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A Novel Intelligent Vehicle Theft Control And Automatic Rc And License Checking System

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Abstract

The purpose of the project is to identify the vehicle theft and to pass the message to the owner of the vehicle using GSM technology. The setup consists of two parts namely transmitter and receiver. The transmitter kit is fixed in the bike. The receiver kit is with the police or with any protection authority. A finger print sensor, GSM modem, RF transmitter, RFID reader, and a key pad are connected with the transmitting section. First the finger print of the person who is to drive the vehicle is recognized. If the finger print does not match with the already stored print, the indication will be shown in the form of a buzzer and a message will be sent to the owner of the vehicle. In case if the finger print gets matched, the next step verification is done. Each vehicle has its own insurance and Registration Certificate (RC) book which is stored in an RFID tag which is read by RFID reader. Now using the RF Transmitter the data transmit from the RFID reader is sent to the receiver. The received data are maintaining in personal computer (PC) for further analysis.

I.INTRODUCTION

Motor vehicle theft (sometimes referred to as grand theft auto by the media and police departments in the US) is the criminal act of stealing or attempting to steal a motor vehicle (such as an automobile, truck, bus, coach, motorcycle, or snowmobile, trailer). Nationwide in the US in 2005, there were an estimated 1.2 million motor vehicle thefts, or approximately 416.7 motor vehicles stolen for every 100,000 inhabitants. Property losses due to motor vehicle theft in 2005 were estimated at $7.6 billion. Since then the number of motor thefts nationally has declined. The most recent statistics, for 2009, show an estimated 794,616 thefts of motor

vehicles nationwide, representing property losses of nearly $5.2 billion.

There are various methods of prevention to reduce the likelihood of a vehicle getting stolen. These include physical barriers, which make the effort of stealing the vehicle more difficult. Some of these include:

Devices used to lock a part of the vehicle necessary in its operation, such as the wheel, steering wheel or brake pedal. A popular steering wheel lock is the club, immobilizers, allowing the vehicle to start only if a key containing the correct chip is present in the ignition. These work by locking the steering wheel and disabling the ignition. Chances of theft can also be reduced with various deterrents, which give the impression to the thief that s/he is more likely to get caught if the vehicle is stolen. These include:

Car alarm systems that are triggered if a breaking and entry into the vehicle occurs Microdot identification tags which allow individual parts of a vehicle to be identified. Kill switch circuits are designed to frustrate or slow down the efforts of a determined car thief. Kill switches are often located between crucial parts of the starting system, between the battery source and the coil, or the fuel pump. A car cannot start without first flipping these kills' witches to closed position. Savvy car owners hide these kill switches in obscured areas, under the dashboard, beneath the seat, behind a chair, etc. Signage on windows warning of the presence of other deterrents, sometimes in absence of the actual deterrents.

The main aim of this Vehicle Theft Security System project is to provide the protection for unauthorized usage objects. To provide the security whenever any unauthorized persons use the bike, car, doors opening then sounding horn by alarm. And one more future is the vehicle cannot run for unauthorized persons the lock is not open. Before sending out the vehicle from the industry the VTSS (vehicle theft security system) is arranged in the vehicle. This feature is done by programming of power train control module (PCM). Once the PCM is activated that is no run future is enabled the vehicle cannot come into running position until the old PCM replaced with the new PCM, with same logic.

II. BLOCK DIAGRAM DESCRIPTION:

Finger print sensor is used to sense the finger print of a person and to load the person's details from the controller. Radio-frequency identification (RFID) is a wireless non-contact system that uses radio-frequency electromagnetic field to transfer data from a tag attached to an object, for the purposes of automatic identification and tracking. When the user want to drive the vehicle, that user first have to place his finger on the finger printer which is attached on that vehicle.If the given finger print gets unmatched

with the details stored in the RFID, Micro controller will send a signal to the GSM module. As GSM receives a signal from micro controller it informs the owner as "vehicle theft detected" through an SMS. Buzzer which is connected to microcontroller is used to produce alarm which indicates theft.

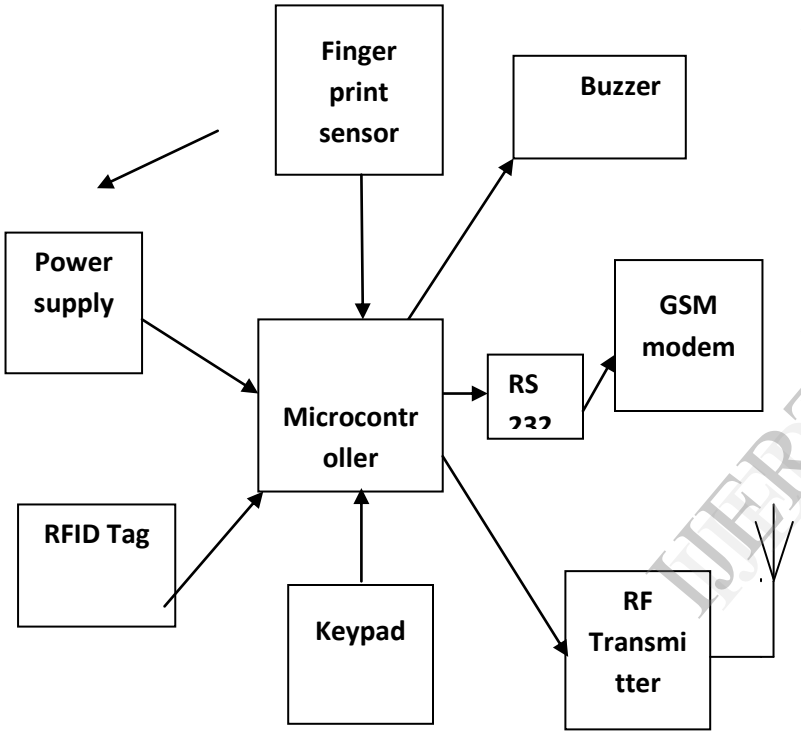

Fig: 1 Block Diagram

In addition to the vehicle theft RC and the license details will get displayed in the check-post by using RFID receiver tag automatically. When the person's finger print gets matched, his details gets loaded and it will get displayed in the PC at a distance of about 10m before the check post by using electromagnetic signals from RFID through RF transmitter.

