

REAL time vehicle anti-theft locking & tracking system

¹Rajan Singh, ²Garima Srivastava, ³Deepshikha Agrawal

¹Research Scholar, Department of Computer science & Engineering

²Assistant Professor, Department of Computer science & Engineering

³Assistant Professor, Department of Computer science & Engineering
Amity University, Lucknow, India

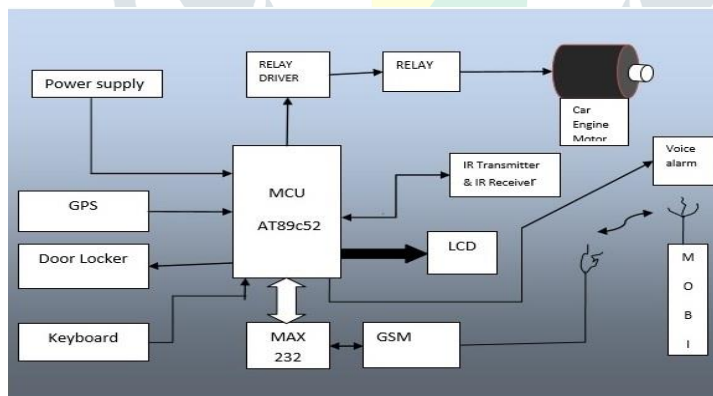
Abstract: As we know that about real time vehicle anti-theft locking & tracking system. Currently almost of the public having an own vehicle, theft is happening on parking and sometimes driving insecurity places. The main goal of the project is merge the communication systems with embedded systems to prevent the theft of the vehicles. This system is not only for vehicles it used as security systems in briefcases, electronic gadgets like laptops, TV's. And To find the position, velocity, distance of the receivers. The security of vehicles is unbelievably basic for open automobiles. Automobile subsequent & make safe framework introduced within the vehicle, to follow the spot & bolting motor engine. The spot of the automobile predictable utilizing GPS & GSM. once the felony eminent, the aware individual send SMS to the microcontroller, at that time microcontroller problem the management sign to prevent the motor engine. Accepted individual must refer the key to switch to start again the vehicle & open the entrance. this can be additional verified, solid and simply cheap..

Key-Word:- GPS, GSM, Microcontroller ATMEGA16 , GPRS.

I. INTRODUCTION

Nowadays vehicle robbery cases are greater than at any other time, give your vehicle an amazing security with the main dependable enemy of robbery gadget. Vehicle focal locking framework agreements the best assurance to protection your vehicle starting a number of types of robbery cases. It is a vehicle safety device that proposals superb insurance to your vehicle. A vehicle with focal locking safety structure causes the user to lock & open front entrance at the press of a catch. For the most part two kinds of focal securing frameworks are utilized Auto industry - Automatic focal locking framework and Manual focal locking framework that guarantees plane & verified action. Once more this structure couldn't make evident to provide total safety & openness of the automobile if there should arise an occurrence of breaking and entering. So a progressively created framework utilizes an installed framework dependent on GSM invention. The structured & generated framework is make known to in the vehicle. The important knowledge in this plan is take along the multipurpose correspondences into the put in framework.

I.1 Block Diagram



Fig(1):-Block Diagram of vehicle locking and tracking system.

II. DISCRPTION OF BLOCK DIAGRAM

1. LCD DISPLAY MODULE-The LCD display shows the longitude and latitude values on the screen. It shows the other Notifications like message sent or receive, and Ignition of the car is on or off.

2. RELAY-The transfer exploits the way that when power moves through a loop, it turns into an electromagnet. The electromagnetic loop draws in a steel plate, which is appended to a switch. So the switch's movement (ON and OFF) is constrained by the present streaming to the curl, or not, separately.

