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Vehicle Starting using Fingerprint Sensor & Accident Detection using GSM & GPS

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Abstract - *The main purpose of this project is protecting vehicle from theft. Now a day's vehicle theft are increasing rapidly[1].People have started to use the theft control system installed in their vehicles[4]. The commercially available anti-theft vehicular system are very expensive & this project is developed as low cost vehicle theft control scheme using a microcontroller & with usage of GPS & GSM technology[2]. Also the accident detection feature in this system will send emergency alert message to police, family & ambulance along with exact location, in case the vehicle is met with an accident[3]. Our system is linked to Google map to locate exact position of vehicles[5].*

Key Words: **Vehicle Biometric System, Security System, Automobile Industry, MEMS, IR Sensor**

1. INTRODUCTION

Recently vehicle tracking system is getting vast popularity because of the rising number of the stolen vehicles. Vehicle theft is happening on parking on sometimes driving in unsecured places. This project explores how to avoid this kind of stealing & provide more security to the vehicles. The implemented system contain single board embedded system which is equipped with Global system for mobile communication (GSM) & Global Positioning System (GPS) along with a microcontroller installed in the vehicle. The use of GSM & GPS technologies allows the system to track the vehicle & provide the most up-to-date information about on-going trips. Moreover, fingerprint sensor is done in the implemented system to ensure the driving of correct person. The implemented system is very simple with greater security for vehicle anti-theft protection & low cost technique compared to other. If the vehicle is met with an accident, an immediate alarm is sent to the family, ambulance & police with the current location of the vehicle. This technique helps in taking fast steps toward an attempt to steal the vehicle. The design is robust & simple.

1.1 SYSTEM DESIGN AND DETAILS

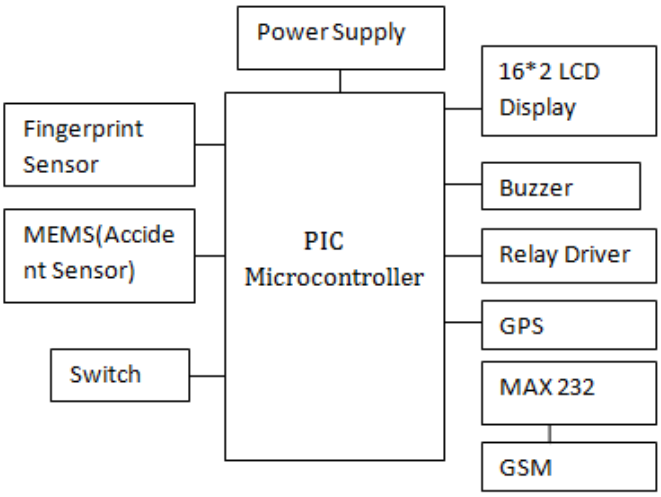

Fig:- Block Diagram of Vehicle starting using fingerprint sensor & Accident detection Using GSM & GPS

FINGER PRINT SENSOR

Fig.a) Finger print Sensor

This is a finger print sensor module with TTL UART interface for direct connections to microcontroller UART or to PC through MAX232 / USB-Serial adapter. The user can store the finger print data in the module and can configure it in 1:1 or 1: N mode for identifying the person. The FP module can directly interface with 3v3 or 5v Microcontroller. A level converter (like MAX232) is required for interfacing with PC serial port. Optical biometric fingerprint reader with great features and can be embedded into a variety of end products, such as: access control, attendance, safety deposit box, car door locks.

GPS MODULE

Fig.b) GPS module

GPS (Global Positioning System) is a satellite based navigation system, consisting of 24 satellites located into orbit. The system provides essential information to military, civil and commercial users around the world and is freely accessible to anyone through GPS receiver. GPS works in any weather circumstances at almost anywhere in the world. Normally there are no subscription fees or system charges to utilize the GPS. The bandwidth of GPS receiver antenna is 10MHz minimum.GPS is used to detect the vehicle location and provide information to responsible person through GSM technology.

GSM MODULE

Fig.c)GSM module

GSM (Global System for Mobile communication) module is a second generation cellular standard developed to cater the voice services and data delivery using digital modulation. GSM Module is a specialized type of modem which accepts a SIM card operating on a mobile number over a network, just like a cellular network. It is a cell phone without display. It uses narrow band TDMA. It is secure and flexible with its functionalities. The GSM is used for communication to the authoritative person regarding the status of the system like accident alertness and vehicle theft in the system.

PIEZOELECTRIC BUZZER

Fig.d) Piezoelectric buzzer

The buzzer converts the received electrical signal it received into a vibration, which creates the buzzing sound. The higher the signal it receives, the more intense the vibration and the louder the sound.

16*2 LCD DISPLAY

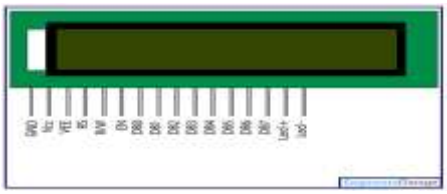

Fig.e) 16*2 LCD display

An LCD display is an electronic display module which is uses liquid crystal to produces a visible image. The 16*2 LCD display is a very basic module commonly use in DIYs & circuit. The 16*2 translates o a display 16 character per line in 2 such line. In this LCD each character is displayed in a 5*7 pixel matrix.

2. SYSTEM OPERATION

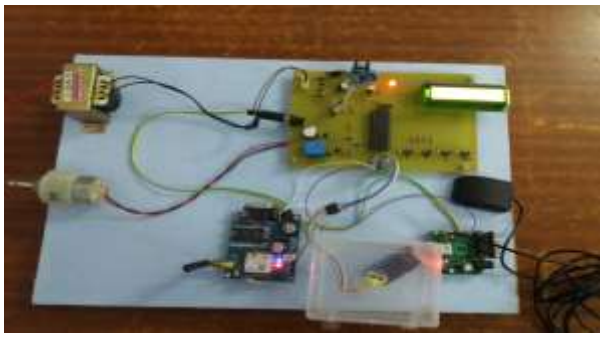

Fig:-Vehicle starting using fingerprint sensor & accident detection using GSM.

3. CONCLUSIONS

This work is a well operating prototype of a fingerprint based vehicle staring system. The system intelligent agents were able to communicate well and appropriate output is given under user input. The system requests for user's finger, process it and give appropriate output based on if the finger is stored in the fingerprint module or not. The system is also able to enroll new user's finger at request but prompt for pass code before it could be done. Pass code editing can also be done on request in the system.

Hence, fingerprint technology improves the security of an automobile making it possible for the car to be used by only authorized users. Therefore implementing this system on vehicles makes the achievement of our car security system comes in a cheap and easily available form. The output is viewed with the use of an LED. Biometric recognition systems present security and convenience than conventional methods of personal recognition.

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