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Multi Vehicle Tracking, Locking and Speed Control Based on GCM and GPS Modules

Research Article
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Ms.T.Sireesha[1], Mr.K.Sudhakar[2]
[1]Assistant Professor of ECE, Associate Professor of CSE[2], at PSCMR College of Engineering & Technology

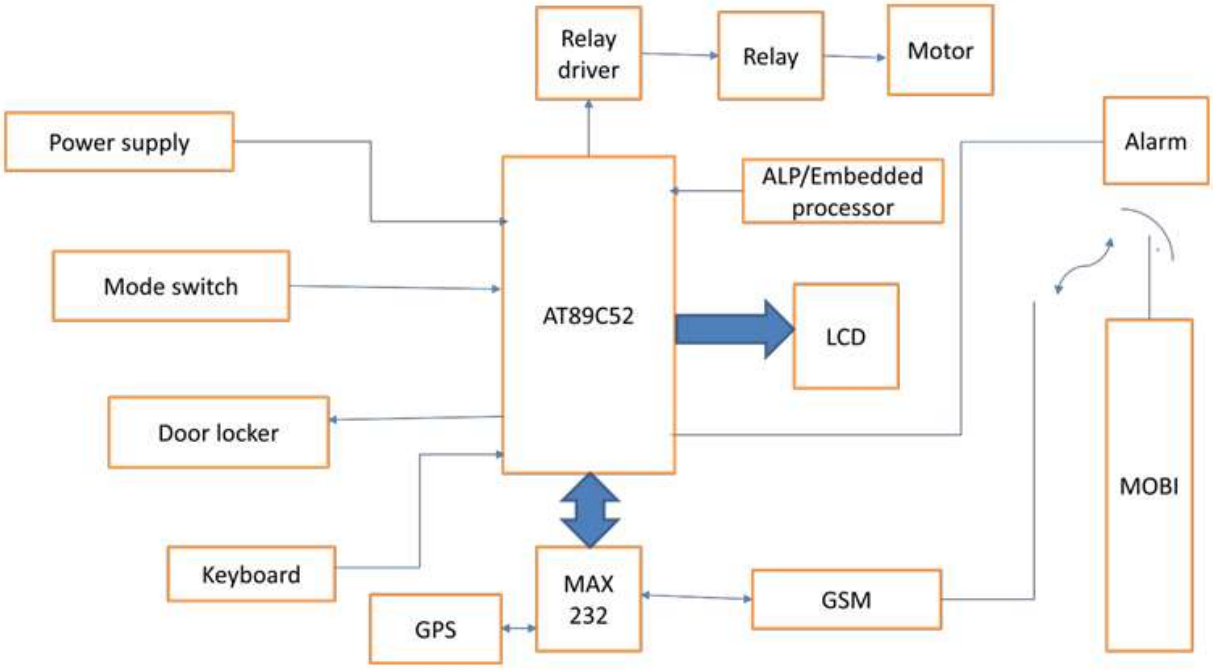
Abstract: Multi track recording of sound is the procedure in which sound and other electro-acoustic signs are caught on a recording medium, for example, attractive tape, which is partitioned into two or more sound tracks that run parallel with each other. Since they are carried on the same medium, the tracks stay in flawless synchronization, while permitting numerous sound sources to be recorded non concurrently. The primary framework for making stereophonic sound. Sound (utilizing phone innovation) was shown by merciful Ader in paris in 1881, General Charles A. HOXIE imagined the pallophotophone (a machine that utilized 35mm film to optically record different tracks of sound) ca. 1992, and British EMI engineer Alan Blumlein licensed frameworks for recording stereophonic sound and encompass sound on circle and film in 1933, yet the historical backdrop of cutting edge multi track sound recording utilizing attractive tape started as a part of 1943 with the creation of stereo tape recording, which partitioned the recording head into two tracks [1].