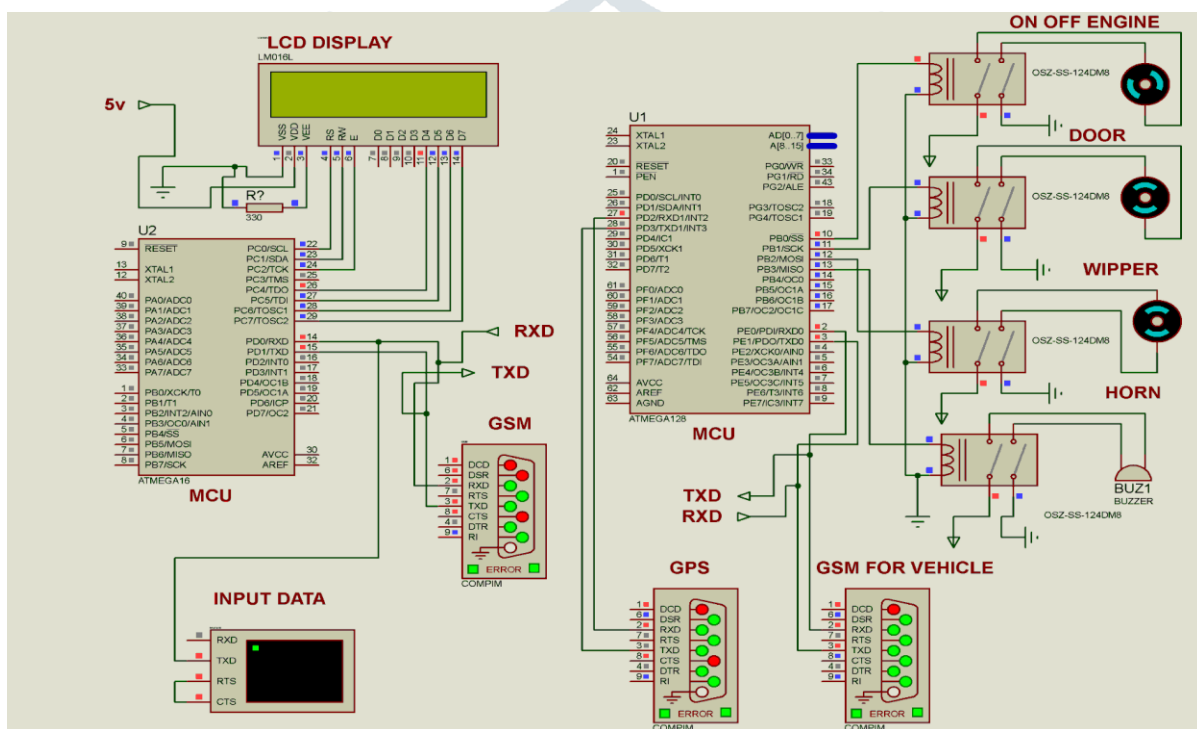
3. Power supply:-As we know that about power supply. It is very important role of any project so that Power Source is a Main obligation for the project work. 3 Pin 7805 positive voltage regulator is used. As of this converter we receiving 5V power supply amid the power supply plan, consideration was paid to control misfortunes. The voltage was never permitted to dip under 3.1V

notwithstanding as soon as current utilization ascends to 2A in the communicate rush since the unit would close downhearted naturally. The PCB follows as of the VBAT pinches to the power supply ought to be sufficiently wide to diminish Voltage falls in convey burst. The detour capacitor was put near the module as could be expected under the circumstances. At the point when control on methodology is finished, SIM908 will send RDY (prepared) direction to demonstrate that unit is prepared to work at a stationary baud frequency yet since we are not utilizing a screen, we will utilize the status and net light marker. In this mode amid typical task, all activities and AT directions are accessible.

III. Principle of operation-

The anti-theft system placed in a vehicle if that vehicle is loss then the owner send the message to the GSM module like “LOC” then it find the position of the vehicle by GPS module. and it reply message to owner the longitude and latitude values by the GSM module . After the owner send the message “LOK”. by the help of the microcontroller it turn off the Ignition until the owner send the message “UNLOCK”.

IV. Circuit Diagram-



Fig(2):- All electronics components are assembled using Proteus software as shown in the figure

V. In vehicle module

The unit has the GPS being embedded in the vehicle take delivery of signal as of any four detectable satellites in the middle of the gathering of satellites in the space when the user needs to know the position of the vehicle. This unit consist so far receiver, a microcontroller & a message interface. Receiver detentions signal starting GPS cables & refer to the microcontroller module. The microcontroller unit methods the indication & determines the Location, Velocity & current Time of automobile by means of inactive trilateration mechanism. Signals are tracked from four or more GPS satellites inorderto resolve the 3-D position of the vehicle & to bring into line the receiver using GPS time. The module being installed in the vehicle contains the following source code:

```
#include<avr/io.h>
#include<util/delay.h>
#include<avr/interrupt.h>
#include<string.h>
```

```
#include"128uart_lib.h"
#include<stdio.h>
int i=0,j=0,k=0,m=0,n=0,pp,mm=1;
char A[20]="",BB[20]="",C[20]="";
char latlon[17]="26369820:80424654";
char lon[17]=".....";
char x;
int main(void){
set_uartbaud0(9600);
enable_uart_rxcint0();
DDRB=255;
eng_on();
wipe_off();
horn_off();
sei();
while(1){
if(x=='a')
{
sendstring_uart0(latlon);
x='w';
}
if(x=='b')
{
sendstring_uart0(lon);
eng_off();
x='w';
}
if(x=='c')
{
sendstring_uart0(lon);
wipe_on();
x='w';
}
if(x=='d')
```



```
{
sendstring_uart0(lon);
wipe_off();
x='w';
}
if(x=='e')
{
sendstring_uart0(lon);
horn_on();
x='w';
}
if(x=='f')
{
sendstring_uart0(lon);
horn_off();
x='w';
}
if(x=='g')
{
sendstring_uart0(lon);
win_lock();
x=0;
}
if(x=='h')
{
sendstring_uart0(lon);
eng_on();
x='w';
}
}
}
}
ISR(USART0_RX_vect){
x=UDR0;
}
```



```

void eng_on(void){
PORTB|=1<<0;
}
void eng_off(void){
PORTB&=~(1<<0);
}
void win_lock(void){
PORTB|=1<<1;
_delay_ms(600);
PORTB&=~(1<<1);
}
void wipe_on(void){
PORTB|=1<<2;
}
void wipe_off(void){
PORTB&=~(1<<2);
}
void horn_on(void){
PORTB|=1<<3;
}
void horn_off(void){
PORTB&=~(1<<3);
}

