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GSM BASED CAR ENGINE CONTROL IMPLEMENTATION TO STOP CAR THEFT

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ABSTRACT

An embedded system is a combination of software and hardware to perform a dedicated task. Some of the main devices used in embedded products are Microprocessors and Microcontrollers. 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 through the keypad and the number is stored in the EEPROM.

INTRODUCTION

GSM (GLOBAL SYSTEM FOR MOBILE COMMUNICATION):

It is a globally accepted standard for digital cellular communication. GSM is the name of standardization group established in 1982 to create a common European mobile telephone standard that would formulate specifications for a pan-European mobile cellular radio system operating at 900MHZ.Throughout the evolution of cellular telecommunications, various systems have been developed without the benefit of standardized specification. This presented many problems directly related to compatibility, especially with the development of digital radio technology. The GSM standard is intended to address these problems.

Definition:

Global System for Mobile (GSM) is a second generation cellular standard developed to cater voice services and data delivery using digital modulation.

GSM SERVICES:

- Tele-services
- Bearer or Data Services
- Supplementary services

Tele-services:

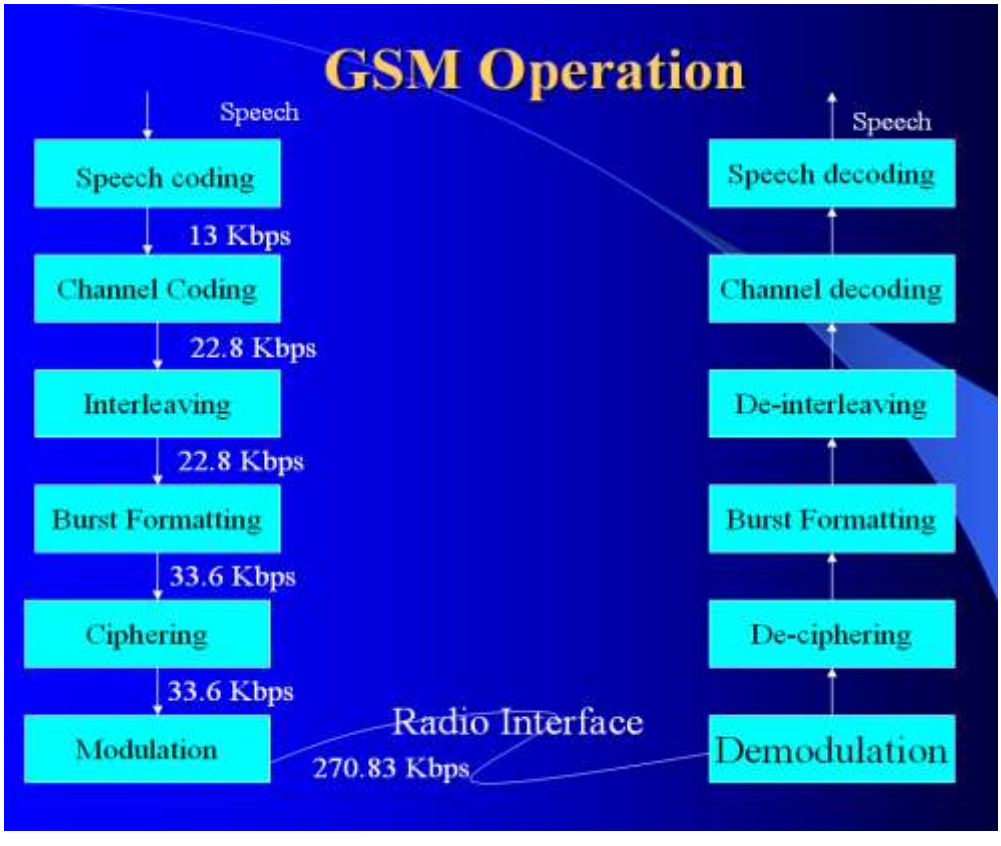
- Telecommunication services that enable voice communication via mobile phones.

- Offered services

  - Mobile telephony

  - Emergency calling

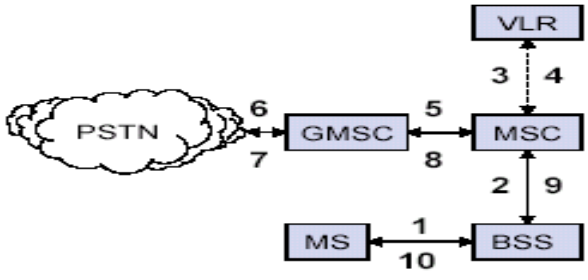
- **OPERATION OF GSM:**



Call Routing:

- Call Originating from MS
- Call termination to MS

Outgoing Call:



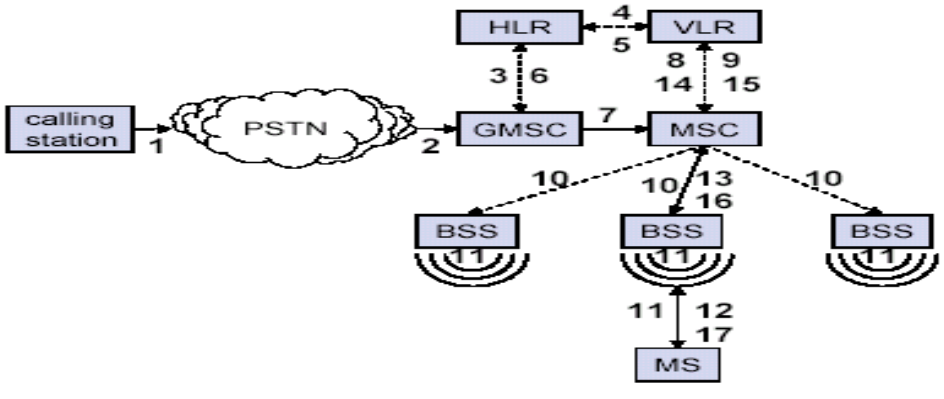
1. MS sends dialed number to BSS
2. BSS sends dialed number to MSC