Key Terms: *Relay Delay, GSM, GPS, RS232,TTL*

I.INTRODUCTION: The following significant improvement in multi track recording came in 1953, when artist Les Paul contrived the idea of 8-track recording; this was financially created by the Ampex enterprise, which dispatched its first "Sel - Sync" (Selective Synchronous) recording framework in 1955,[2] yet for the following 35 years, multi track sound recording innovation was to a great extent kept to authority radio, TV and music recording studios, basically in light of the fact that multi track tape machines were both huge and exceptionally costly - the primary Ampex 8-track recorder, introduced in Les Paul's home studio in 1957, cost an august US$10,000 - approximately three times the US normal yearly wage in 1957, and equal to around $90,000 in 2016[2]. Nonetheless, this circumstance changed fundamentally in 1979 with the presentation of the TASCAM Port astudio, which utilized the cheap smaller sound tape as the recording medium, making great quality 4-track (and later 8-track) multi track recording accessible to the normal purchaser interestingly. Incidentally, when the Port studio had gotten to be well known, gadgets organizations were at that point presenting advanced sound recording frameworks, and by the 1990s, PC based computerized multi track recording frameworks, for example, Pro Tools and Cubes were being embraced by the recording business, and soon got to be standard. By the mid 2000s, fast advances in home figuring and computerized sound programming were making advanced multi track sound recording frameworks accessible to the normal shopper, and excellent advanced multi track recording frameworks like Garage Band were being incorporated as a standard element on home PCs. At the point when substantial item or vehicles were spread out over ground, the proprietor companies regularly thought that it was hard to monitor their vehicles. They required some kind of framework to decide the exact position of the vehicle at any given time. Additionally the need of following in

shopper's vehicle keeps any sort of burglary since police can utilize following reports to find stolen vehicle. This proposed framework MULTI VEHICLE TRACKING, LOCKING AND SPEED CONTROL BASED ON GSM AND GPS MODULES will give the exact vehicle area, at any moment of time and reports to the controller. A GPS-GSM based following framework will illuminate where the vehicle is and where it has been, to what extent it has been from the static position. The framework utilizes geographic position and time data from the Global Positioning Satellites [3].

II.DESIGN PRINCIPLE: In this proposed methodology so many vehicles are tracked at the same time. Three applications are determined i.e., speed control, locking and tracking at the same time. In this multiple vehicles are tracked and the three applications are done that is tracking, locking and speed control. The proposed method is explained below.



The above consists of all above components. Here, micro controller is the heart of the system. It requires 5v dc supply which will be obtained by using power supply section. The GPS and GSM modules are used. The GPS will tracks the vehicle and sends the information to the micro controller by using MAX 232 which is used to convert RS232 logic levels into TTL logic levels. Message will be done by using GSM modem and the data will be displayed in the LCD. The buzzer and buzzer driver will be connected to micro controller and motor and motor driver are provided to lock Engine.

Line Type & Logic Level	**RS232 Voltage**	**TTL Voltage to/from MAX232**
Data Transmission (Rx/ Tx) Logic 0	+3 V to +15 V	0 V
Data Transmission (Rx/ Tx) Logic 1	-3 V to -15 V	5 V
Control Signals (RTS/CTS/DTR/DSR) Logic 0	-3 V to -15 V	5 V
Control Signals (RTS/CTS/DTR/DSR) Logic 1	+3 V to +15 V	0 V

The MAX232 is a dual driver/receiver that includes a capacitive voltage generator to supply TIA/EIA-232-F voltage levels from a single 5-V supply. Each receiver converts TIA/EIA-232- Finputs to 5-V TTL/CMOS levels. These receivers have a typical threshold of 1.3 V, a typical hysteresis of 0.5 V, and can accept ±30-V inputs. Each driver converts TTL/CMOS input levels into TIA/EIA-232-F levels. The features are…

- Input voltage levels are compatible with standard CMOS levels
- Output voltage levels are compatible with EIA/TIA-232-E levels

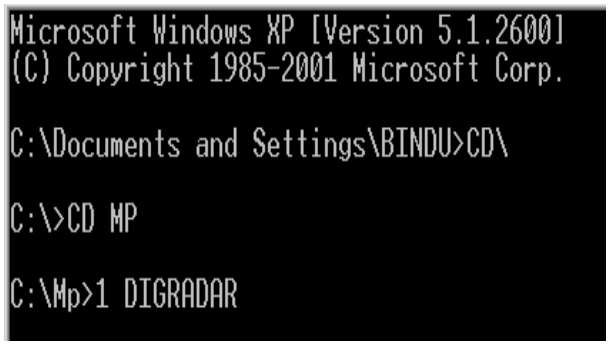
- Single Supply voltage : 5V
- Low input current : 0.1μA at TA= 25 °C
- Output current : 24mA
- Latching current not less than 450mA at TA= 25°C
- The transmitter outputs and receiver inputs are protected to ±15kV Air ESD.

