REVIEW ON VEHICLE TRACKING SYSTEM USING GOOGLE MAP

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***Abstract*— Security and safety of vehicles, locating stolen vehicles or cars, monitoring school going children has always been a matter of concern. Hence an efficient tracking system is required to track location of vehicle, accident occurrences from anywhere at any time. Tracking of vehicle is a process in which we track the vehicle location in form of latitude and longitude (GPS coordinates) .GPS Coordinates are the value of a location. This system is very efficient for outdoor application purpose. This kind of Vehicle Tracking System Project is widely in tracking Cabs/Taxis, stolen vehicles school/college buses, etc. The purpose of this project is to design and construct a handheld wireless GPS tracking device that can be tracked from an internet. To view its location, one could use any device that can connect to the internet such as desktop computers, laptops, PDA, or cell phones.**

Keywords –GPS, GSM, Cell phone, Google Map, Aurdino.

I. INTRODUCTION

With the growing economy, India is also facing an increase in crime rate. One of the major crimes of concerned is vehicle theft. The vehicle stolen is not traceable to the owner or policemen for years. So there is a need of an accurate, automatic and easily accessible real time vehicle tracking system.

Also with the growing transportation and logistics business in our country, it has become an integral part to provide an effective transportation system due to increasing petrol or diesel or oil price. Hence due to high cost of fossil energy a method is required to reduce the usage of the energy.

Vehicle tracking can also be used to reduce the hacking of school bus, kidnapping by remotely accessing the location by their parents or elders.

Many systems are designed for vehicle tracking which includes generating an alarm signal, locking of door, face recognition etc. All these methods have reduced the vehicle theft to certain extent but were are designed at the vehicle part; the owner did not have any remote access and control.

Most of the vehicle tracking system is designed using GSM/GPS technology. In vehicle tracking system location of vehicle is an important components .The location of vehicle anywhere on the earth is provided using GPS technology.

In wireless technology GPS and GSM are commonly used. The SMS technology using GSM network and GSM modem is helpful in providing vehicle location information to the user.

As SMS technology is cost effective it has become very popular. SMS is a very convenient and effective way to transfer and receive data with higher reliability.

In the proposed work a smart phone is used to track and monitor a vehicle location obtained from the in-vehicle tracking device controlled by microcontroller. The vehicle location is automatically placed on Google maps which makes the vehicle tracking easier and provides more accurate vehicle location information. Vehicle tracking can also be used to reduce the hacking of school bus, kidnapping by remotely accessing the location by their parents or elders.

In proposed work a real time vehicle tracking system interfaced with the Google map is proposed for identifying location of vehicle.

II. LITERATURE SURVEY

1.Md.Marufi Rahman,Jannatul Robait Mou, Kusum Tara ,Md.Ismail Sarkar,"Real Time Google Map andArduino based vehicle Tracking System" The author proposed Arduino based vehicle tracking system. Using Google map the owner is continuously able to monitor location of vehicle. [1]

2.Iman M.Almomani,Nour Y.Alkhalil,Enas M.Ahmad,Rania M.Jodeh"UbiquitousGPS Vehicle Tracking and Management System" The proposed research proposes a system for fleet operator for monitoring their driver behavior or parents monitoring their teen drivers. The system can also be used as anti-theft system combined with an alert system. The proposed model can

also monitor speed limit, geographical limit and SMS alert system when predefined limits are exceeded. [2]

3.Fleischer ,Paul Benjamin,Nelson ,At so Yao,Sowah Robert Adjetey,Bremang ,Appah"Design and Developmentof GPS/GSM based VehicleTracking andAlert system forcommercialIntercity Buses" T,he research proposed GPS/GSM based vehicle tracking and alert system which allows intercity transport to keep the track of the buses, report robbery and accident occurrences.[3]

4.SathePooja,"Vehicle Tracking System using GPS"The project describe a model for routing and tracking of mobile vehicle .Microcontroller LPC2148 is used for controller GSM modem GM862.The device collect the location details by SMS/GPRS. If the vehicle is stolen the owner will send the signal. Receiver at the vehicle end will acknowledge this signal and will perform necessary security actions such as stop engine immediately, door lock etc. [4]

5.Noppadol Chadil Apirak Russameesawang Phongsak Keeratiwintakorn," Real Time Tracking Management System Using GPS,GPRS and Google Earth" In the proposed work GPS/GPRS system is designed to provide efficient tracking system to reduce the usage of fossil based energy due to their high cost in fleet management and logistics. The tracking system consist of commodity hardware, open source software and easy to manage user interface via web server with Google map. [5]

6.Seokju Lee ,Burma Tewolde, Herrick Kwon, "Design. and Implementation of Vehicle Tracking System using GPS/GSM/GPRS Technology and Smartphone Application" In the proposed work a Smartphone application is developed for continuously monitoring the vehicle location.[6]

7.Dhiraj Sunehra, Potlabathini Mami Prius,Ayesha Bank," Children Location Monitoring on Google Maps using GPS andGSMTechnologies" The author proposed a human security system. The system is used to monitor school going children location. [7].

III. OBJECTIVES

(i) Acquiring geographic coordinates of vehicle in real time using GPS receiver.
(ii) Transmission of information about location of vehicle using GSM module.
(iii)Display position and name of the place on Google map in real time using cell phone.

