

Controlling a Vehicle Remotely with Voice Acknowledgement using GSM Network

Mishal Raj, Prity Satbhaya, Prachir Chauhan, Lalitha Devi

Abstract: This venture shows the specialized development of an independent vehicle controlled by GSM correspondence arrange. The planned GSM based sun oriented fueled vehicle could be worked from anyplace under GSM arrange which is controlled by sun oriented vitality utilizing 5 watt photograph voltaic (PV) board, put away into three comparable 4V rechargeable batteries. And the activity initiates when a call created from a PDA which is auto gotten by the other telephone stalked in the vehicle engine driver. Over a span of the call, if a catch such as two, four, six or eight, is squeezed a tone comparing to the catch squeezed is then heard at the opposite end of the transmission which is called Dual Tone Multiple Frequency (DTMF) tone. The got DTMF tone in the wireless at the vehicles end is handled through an arrangement of transfers. These handed-off signs are then sent to the engine driver IC (L293D) that drives engine forward, invert, right or left. In particular as the auto will keep running by sun based vitality, so the vehicle can be go to a long distance not agonizing over the charge of the battery, since it collects the more prominent part of the vitality required from the outside PV board that assimilates and changes over daylight to produce the driving force, however there will be DC battery as a reinforcement.

Keywords: GSM, DC Battery, IC (L293D), (DTMF), (PV) Board,

I. INTRODUCTION

This venture is a case of implanted framework and portable correspondence and the greater part of the tasks are controlled by the product inside the microcontroller and correspondence happens utilizing a PDA. In this project GSM networks are used because of the world wide range available. In this project a very small DTMF (dual tone multiple frequency) based decoder and GSM enabled mobile phones are used. The GSM arrange controlled vehicle sorts out the changing from decoder and power exchanging gadget for controlling the engine drive of the vehicle utilizing two phones. The sun oriented fueled vehicle is controlled by cell phone that made calls to the cell phone connected to the vehicle. Over the span of the call if any catch was squeezed the beat sound relating to the catch is heard at the opposite end and this tone is called double tone various recurrence. The association between the wireless and the decoder is made with the assistance of a widespread 3.5 mm sound jack. The got tone is prepared by the transfers. The transfers are wired with the end goal that for a specific heartbeat from the DTMF voltage will go through just a single hand-off and different transfers are shut. Exchanges are switches that open and close circuits electro mechanically or electronically.

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Exchanges control one electrical circuit by opening and closing contacts in another circuit. At that point it is workable for the engine drives to drive the engines forward or in reverse movement or make a turn. The portable that is utilized to make call is goes about as a remote. DTMF does out recurrence to each key with the goal that it can be effortlessly distinguished by the electronic circuit.

This is a modular system, so many other peripherals could be attached to the vehicle as per the need or situations the vehicle is being used.

II. MODULE COMPONENTS

In the improvement of the vehicle controlled remotely with voice affirmation utilizing GSM organize, microcontroller, equipment and programming outline strategies are required.

A. Arduino Microcontroller

The Atmega328 based Arduino UNO R3 microcontroller is used as the cerebrum to control the vehicle following system. Arduino Shields are used for the GPS and the GSM/GPRS modules. An item program to control them is formed in the C programming tongue, amassed and after that saved into the microcontroller's flicker memory.

B. GSM/GPRS Module

The GSM/GPRS module is mindful of setting up associations between an in-vehicle gadget and a remote server for transmitting the vehicle's area data, utilizing TCP/IP association through the GSM/GPRS organize.

1) Hardware

The cell shield for a microcontroller incorporates every one of the parts expected to interface the microcontroller with a SM5100B cellular module. The SM5100B chip on the GSM/GPRS shield is a minimized quad-band cell module. A SIM card and a cell radio wire are practically fundamental for working with a GSM/GPRS module. The SIM card produced by Bharthi Aortal enough information amount for testing.

2) AT Command

Gadgets like modems utilize the supposed AT charges to speak with different gadgets. AT orders are utilized to control TCP/IP on SM5100B. Relatively every line with summons begins with the AT, trailed by at least one orders, and ended with a carriage return (CR) character. The initial step is to connect a GPRS to the system. In this manner, the microcontroller sends the accompanying summon to append to a GPRS organize.

The resulting stage is to set or adjust the Packet Data Protocol (PDP) setting parameters, for instance, the Access Point Name (APN). It is important that the privilege APN is.

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By and large the SIM card won't be allowed to interface with the framework.

The APN needs to obtain access to the Internet when passing on information between a GPRS module and the adaptable framework through an entry.

C. HTTP Correspondence

A HTTP correspondence happens for the most part through TCP/IP association. The standard port for HTTP servers is 80. In request to send information over the Internet, an attachment association should be built up the attachment is valuable for working with our server and it empowers clients to set up a TCP attachment association for sending information. The attachment is portrayed by three principle substances, a convention, an IP address/a host name, and a port number. The orders "AT+SDATACONF" and port and open attachment for TCP association individually.