```



VI. User's Module

The main perseverance of an Automobile Trajectory System is to deliver position of the vehicle to the user. The message interface conveys the Location, Velocity & Time data considered using In Vehicle Module, through wireless communiqué web to the tracking server. the message connection installed must be complete duplex(i.e. equally technique communication between in automobile Module & the user).and we will find user vehicle location and position on Lcd display. The user's module involves the following source code:

```

#include<avr/io.h>
#include<util/delay.h>
#include<avr/interrupt.h>
#include"lcd_lib.h"
#include"ext_interrupt.h"
#include"uart_lib.h"
#include<stdio.h>

```

```

#include<string.h>

int i=0,j=0,k=0,m=0,n=0,pp;

char A[50]="";

char B[20]="",C[20]="";

char x;

int main(void){

    LCDinit();

    LCDclr();

    set_uartbaud(9600);

    enable_uart_rxcint();

    sei();

    LCDGotoXY(0,0);

        LCDdisplay("Real Time Vehicle Locking and Tracking");

        LCDGotoXY(16,1);

        LCDdisplay(" Anti-Theft System");

    for(j=0;j<35;j++){LCDshiftLeft(1); _delay_ms(225);}

    LCDclr();

    while(1){

        }

    }

ISR(USART_RXC_vect){

if(UDR!=0x0D){A[m]=UDR;m++;x=UDR;}

if(UDR==0x0D){sendchar_uart(x);

LCDclr();LCDGotoXY(0,1);

LCDsendChar(x);}

if(x=='a'){m=0;}

if(x!='a'){LCDGotoXY(0,0);

LCDdisplay("-----");}

if(UDR==0x0D)

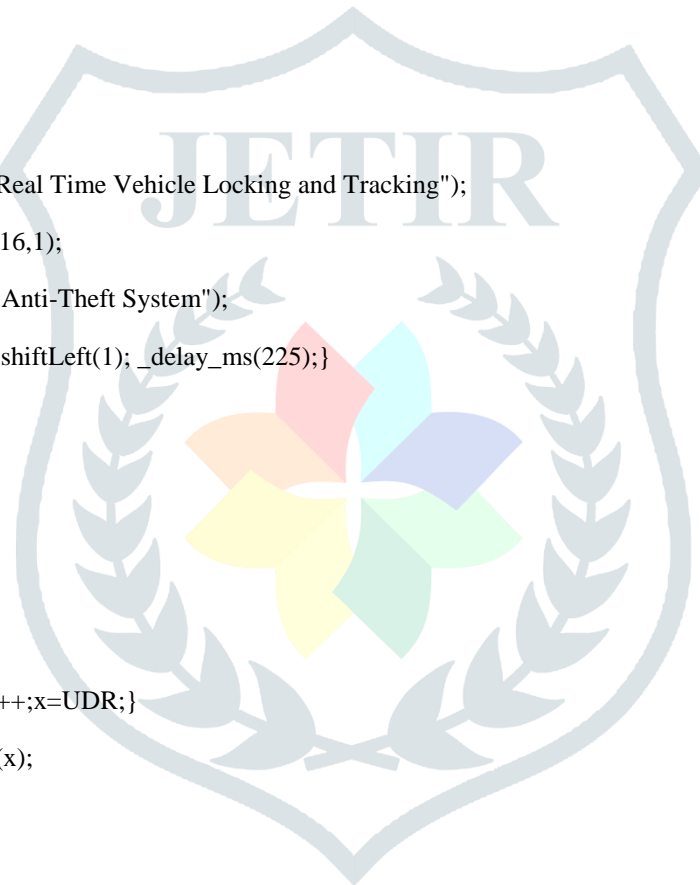
{ LCDclr(); LCDGotoXY(0,0);

LCDdisplay(A);

m=0;}

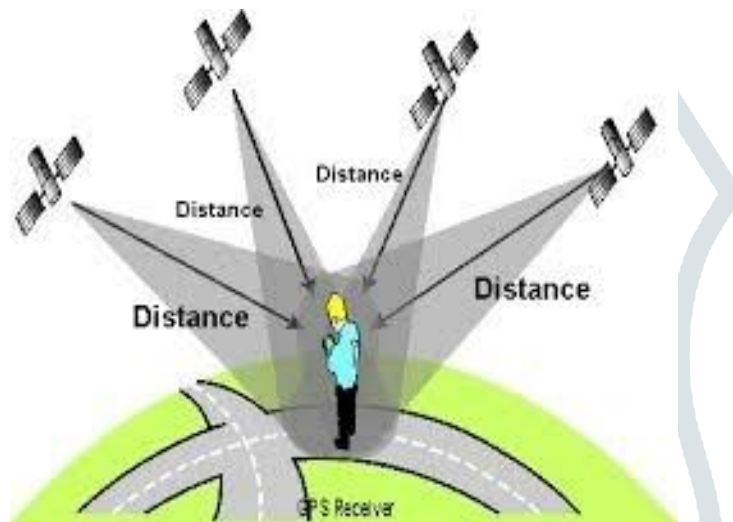
}