Hardware description

The ATmega8 is a low power CMOS 8-bit microcontroller based on the AVR Risc architecture. By executing powerful instruction in a single clock cycle, the ATmega8 achieves throughputs approaching 1MIPS per MHZ, allowing the system designed to optimize power consumption versus processing speed.

The AVR core combines a rich instruction set with 32 general purpose working registers**.** All the32 registers are directly connected to the Arithmetic Logic Unit (ALU), allowing two independent registers to be accessed in one single instruction executed in one clock cycle. The resulting architecture is more code efficient while achieving throughputs up to ten times faster than conventional CISC microcontrollers.

The ATmega8 features

- 8K bytes of In-System Programmable Flash with Read-While-Write capabilities.
- 512 bytes of EEPROM, 1K byte of SRAM, 23 general purpose I/O lines.
- 32 general purpose working registers and three flexible Timer/Counters with compare modes.
- Internal and external interrupts, a serial programmable USART, a byte oriented Two-wire Serial Interface.

- 6-channel ADC (eight channels in TQFP and QFN/MLF packages) with10-bit accuracy and a programmable Watchdog Timer with Internal Oscillator.

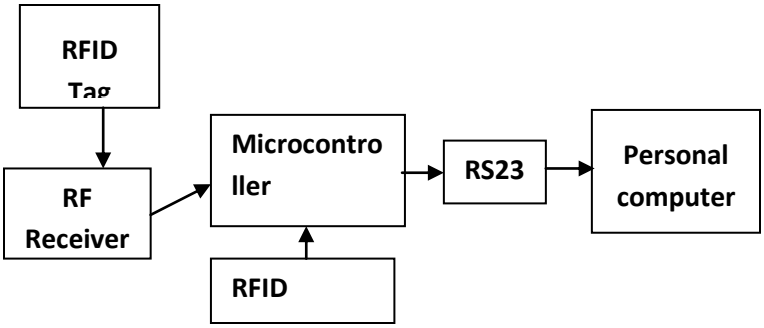

Fig: 2 Receiver Section

Fingerprint Sensor

Recognition or Fingerprint Authentication refers to the automated method of verifying a match between two human fingerprints. Fingerprints are one of many forms of biometrics used to identify individuals and verify their identity. This article touches on two major classes of algorithms (minutia and pattern) and four sensor designs (optical, ultrasonic, passive capacitance, and active capacitance)

GSM

This describes the hardware interface of the SIMCOM SIM300 module that connects to the specific application and the air interface. As SIM300 can be integrated with a wide range of applications, all functional components of SIM300 are described in great detail.

Product concept

Designed for global market, SIM300 is a Tri-band GSM/GPRS engine that works on Frequencies EGSM 900 MHz, DCS 1800 MHz and PCS 1900 MHz SIM300 features GPRS Multi-slot class 10/ class 8 (optional) and supports the GPRS coding schemes CS-1, CS-2, CS-3 and CS-4.

SIM card interface

It uses AT Command to get information in SIM card. The SIM interface supports the functionality of the GSM Phase 1 specification and also supports the functionality of the new GSM Phase 2+ specification for FAST 64 kbps SIM (intended for use with a SIM application Tool-kit).Both 1.8V and 3.0V SIM Cards are supported. The SIM interface is powered from an internal regulator in the module having nominal voltage 2.8V. All pins reset as outputs driving low.

III.RESULT AND DISCUSSION

Thus this project identifies the vehicle theft control using finger print sensor with GSM alert and license and RC book checking are made automatically by using the RFID TAG .

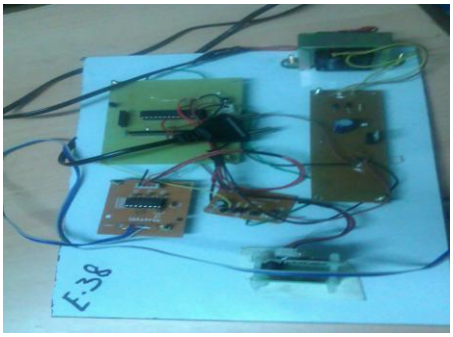

Fig 3: Hardware setup of transmitter section

Transmitter which is fixed in the bike will gets loaded with the user's details when a user places his fingerprint in the fingerprint sensor and RFID transmitter transmits the details to the receiver

Figure 4: Hardware setup of receiver section

The receiver part is connected with the PC in the check post and the details will get displayed in the PC with the help of RF receiver.

Fig 5: PC Display

IV CONCLUSION

The purpose of the project is to identify the vehicle theft and to pass the message to the owner of the vehicle using GSM technology. The setup consists of two parts namely transmitter and receiver. The transmitter kit is fixed in the bike. The receiver kit is with the police or with any protection authority. A finger print sensor, GSM modem, RF transmitter, RFID reader, and a key pad are connected with the transmitting section. First the finger print of the person who is to drive the vehicle is recognized. If the finger print does not match with the already stored print, the indication will be shown in the form of a buzzer and a message will be sent to the owner of the vehicle. In case if the finger print gets matched, the next step verification is done.

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