IV. PROPOSED BLOCK DIAGRAM

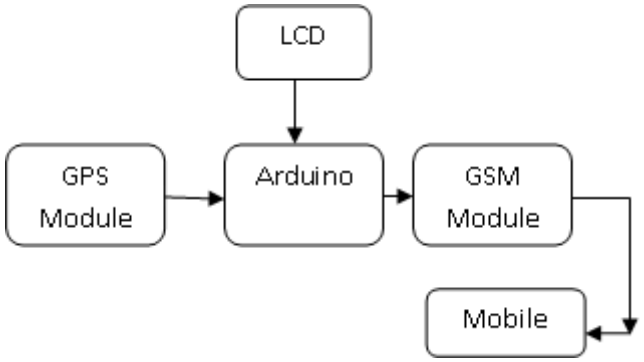


Fig1. Proposed block diagram of Vehicle tracking system

The Arduino based vehicle tracking system has two parts –the hardware and software specification. Hardware specification consists of Aurdino UNOboard with microcontroller, GPRS and GPRS shield. In software specification, Aurdino IDE software, Google map is used.

Fig.1 presents the block of Arduino based vehicle tracking system. At first, +5 volt DC power supply is supplied to GSM and GPRS shield ,Aurdino is used with microcontroller to activate those devices .Aurdino isused to control the process with GPS receiver and GSM module.GPS is working at the baud rate of 9600 to receive the data from satellites. The data is sent to the Aurdino which reads co-ordinates by extracting $GPGGA string from GPS receiver, and is forwarded to GSM in terms of latitude and longitude .GSM module sends the co-ordinates to user by SMS so that he can track the vehicle anywhere around the globe and watch its live position on Google map.

V.METHODOLOGY

To find the location of the vehicle, the owner needs to send a message to the vehicle tracking system. When the user request is sent to the

number at the modem, the system sends a return reply automatically to that mobile which indicate the position of the vehicle with latitude and longitude.

Following are the steps for modeling of device:

Step 1:

Fix the transmitter of vehicle tracking in system into to the vehicle.Turn ON the device.

Step 2:

Connect the receiver to computer using RS232 cable and turn ON the receiver.

Step 3:

A GSM modem in the transmitter sends the position of the vehicle from a remote place to the requesting user mobile. The owner will receive the message in terms of the latitude and longitude.

Step 4:

By clicking on to the message the location of the vehicle on Google map can be seen.

V. HARDWARE SPECIFICATIONS

A. Arduino Microcontroller

The **Arduino Uno R3** is a microcontroller board based on the ATmega328 It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started.

B. GPS and GPRS shield

The Global Positioning System (GPS) is the global Navigation System that receives signal from at least three satellites to compute its two dimensional position>the GSM/GPRS module is responsible for establishing connections between a tracking system and remote user for transmitting the vehicle location information

C. Liquid Crystal Display

A 16 X 2 LCD is used for displaying location values .A +5 Volt DC supply is given to activate LCD.

VI. SOFTWARE SPECIFICATIONS

A. Arduino IDE Software

It is a compiling software .In this software C programming language has been used for coding. For receiving data from the satellite and sending data into the cell phone, programwritten using Arduino IDE software.

B. Google Map

It is used to display real time location of the vehicle on cell phone or laptop or computer

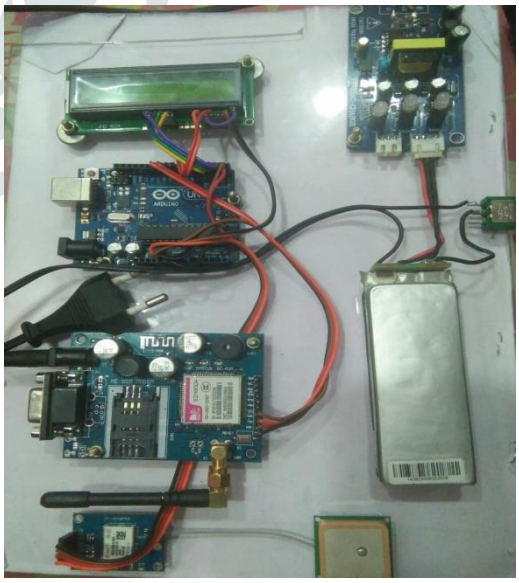
VII. APPLICATIONS

Commercial fleet operators are by far the largest users of vehicle tracking systems. These systems are used for operational functions such as routing, security, dispatch and collecting on-board information. These are also used for fire detector in large vehicles like train, bus etc. because the vehicle like train contains large number of people and the sending alert of fire accident can save many lives.

The applications for this project are in military, navigation, automobiles, aircrafts, fleet management, remote monitoring, remote control, security systems, tele services, etc.

- Fleet monitoring
- Vehicle scheduling
- Route monitoring
- Driver monitoring
- Accident analysis
- Geo-fencing geo-coding

VIII. PROJECT MODEL



IX. CONCLUSION

Vehicle Tracking System.makes better fleet management and which in turn brings large profits.Better Scheduling or route planning can unable you handle larger jobs loads within a particular time.Vehicle tracking both in case of personal aswell as buisiness purpose improves 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 level.

X. REFERENCES

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