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SMART SECURITY SYSTEM FOR CARS

Akshay V. Balki*, Ankit A. Ramteke, Akshay Dhankar, Prof. Nilesh S. Panchbudhe
* Student(DBACER)

ABSTRACT

This propose work is an attempt to model design an smart advance vehicle security system that uses biometric scanner and RFID card reader to give ignition pulse using two main module and to prevent theft. The system contains biometric scanner, RFID card reader, alcohol sensor, vibration sensor, GSM module, microcontroller (8051), relay switch, high voltage mesh..The safety of car is exceptionally essential. It provides pulse to ignition system by synchronizing driver's data from license and thumb print using microcontroller.

KEYWORDS: Vehicle, biometric scanner, RFID card reader, alcohol sensor, vibration sensor, GSM module, relays, mobile communication, security, relays, microcontroller.

INTRODUCTION

In today's world owing a car is not a big deal but safeguarding the owned car has become a great deal. Even though the modern automobiles are heterogeneously combined by the combination of latest digital components it had also created the opportunity for new attacks. The ratio of accident of teenagers is increasing day by day because even though they don't have driving license still they drive the car ruthlessly and accident occurs. Similarly the drunk and drive cases are also increasing in large proportion. The aim of the project is to stop the drunk and drive cases and terrorist attack as they communicate each other by using cars. The user who doesn't have a valid driving license cannot able drive a car. The user has to give a valid driving license and has to scan the finger which has being given to the RTO while making a driving license. By that the teenagers who don't have a license can't able to drive a car and the terrorist who enters in city with any purpose without license they can't able to drive the car. If alcohol sensor detects that the user is drunk the car has being stop and the message sends to the police station. In emergency case if the accident occurs with the user the message is being sent to the nearby hospital and to the family member.

LITERATURE REVIEW

Security systems nowadays have become a very important need available with many modern features. This home and shops security system with extra access and intelligent alarming. This system will be accessed and configured by owner using Bluetooth module communication via mobile phone to turn in on or off. This system suggests that GSM based security system are more stout then an ordinary security system .The ordinary systems are simply based on the concept of sensors .They sound an alarm on detecting movement. This system of technology has now lost its appeal as it became a common sighting in meteors where these alarms go of unnecessarily. Due to the insecure environment the ratio of the vehicle theft increases rapidly. Because of this the manufactures of the automotive are taking some serious steps for the protection of their valuable vehicles which includes activating alarms, steering wheel lock systems. They ensure authorization for the owners and also inbuilt these anti-theft system to prevent car from theft.

We use this technology and take it one step further and implement that on a locomotive like cars. We installed a set of detectors and sensors like breath alcohol level analyzer to check the condition of the driver (weather he is drunk or not), vibration sensor to detect the impact of locomotive body with any mass during accident and biometric scanner and RF ID card reader to identify the identity of the owner of a particular locomotive and also a GSM module to send automatic messages to owner and their relatives or to an emergency helpline.

METHDOLOGY
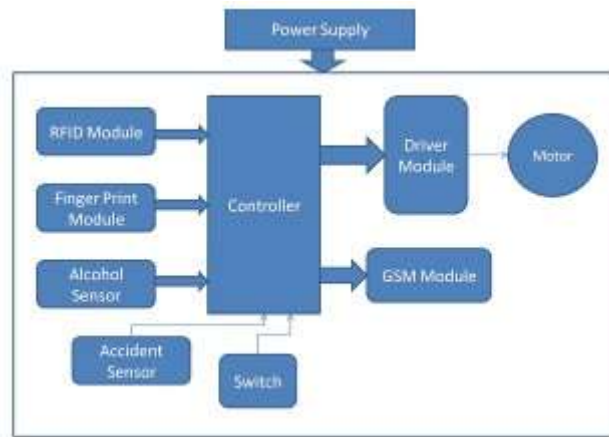
Finally, complete content and organizational editing before formatting. Please take note of the following items when proofreading spelling and grammar:

Abbreviations and Acronyms
Define abbreviations and acronyms the first time they are used in the text, even after they have been defined in the abstract. Abbreviations such as IEEE, SI, MKS, CGS, sc, dc, and rms do not have to be defined. Do not use abbreviations in the title or heads unless they are unavoidable.