APPLICATIONS

- Battery-Powered RS232 Systems.
- Terminals, modems and computers.

III. Procedure and work flow: The assembly language Instructions typed in dos editor or notepad with an extension of.ASM compile the above file with 8052 cross assembler. The assembler converts the .ASM file into .HEX file (Contains all op codes). Copy the converted Hex file into internal flash Rom of Micro Controller with the help of Universal Programmer or Micro Controller Programmer.

Fig 2.1 Command Window



Open the command window in the windows XP operating system.

Fig 2.2 Compilation of the file

Type the Assembly language Instructions in the dos editor with an extension of .ASM. And compile the file to check the errors and then create an object file.

```
C:\Mp>link -c DIGRADAR -dh

2500 A.D. Linker  Copyright (C) 1985  -  Version 4.05a

              Linker Output Filename : DIGRADAR.hex
              Disk Listing  Filename : DIGRADAR.map
              Symbol Table  Filename : <None Specified>


       Link Errors :  0              Output Format :  Intel Hex
```

Fig 2.3 Creation of hex file

After verifying the errors create a hex file to program the microcontroller.

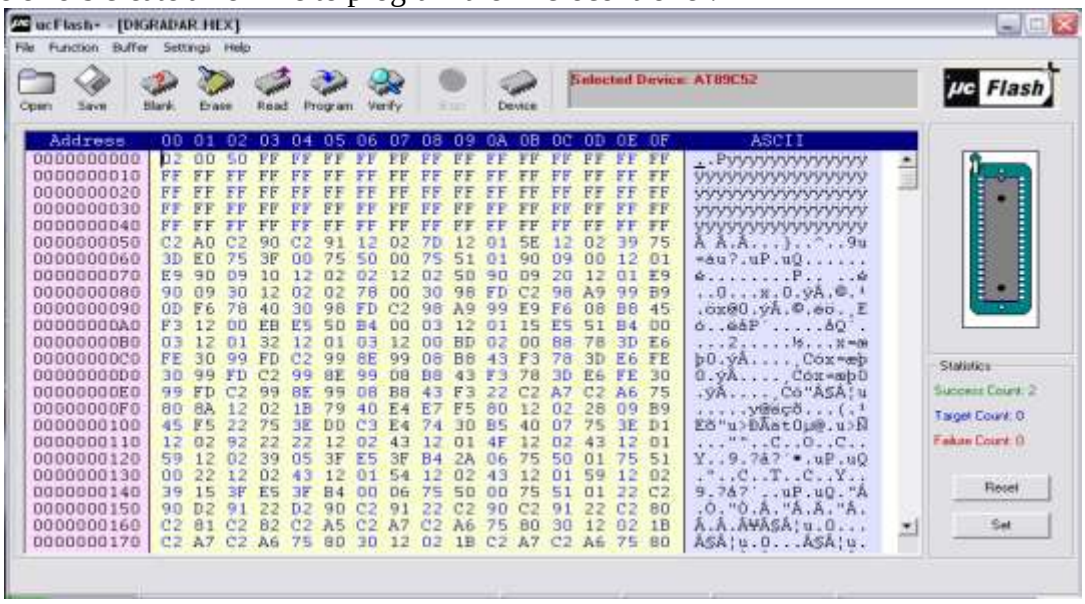


Fig 2.4 Opening the Micro flash software

Open Micro Flash software to program the microcontroller

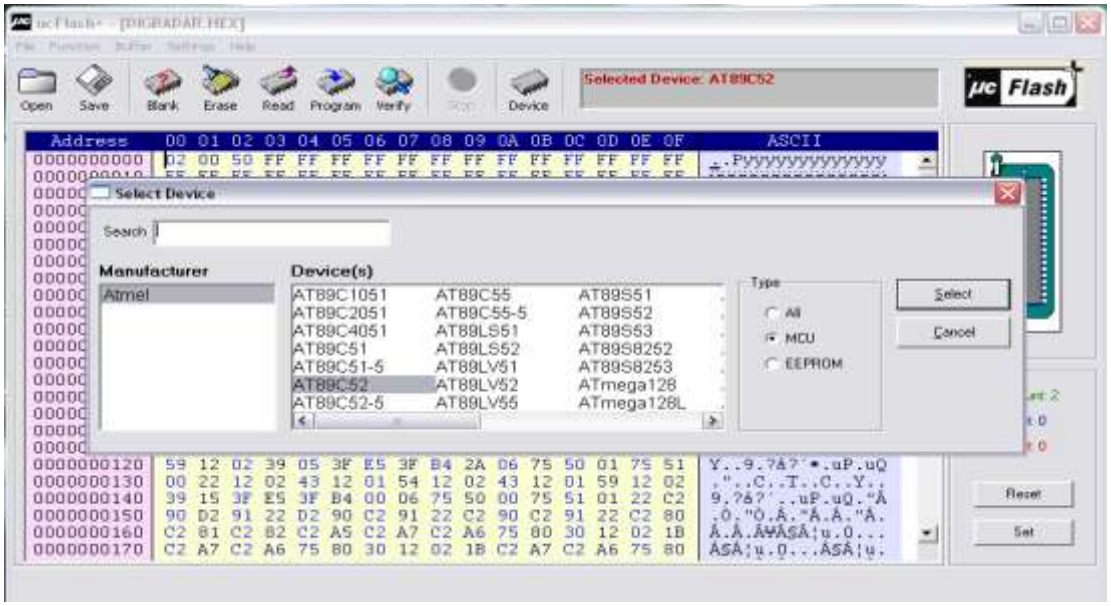


Fig 2.5 Selection of the device

After opening the Micro Flash software select the device as AT89C52 MCU.

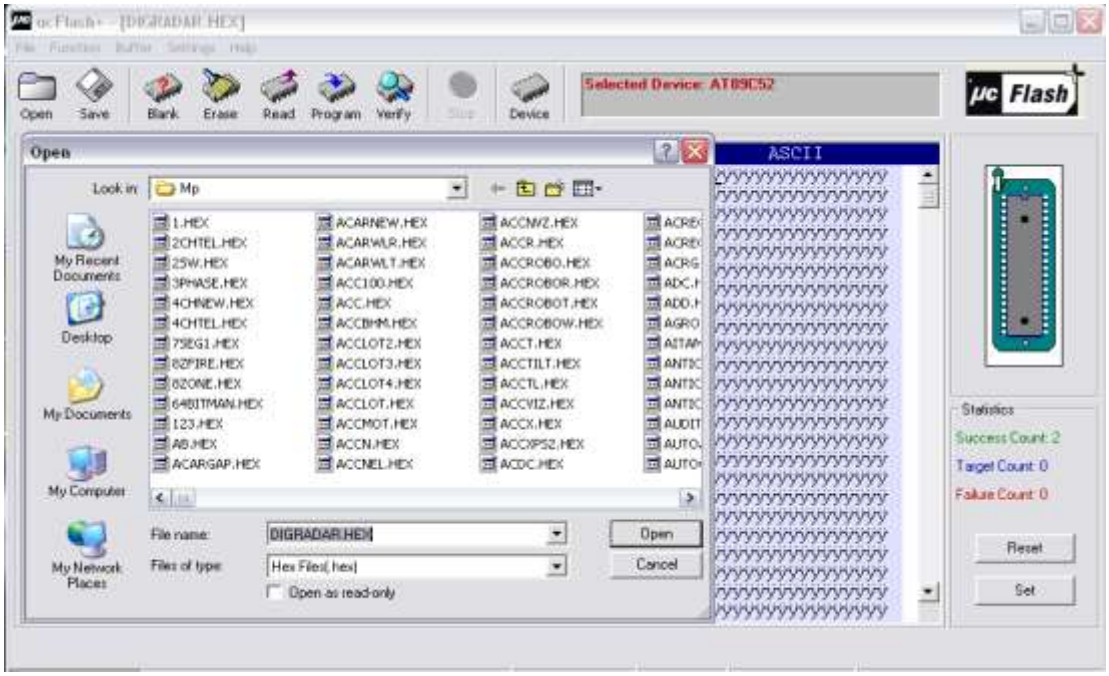


Fig 2.6 Opening of hex file

Click on open icon to open the hex file of the program.

