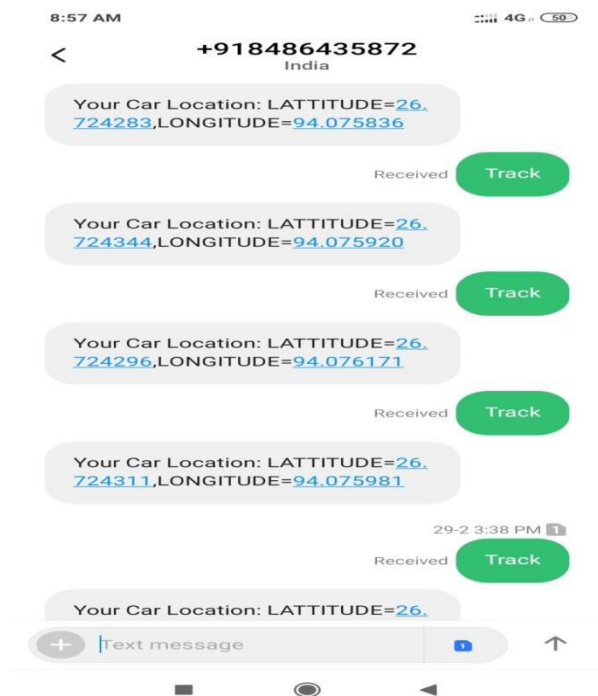**Fig -5**: Display of the map on handset to indicate the location

Fig -4: Output display on handset

3. CONCLUSIONS

Vehicle tracking system makes reduce the risk of theft of vehicles, better fleet management, better control of traffic, and which in turn brings large profits. Better scheduling or route planning can enable to handle large no. of jobs loads within a particular time. Vehicle tracking can be used by individual as well as organization to improve safety and security, communication medium, performance monitoring and increases productivity. So in the coming year, it is going to play a major role in our day-to-day living.

ACKNOWLEDGEMENT

It is a great pleasure to present this report on the project named, "Vehicle tracking system via google map and arduino" undertaken by us as a part of our Int. MSc. (IT) curriculum.A project without proper guidance is like ship without a navigator. We would like to express our gratitude towards all those people who guided is for preparing this project which was a great learning process for us.We are heartily indebted to Prof. Ratan Kumar Saha who guided us throughout the project and gave up valuable suggestions and encouragement.We show our gratitude to our Prof. Sajal Saha, Dr. Manoj Kumar Muchahari and our project coordinator Dr. Purnendu Bikash Acharjee for providing the facilities and environment to bring out our innovation, talent and spirit of inquiry through this project.

REFERENCES

[1] Mrs. K.P.Kamble : Smart vehicle tracking system,2007

[2] www.wikipedia.com

[3] www.electronics4u.com