Units
- Use either SI (MKS) or CGS as primary units. (SI units are encouraged.) English units may be used as
  The above diagram shows the methodology of Smart security system for cars. It consist of 3 stages
  1. Sensors
  2. Controller
  3. Drivers
  4. Sensors

  These project consist of 3 types of sensors

Biometric Scanner
- Do not mix complete spellings and abbreviations of units: "Wb/m2" or "webers per square meter," not "webers/m2." Spell units when they appear in text: "...a few henries," not "...a few H."
- Use a zero before decimal points: "0.25," not ".25." Use "cm3," not "cc." (*bullet list*)

Fingerprint Identification and Digital Certification and it is used in a wide range of embedded applications. It features with the SEA/RSA accelerator engines, the embedded non-volatile memory (Flash/OTP), the fingerprint processing accelerator and its algorithm firmware. Cordis 5+ is the 32-bit RISC core which is featured with 16-

/32-bit ISA and Harvard bus architecture. The Enhanced DSP instruction extensions and accelerators are supported by this core system. In addition, a 5-stage pipeline is used to increase the amount of operational parallelism, giving the most performance out of each clock cycle. It is competent for System on Chip (SOC) products targeted at consumer, networking, automotive and other cost-sensitive markets.

The thumb impressions of different users are taken initially and stored. The database is chosen as such, the RFID of a particular user has to get matched with the thumb impression. They are matched using the PMA.This algorithm was used inbuilt in the embedded programming.

RADIO FREQUENCY IDENTIFICATION (RFID)
This board is based on the EM18 RFID Module. Using the board with microcontrollers to read a card's data is very simple and requires just a serial connection. The board should be powered at 5V, and it requires a direct connection to the microcontroller's Serial(Rx) pin. The card data is transmitted over the serial line when the card is brought near the module.

The board has an onboard power indication LED, a LED and Buzzer to indicate the presence of a RFID Card. All the IO pins are brought out to standard clearly labeled header pins, which reduce prototyping time and effort. An output pin (DET) also indicates the presence of a RFID card. The board can also be used to output data in Wiegand format. It can detect cards in the range of 3-8cms.

| Frequency	13.56 MHz ± 7 kHz
Peripheral I/O Connection	4 programmable GPIO pins
Dimension (L×W×H)	40 mm × 38 mm × 5 mm
Supply Voltage	2.0 to 5.5 V
Current Consumption	Sleep mode: 10 µA Idle mode: 10 mA Scan mode: 120 Ma
Antenna Options	Internal or 50 Ω output for external connection
Host Interfaces/Data Rates	UART(TTL): 9.6-115.2 kbps SPI: Mode 1 up to 4 Mb/s USB: 2.0 full speed 12 Mb/s I2C: 100/400 kHz
Transponder Communication Rate	ISO 14443A: 106 kbps ISO 14443B: 106 kbps

ALCOHOL DETECTOR
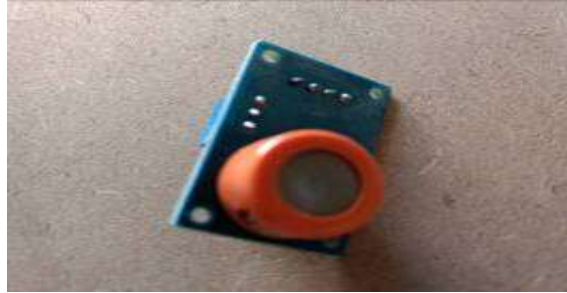
This module is made using Alcohol Gas Sensor MQ3. It is a low cost semiconductor sensor which can detect the presence of alcohol gases at concentrations from 0.05 mg/L to 10 mg/L. The sensitive material used for this sensor is SnO2, whose conductivity is lower in clean air. It's conductivity increases as the concentration of alcohol gases increases. It has high sensitivity to alcohol and has a good resistance to disturbances due to smoke, vapor and gasoline. This module provides both digital and analog outputs. MQ3 alcohol sensor module can be easily interfaced with Microcontrollers, Arduino Boards, Raspberry Pi etc.

This alcohol sensor is suitable for detecting alcohol concentration on your breath, just like your common breathalyzer. It has a high sensitivity and fast response time. Sensor provides an analog resistive output based on alcohol concentration. The drive circuit is very simple, all it needs is one resistor. A simple interface could be a 0-3.3V ADC.