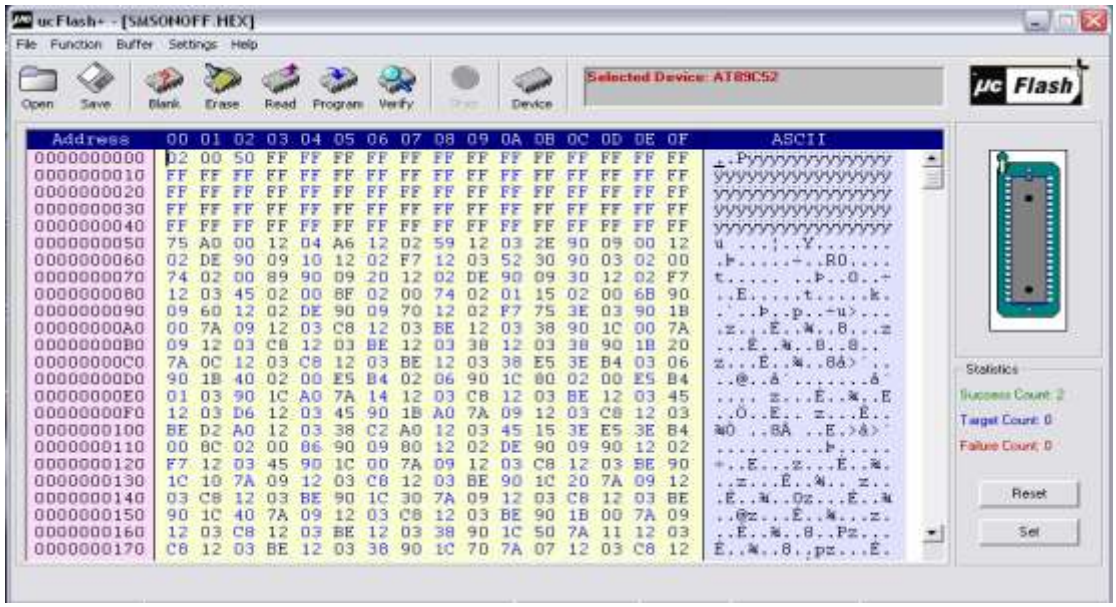


Fig 2.7 Hex code of the program

The hex code will be opened in the Micro Flash software.

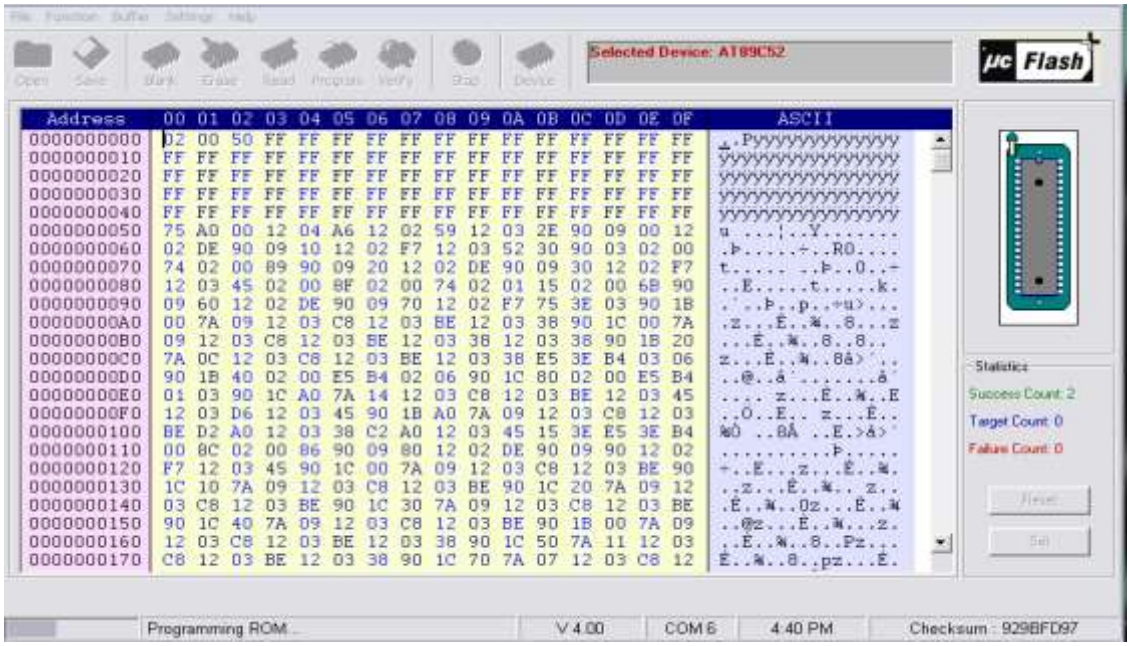


Fig 2.8 Dumping the Microcontroller

Now dump the program into the Micro Controller ROM.

