

## Locking and Tracking of Stolen Vehicles

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### ABSTRACT:

Microprocessors are commonly referred to as general purpose processors as they simply accept the inputs, process it and give the output. In contrast, a microcontroller not only accepts the data as inputs but also manipulates it, interfaces the data with various devices, controls the data and thus finally gives the result. As everyone in this competitive world prefers to make the things easy and simple to handle. In this project we deal with the security of the vehicle. When ever the GSM modem receives the message from the particular mobile then the car engine gets stopped .The mobile number from which the message is being sent should be the authorized mobile number. The authorized mobile number should be feeded into the system and the number is stored in the EEPROM.

### I.INTRODUCTION:

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The authorized mobile number should be saved into the system and the number is stored in the EEPROM.

### Need & Importance:

Security is prime concern for everyone. Nowadays all the automotives are equipped with auto cop systems. Even though, the thieves are breaking the barriers and steal the vehicles. This project is the right solution for this problem. Using this project, one can control his vehicle's car engine by means of an SMS. There are various electronic equipment available for remote operation of device control. However, the main disadvantage of these systems is that they can be operated only from short ranges and also less reliable. Thus, to overcome the above drawbacks, we are using one of the wireless communication technique i.e., GSM (Global System for Mobile communications) is a digital cellular communications system which has rapidly gained acceptance and market share worldwide.

### Existing system:

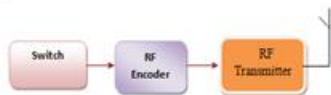
This project describes a security alarm system that can monitor bikes, cars and to most of the four wheeler vehicles. This project consists of RF module .Whenever the owner locks his/her vehicle automatically the vibration sensor gets activated. When some person wants to steal the vehicle automatically the siren gets activated to alert nearby people.

This is a simple and useful security system and easy to install. Flash lights and voice alert are also arranged for the purpose of indication. The detector will sense vibration caused by activities like moving vehicles by unknown persons to steal it then siren gets activating to alert you. At the transmitter side we will have a switch to access the bike. This is like owners key. When this is pressed then siren will not be activated even the signal is given through vibration sensor.

Block Diagram: Receiver arranged to bike



Block Diagram: Transmitter

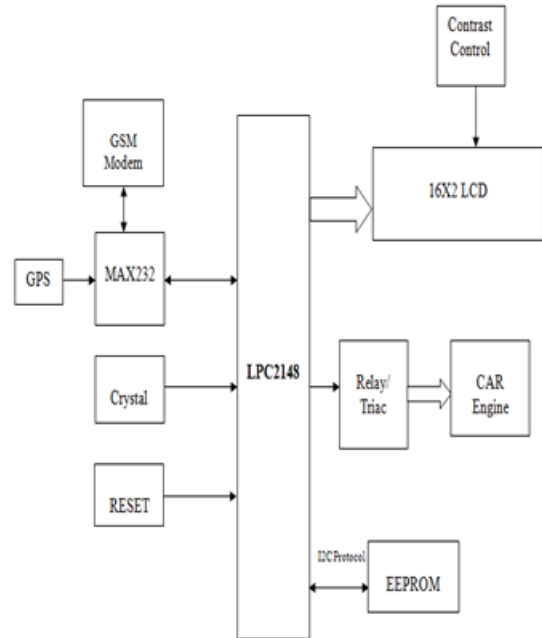


**Drawback:** Only manual lock is possible. There is no remote alert system.

## II. Proposed system:

LPC2148 is the heart of the project. A GSM modem is interfaced to microcontroller. This modem receives the messages from control mobile and sends as input to MCU. The MCU verify for authentication of the number and, if the number is authorized, engine control will be taken place, EEPROM is interfaced to this controller to save the engine position at every instant.

Block diagram:



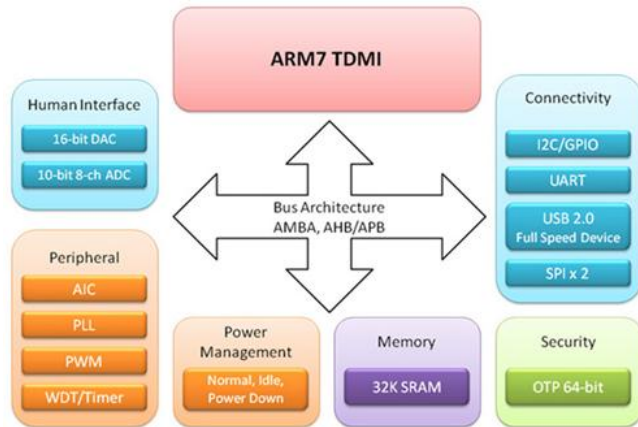
**Fig 1: Block diagram of the system**

This engine position information will not be deleted even in power failure conditions. 16X2 LCD is interfaced to display user-required information. GSM network operators have roaming facilities, user can often continue to use there mobile phones when they travel to other countries etc. GPS modem is also included to know the location.

## ARM7:

The **LPC2148** is based on a 16/32 bit ARM7TDMI-S™ CPU with real-time emulation and embedded trace support, together with 128/512 kilobytes of embedded high speed flash memory. A 128-bit wide memory interface and unique accelerator architecture enable 32-bit code execution at maximum clock rate. For critical code size applications, the alternative 16-bit Thumb Mode reduces code by more than 30% with minimal performance penalty. With their compact 64 pin package, low power consumption, various 32-bit timers, 4- channel 10-bit ADC, USB PORT, PWM channels and 46 GPIO lines with up to 9 external interrupt pins these microcontrollers are particularly suitable for industrial control, medical systems, access

control and point-of-sale. With a wide range of serial communication interfaces, they are also very well suited for communication gateways, protocol converters and embedded soft modems as well as many other general-purpose applications.



