Locking and Unlocking of Theft Vehicles Using CAN

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Introduction

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.

Need & importance

Security is prime concern for every one. 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 want to steal the vehicle automatically the siren gets activated to alert near by 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
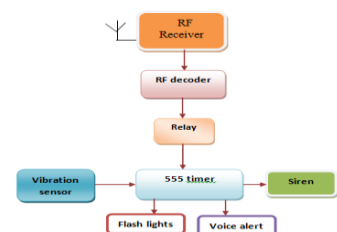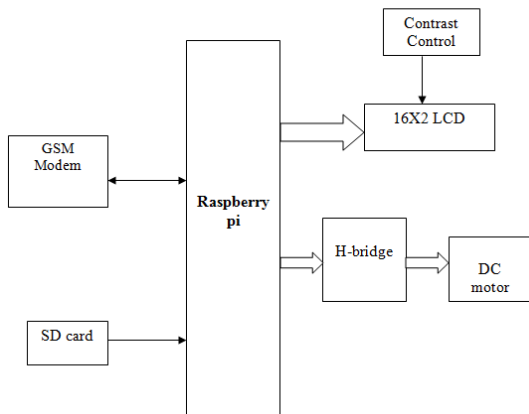
Block Diagram: Transmitter

Draw back:

Only manual lock is possible. There is no remote alert system.

Proposed system

BLOCK DIAGRAM

Raspberry pi 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, 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 states etc….
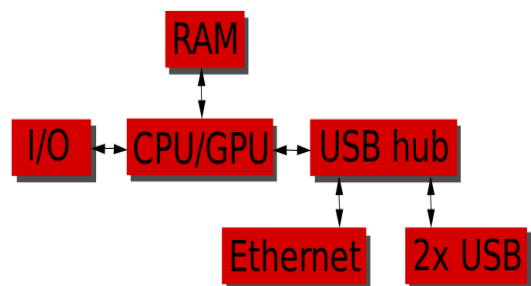

RASPBERRY-PI

The **Raspberry Pi** has a Broadcom system on a chip (SoC).

Features

- System Memory – 1GB LPDDR2
- Storage – micro SD card slot (push release type)
- Video & Audio Output – HDMI and AV via 3.5mm jack.
- Connectivity – 10/100M Ethernet
- USB – 4x USB 2.0 ports, 1x micro USB for power
- Expansion
  2×20 pin header for GPIOs
  Camera header
  Display header
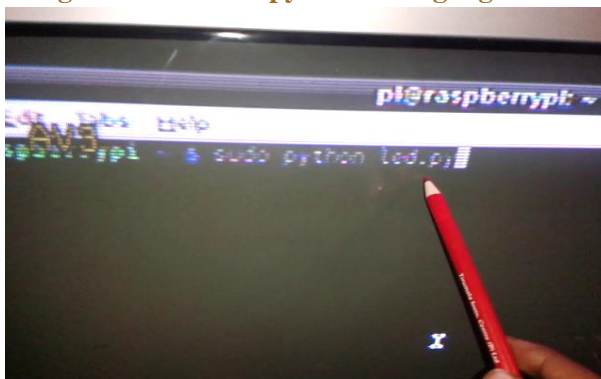- Power – 5V via micro USB port.
- Dimensions – 85 x 56 mm

Basic Hardware of Raspberry-PI

OS used in Raspberry pi is Linux
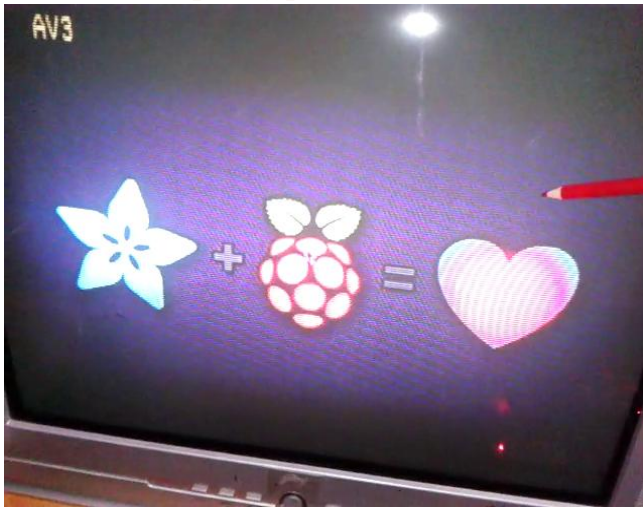
**Coding will be done in python/C language**


Global System for Mobile Communication (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
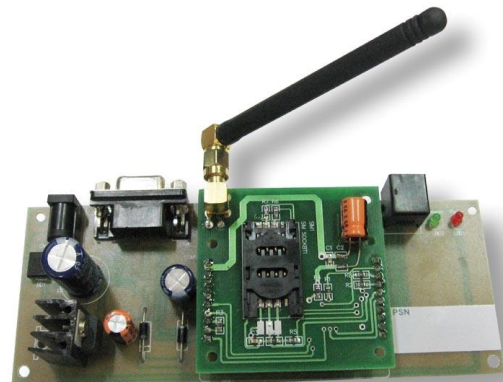
Vehicle thefts since 2002
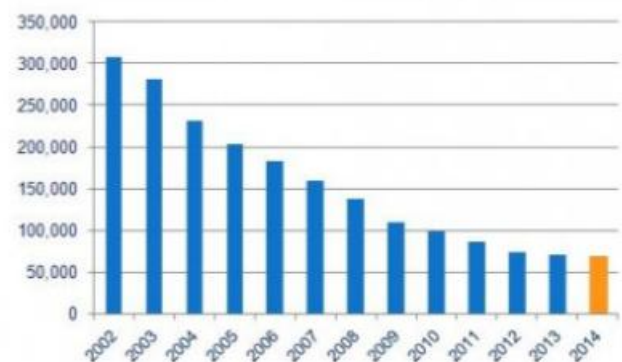
Advantages

- 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

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.

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