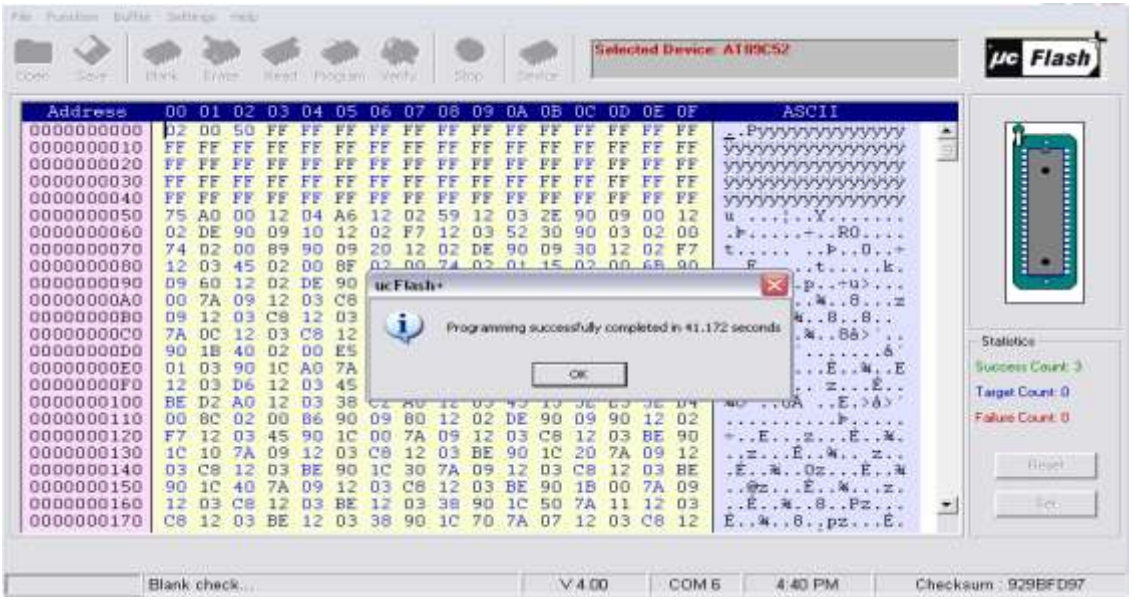
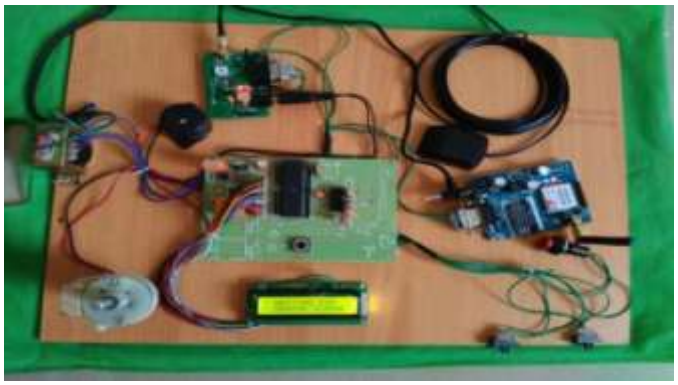


Fig 2.9 Completion of the program

After 41.172 seconds the the program will be dumped into the Micro Controller by performing the tasks like erasing, reading, verifying and then finally the chip is programmed**.**

IV. Result Analysis:

The overview of the vehicle tracking is shown in the figure. The vehicle tracking is implemented by using GSM and GPS Modules. The GPS module will track the vehicle and send the SMS to the owner's mobile through GSM module.