```



VII. Global positioning system Module-

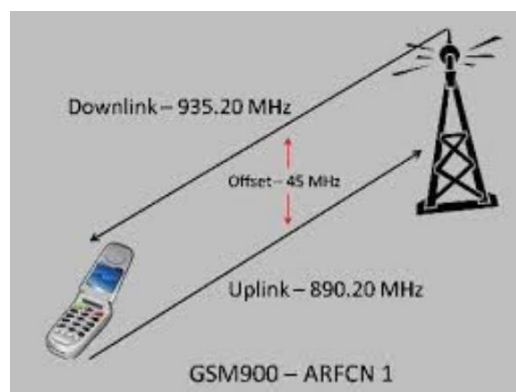
As we know that about GPS .it is a Global Navigation Satellite System.it transmits specific microwave indications, which agree to GPS receivers.to define their current position, the time and their velocity. GPS recipients can recognize their territory while three GPS settlements triangulate quantity the partition to the beneficiary and consider the approximations. A fourth satellite gauges the chance to the recipient. The info from every 1/4 satellite television is systematized to choose the area. The headway of a GPS beneficiary effects the unwavering feature and exactness of the GPS data grew. As we know about GPRS is a parcel exchanged administration dependent on Worldwide System for Mobile Infrastructures GSM, a widely sent opinion innovation. GPRS is a 2.5 G cell organizes. It gives moderate and quick web associations with administration clients. Charging depends on the measure of information exchanged as opposed to on the association time. This is accomplished by distributing assets radio frequencies to clients just when they have to send information. GPRS uses most hubs in a current GSM arrange; two extra hubs are acquainted in the GSM coordinate with help GPRS Allocation GPRS help hub SGSN and Entrance GPRS help Node GGSN, there are two hubs establish the center system of a GPRS sub-system & We can say that they are associated via an IP based GPRS spine organize.



Fig(3):- Overview of GPS

VIII.1 Global System for Mobile Communication (GSM)-

GSM tools is used in mobile phone it self .The communication like calling, messaging is easy to possible by GSM technology. It works with the help of SIM(Subscriber identity module)



Fig(4):-Overview of GSM

XII. Conclusion-

This system play a very important role in the security of vehicle . With the help of this software we can control the vehicle from anywhere according to the user condition .In this system we installed a microcontroller along with the engine of the vehicle which can control the following activities. With the help of this software we can control the ignition of the engine and control the other advanced features of the vehicle. As I contribute some exploration in this paper. At the purpose once the theft distinguished, the aware specific refer SMS to the microcontroller, at that time microcontroller problem the management sign to prevent the motor engine. Accepted individual have to send the key phrase to controller to start again the automobile and open the entryway. This is more verified, dependable & negligible effort Vehicle bolting and following using GPS & GSM innovation. It is an enemy of burglary arrangement of vehicles on the off chance that any vehicle is robbery, at that point we can without much of a stretch discover the position (longitude and scope) of that vehicle by the GPS. It is totally incorporated so that once it is actualized in all vehicles, It has ongoing ability, constant exact, wide territories run, low activity costs, powerful, Strong expandability and Easy to utilize ,Upgrading this setup is exceptionally simple.

References:-

- [1] <http://www.automotivetechnology.com/contractors/electronic/infinite>
- [2] <http://www.allproducts.com/manufacture/100/extremtrac/product3.html>
- [3] <http://auto.indiamart.com/car-accessories/car-centralsystem.html>
- [4] SIMCOM SIM300 AT Commands Set/Hardware interface description
- [5] Quick Start Guide for Using the WinAVR Compiler with ATMEL's AVR Butterfly By Joe Pardue
- [6] www.atmel.com/dyn/resources/prod_documents/doc0856.p