### GSM:

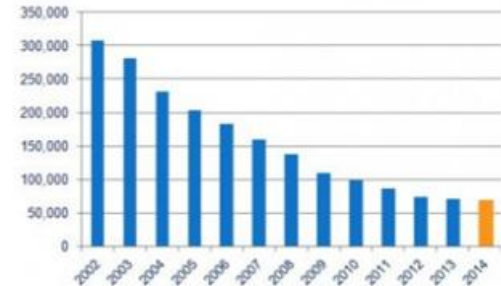
GSM, which stands for Global System for Mobile communications, reigns (important) as the world's most widely used cell phone technology. Cell phones use a cell phone service carrier's GSM network by searching for cell phone towers in the nearby area. Global system for mobile communication (GSM) is a globally accepted standard for digital cellular communication.

TABLE I. SOME COMMANDS USED IN GSM DATA TRANSFER MODULE OF THE SYSTEM

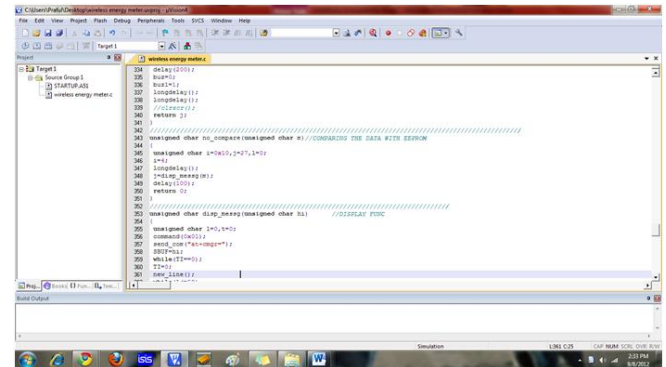
| AT Command | Meaning                   |
|------------|---------------------------|
| +CMGI      | Module ok                 |
| +CMGS      | Send message              |
| +CMGW      | Write message to memory   |
| +CMGD      | Delete message            |
| +CMGC      | Send command              |
| +CMSS      | Send message from storage |



Vehicle thefts since 2002



### III. Software Tools:



Keil compiler is a software used where the machine language code is written and compiled. After compilation, the machine source code is converted into hex code which is to be dumped into the microcontroller for further processing. Keil compiler also supports C language code.

### Flash Magic:

Flash Magic is a tool which is used to program hex code in EEPROM of micro-controller. It is a freeware tool. It only supports the micro-controller of Philips and NXP. It can burn a hex code into that controller which supports ISP (in system programming) feature. Flash magic supports several chips like **ARM Cortex M0, M3, M4, ARM7 and 8051.**



**Advantages:**

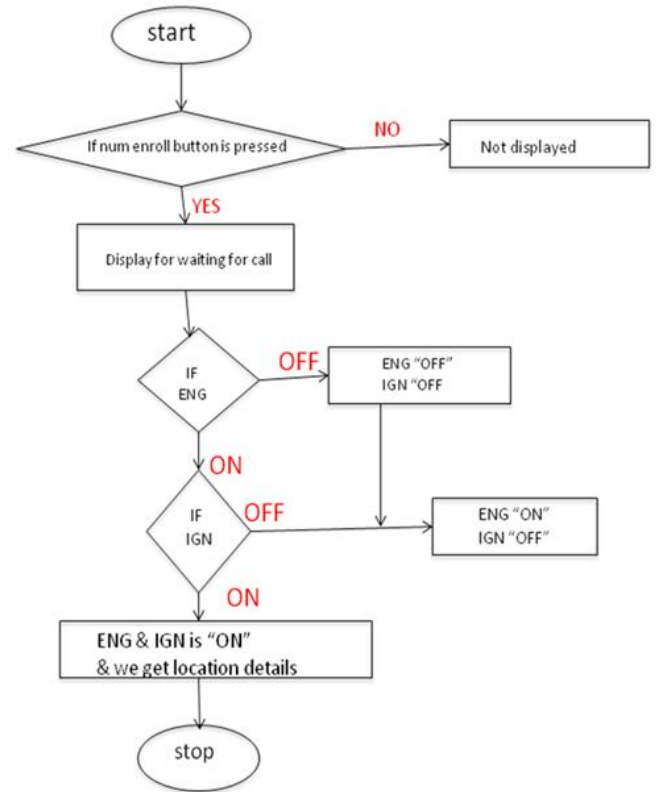
- Vehicle can be controlled from any where
- Mobile number can be changed at any time
- Status will not be lost in power failure condition

**Applications:**

Automotive Security



**IV. Flow Chart:**



**Fig 2:Flow chart**

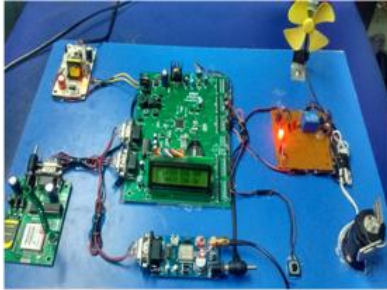
**V. RESULTS:**

A) When ENG & IGN OFF state



**Fig 3:When ENG&IGN OFF state**

**B) When ENG OFF&IGN ON state**



**Fig 4:When ENG OFF&IGN ON state**

**C) When ENG ON &IGN OFF state**



**Fig 5.When ENG ON&IGN OFF state**

**D) When ENG&IGN ON state**



**Fig 6:When ENG&IGN ON state**

**E) SMS&GPS values when both ENG & IGN ON state**



**Fig 7:SMS&GPS values when both ENG&IGN ON state**

**VI.CONCLUSION:**

In this project work, we have studied and implemented a complete working model using a Microcontroller. Using this project, one can control his vehicle's car engine by means of an SMS.

**VII.REFERENCES:**

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