CONTROLLER
ATMEL MEGA16
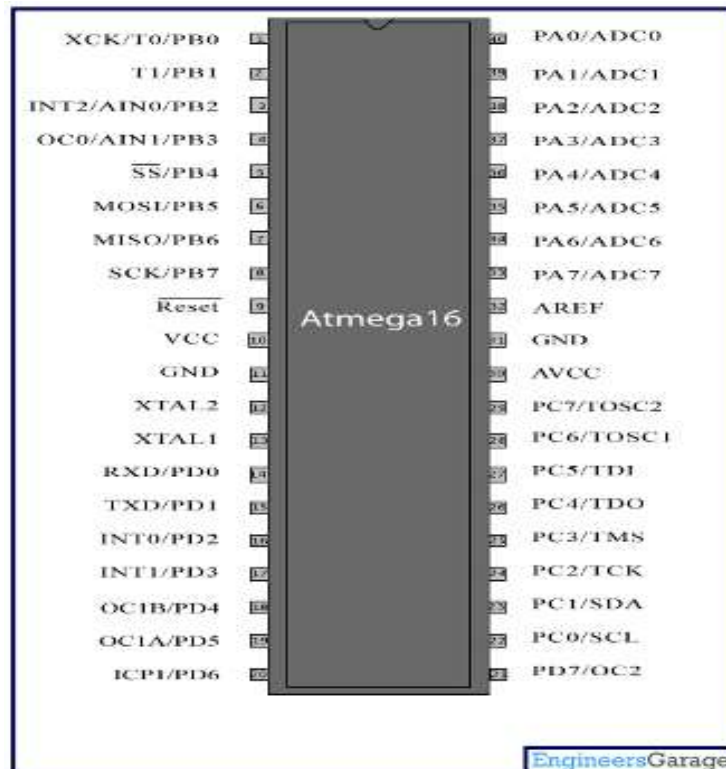
ATmega16 is an 8-bit high performance microcontroller of Atmel's Mega AVR family with low power consumption. Atmega16 is based on enhanced RISC (Reduced Instruction Set Computing, Know more about

RISC and CISC Architecture) architecture with 131 powerful instructions. Most of the instructions execute in one machine cycle. Atmega16 can work on a maximum frequency of 16MHz.

ATmega16 has 16 KB programmable flash memory, static RAM of 1 KB and EEPROM of 512 Bytes. The endurance cycle of flash memory and EEPROM is 10,000 and 100,000, respectively.

ATmega16 is a 40 pin microcontroller. There are 32 I/O (input/output) lines which are divided into four 8-bit ports designated as PORTA, PORTB, PORTC and PORTD.
  Advanced RISC Architecture
– 131 Powerful Instructions - Mo
st Single Clock Cycle Execution
– 32×8 General Purpose Working Registers
– Fully Static Operation
– Up to 1 MIPS throughput per MHz
– On-chip 2-cycle Multiplier
Data and Non-Volatile Program Memory
– 16/32/64K Bytes Flash of In-System Programmable Program Memory
– 512B/1K/2K Bytes of In-System Programmable EEPROM
– 1/2/4K Bytes Internal SRAM
– Write/Erase Cycles: 10
,000 Flash/
100,000 EEPROM
– Data Retention: 20 years at 85°C/ 100 years at 25°C
– Optional Boot Code Section with Independent Lock Bits
In-System Programming by On-chip Boot Program
True Read-While-W
rite Operation
– Programming Lock for Flash Program and
EEPROM Data Security
On Chip Debug Interface (debugWIRE)
CAN 2.0A/B with 6 Message Objects - ISO 16845 Certified
L 2.1 and 1.3 Controller or 8-Bit UART
One 12-bit High Speed PSC
(Power Stage Controller)
– Non Overlapping Inverted PWM Output Pins With Flexible Dead-Time
– Variable PWM duty Cycle and Frequency
– Synchronous Update of all PWM Registers
– Auto Stop Function for Emergency Event

DRIVERS
GSM MODULE

It is a plug and play GSM Modem with a simple to interface serial interface. Use it to send SMS, make and receive calls, and do other GSM operations by controlling it through simple AT commands from micro controllers and computers. It uses the highly popular SIM300 module for all its operations. It comes with a standard RS232 interface which can be used to easily interface the modem to micro controllers and computers.The modem consists of all the required external circuitry required to start experimenting with the SIM300 module like the power regulation, external antenna, SIM Holder, etc.

RESULT AND CONCLUSION

Hardware implimentation as well as software implimentation generates an output.The software implimentation is done with the help of **µ**-vision (Keil) software. The biometric recognition has been implimented.The annlysis of the system is done with the help of pattern matching algorithm.

CONCLUSION

Hence these modules are fully designed and implemented. It is dealt with the security of automotive. The security of the human beings to safe guards their valuable life from accidents. The condition of the human being can report to their relatives and nearby hospitals. In future we can add the location of the victim where the accident is happen by adding GPS on it. In future the sos module will be added in it. These ideas will be implemented in future.

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