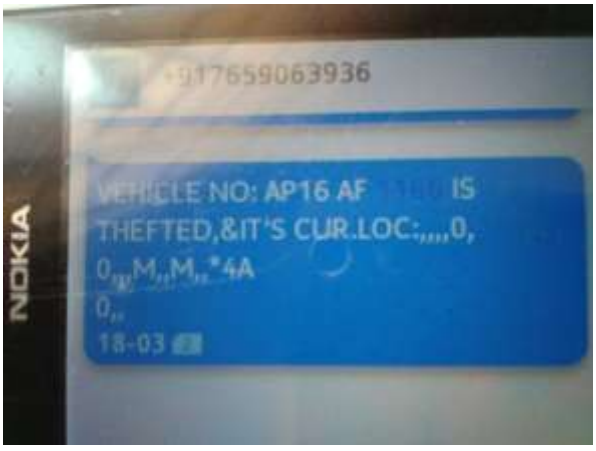


Fig shows the vehicle no and the current location of the vehicle. This shows the time and date also.

TABLE: 7.1 VEHICLE LONGITUDE AND LATTITUDE VALUES

VEHICLE	LONGITUDE	LATTITUDE
AP16AF1166	6688 9955 N	5150 2594 W
TS17CK9900	7894 1234 N	0123 8520 S
AP30AM0426	0214 1236 E	2015 6584 N

The resultant values of the vehicles are listed in the above table. This table represents the latitude and longitude of the three vehicles.

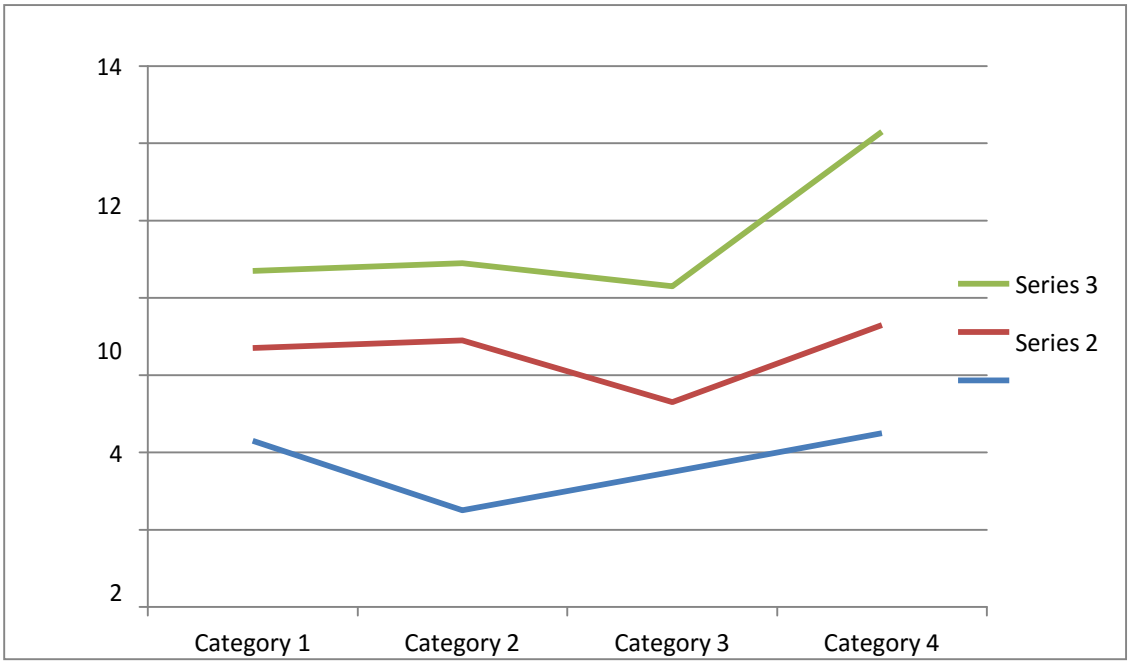


Fig 7.5 The Latitude and Longitude values are represented in a Graph

For these values the corresponding waves are represented in the above graph. The X-axis represents the no. of vehicles which are represented by the categories. The Y-axis represents the longitude values.

Conclusion: In this project the vehicles are tracked by using the GPS and GSM modules. This system permits the automotive localization using GPS and GSM services. The GPS locates the position of vehicle and transmit that data to the microcontroller. This data will be continuously transmitted to the RF receiver connected to the microcontroller. It automatically sends location of the vehicle to its owner as a SMS through GSM modem to our mobile numbers which are stored in EEPROM. This will be a much simpler and low cost technique compared to others.

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