D. Google Maps API

A Google maps API for android is utilized to show a vehicle area on a Smartphone application progressively utilizing a HTTP ask. The Google maps API naturally handles access to the Google Maps servers, shows guide, and reacts to client signals, for example, snaps and drags. The legs cluster contains data around two areas inside the given course. "Separation" and "term" fields from the legs exhibit are utilized as a part of the Google headings API. Those fields give clients the ascertained separation and time data between the Current area of a vehicle and the client area inside the given course.

looks as follows:

```
GET /s.php?lt=43.01343&ln=-83.71498&id=2013 HTTP/1.1
```

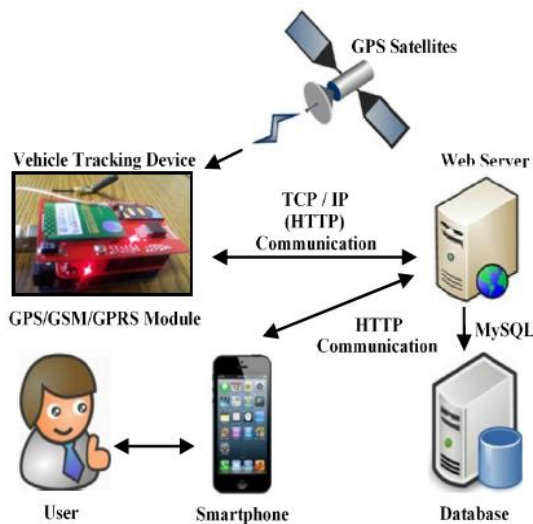


Fig. 1. The Proposed Vehicle Tracking System Layout

E. GPS Module

The Global Positioning System in vehicle following frameworks is usually used to furnish clients with data, for example, the area organizes, speed, time, et cetera, anyplace on Earth. In this work, a GPS module and a GPS recipient accessible from the Spark fun site, is received to execute the in-vehicle gadget. The GPS module has the GPS recipient With receiving wire. There are two slide switches and one push catch switch. Once the microcontroller and the GPS module have everything gathered, the GPS module is

relatively prepared to get the vehicle's area data. The Tiny GPS library was utilized to speak with and get to information from the GPS module. The EM-406 works at 4800 bps, however in the event that clients are utilizing another kind of GPS, they ought to distinguish the right baud rate for their particular gadgets.

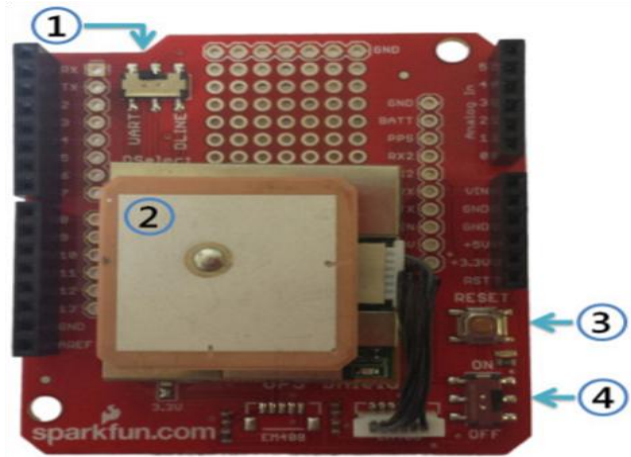


Figure 2: Gps module, (1) UART and DLINE Selection Switch, (2) GPS Receiver, (3) Reset Switch, (4) Power Switch

The GPS module is indistinguishable to the one appeared in Fig. 1 Offers insight about the GPS module. In Fig. 2, (1) is the switch for UART and DLINE choice. At the point when the DLINE is chosen, Rx and Tx in the GPS module will be associated with microcontroller computerized pins 2 and 3, individually. On the off chance that the UART was chosen, Rx and Tx in the GPS module will be associated with microcontroller computerized pins 0 and 1, separately. In this work, Tx and Rx in a GSM/GPRS module utilizes microcontroller computerized pins 2 and 3. Along these lines, the GPS switch 1 must be set to the UART position, generally if DLINE position is chosen its computerized pins will cover that of the GSM/GPRS module. Once the microcontroller and the GPS module have everything collected, the GPS module is relatively prepared to get the vehicle's area data.

III. FUTURE SCOPE

Video Calling: In future we can add video facility to our circuit. It will be an advanced way like video conferencing. Along with the reply as a voice we will get the visual status of condition of the devices. Also if anybody is misusing our device we can immediately make it off. Means for security purpose also we can use it. It will be applicable in home, offices, industry, and our vehicle parking system, agriculture also. **Alarm Facility:** Alerts user on occurrence of any abnormal conditions like power failure, parameters exceeding prescribed limits.

Voice Operated System: A system is developed for remote monitoring and control of devices using mobile through spoken command. **Use of Robots:** In this the static circuitry will be replaced by the Robots which will be controlled through commands given remotely by mobile.



This will be major step in automation and will have tremendous future scope of development and applications.

IV. CONCLUSION



The cell phone-based device control with voice acknowledgement is an excellent device to operate any electronic equipment from miles away as the mobile technology is becoming advanced day by day; it is used for much other application as device control. As mobile service is used by everyone these days, this system will be very much useful in rural areas as well the device control can be applied in every field like agriculture, home, factories etc. The use of mobile communication in device control has been thoroughly justified and the previous drawbacks and problems have been overcome.

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