5 MSC checks VLR if MS is allowed the requested service.

6 GMSC routes the call to local exchange of called use7, 8,

7 Answer back (ring back) tone is routed from called user to MS via GMSC, MSC, BSS

Incoming Call:



1. Calling a GSM subscribers
2. Forwarding call to GSMC
3. Signal Setup to HLR
4. 5. Request MSRN from VLR
6. Forward responsible MSC to GMSC
7. Forward Call to current MSC
8. 9. Get current status of MS
10. 11. Paging of MS
12. 13. MS answers
14. 15. Security checks

16. 17. Set up connection

Characteristics of GSM Standard:

- Fully digital system using 900,1800 MHz frequency band
- TDMA over radio carriers(200 KHz carrier spacing.
- 8 full rate or 16 half rate TDMA channels per carrier.
- User/terminal authentication for fraud control.
- Full international roaming capability.
- Low speed data services (upto 9.6 Kb/s).
- Support of Short Message Service (SMS).

GSM Applications:

- Mobile telephony
- GSM-R
- Telemetry System
    - Fleet management
    - Automatic meter reading
    - Toll Collection
    - Remote control and fault reporting of DG sets
- Value Added Services

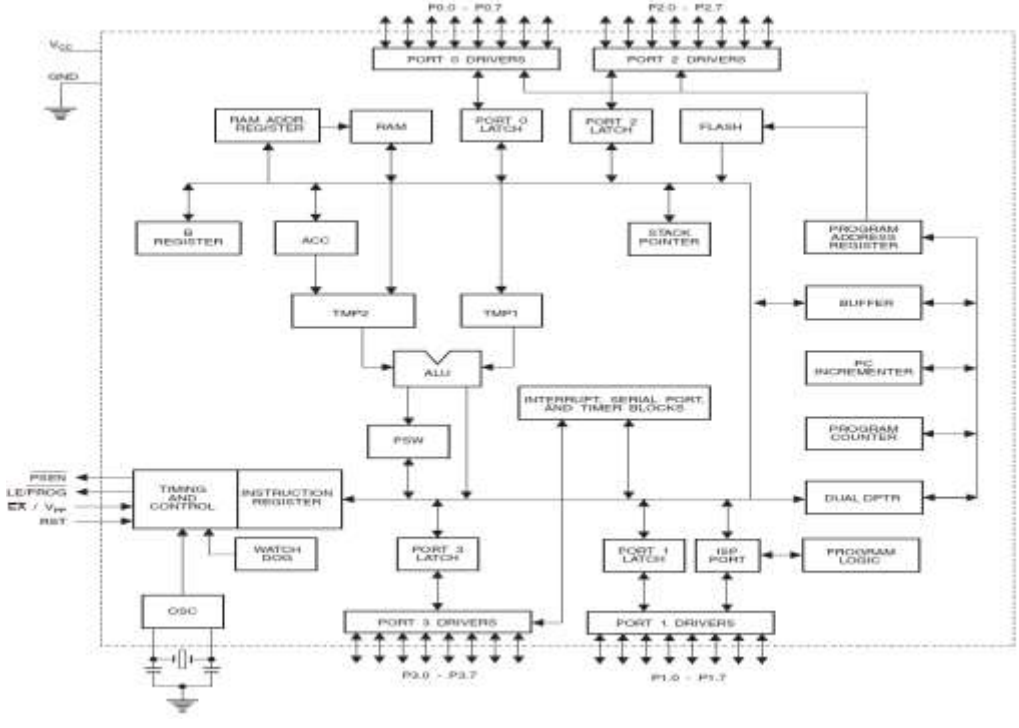
AT89S52 Microcontroller

Description:

The AT89S52 is a low-power, high-performance CMOS 8-bit microcontroller with 8K bytes of in-system programmable Flash memory. The device is manufactured using Atmel's high-density non-volatile memory technology and is compatible with the Indus-try-standard 89S52 instruction set and pin out. The on-chip Flash allows the program memory to be reprogrammed in-system or by a conventional non-volatile memory pro-grammar. By combining a versatile 8-bit CPU with in-system programmable Flash on a monolithic chip, the Atmel AT89S52 is a powerful microcontroller which provides a highly-flexible and cost-effective solution to many embedded control applications.The AT89S52 provides the following standard features: 8K bytes of Flash, 256 bytes of RAM, 32 I/O

lines, Watchdog timer, two data pointers, three 16-bit timer/counters, a six-vector two-level interrupt architecture, a full duplex serial port, on-chip oscillator, and clock circuitry. In addition, the AT89S52 is designed with static logic for operation down to zero frequency and supports two software selectable power saving modes. The Idle Mode stops the CPU while allowing the RAM, timer/counters, serial port, and interrupt system to continue functioning. The Power-down mode saves the RAM con-tents but freezes the oscillator, disabling all other chip functions until the next interrupt or hardware reset.

Block Diagram:



Advantages:

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

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