

HIGH SECURED VEHICLE WITH INTERIOR VENTILATION CONTROL AND PERIMETER MONITORING SYSTEM

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ABSTRACT:

Now a day's thefts regarding vehicles are increasing day by day. These are happening due to people negligence and unsecured methods. In order to minimize these kind of thefts, a new system of car indoor parameters was introduced. This functions by using the ultrasonic sensor. But now technology is growing day-by-day, so with ultrasonic sensor, we are also including a new technology using humidity and temperature control sensors which works automatically inside the car. The humidity sensor, which checks the humidity levels. The temperature sensor deals about the ON/OFF conditions regarding air conditioners inside the cars. Through this we can automate the system by controlling temperature and humidity levels and then providing high security.

Keywords: *Temperature, Humidity, Technology, Air Conditioner, Ultrasonic sensor, Security, Thefts, Alarm.*

I. INTRODUCTION

An efficient car indoor parameter system is designed and implemented for checking the movement of any parameters inside the vehicle at any time. This proposed system made good use of a popular technology. These days, however, with technology growing at a fast pace, automated vehicle parameters system is being used in a variety of ways to check and display parameters inside the car. Users will be able to continuously monitor moving vehicle parameters on demand using the sensors [6]. In order to show the feasibility and effectiveness of the system,

this paper presents experimental results of the car indoor parameters system and some experiences on practical implementations. These are used as an anti-theft tracking systems that detects thefts causing on roads. An anti-theft tracking system is one way to prevent or detect unauthorized access of devices considered valuable. Ramadan, Al-Khedher, and Al-Kheder proposed design and implementation of a vehicle tracking and anti-theft system for protecting a vehicle from any intruders using GPS/GSM technology based on tracking systems.

II. BLOCK DIAGRAM AND HARDWARE DESCRIPTION

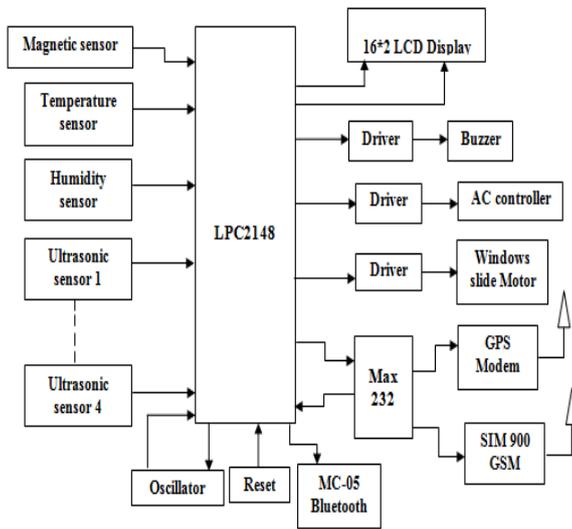


Fig: Block diagram of car indoor parameters

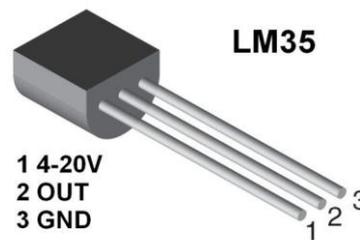
ARM 7 MICRO CONTROLLER:

We use ARM microcontroller[2] to control all the peripherals in CAR automation. LPC2148 is used as MCU in this design. Because of the advanced 32 bit architecture, it can detect changes as low as 3 milli volts and more faster when compared to PIC’s and other 80series micro controllers. Inbuilt ADC was an added benefit of LPC2148[2]. Hence we used this as our micro controller unit. A Microchip microcontroller LPC2148 is used to collect and process data and then stores it in a serial buffers. The LPC2148[2] is a 32k instructions program buffers, 512 kb bytes of RAM, three timers, and a 32 -bit A/D converter microcontroller. It has RISC architecture and can use oscillators, thus it is ideal to be used as an embedded system.



TEMPERATURE SENSOR:

LM35 temperature sensor is arranged to detect if the temperature is high inside the car.



The LM35 series are precision integrated-circuit temperature sensors, whose output voltage is linearly proportional to the Celsius (Centigrade) temperature. The output of sensor converted to digital that easy connecting[8] with microcontroller. In this system we use temperature sensor mainly to operate the conditions of AC. The air conditioner gets automatically on/off based on the temperature conditions.

ULTRASONIC ECHO SENSOR:



The ultrasonic sensor in this system is used to detect the thefts. We have to give some time delay, based on the time delay the sensor works. Ultrasonic transducers are transducers that convert ultrasound waves to electric signals or vice versa. That transmit and receive may also be called electric sound receivers, many ultrasonic sound sensors besides being sensors are indeed transceivers because they can sense and transmit. These devices work on a principle similar to that of transducers used in radar and sonar systems, which evaluate attributes of a target by interpreting the echoes from radio or sound waves.

GSM MODEM:



GSM modem gives capability to send SMS without any mobile operating system. SIM can be read with MCU and can be used to send SMS by micro controller. Hence a GSM modem was employed, its main function here was when the parameters are over threshold limits it sends a text message to predefined contacts about the situation of the person thus alerting them to proceed for further actions.

GPS: A GPS receiver calculates its position by precisely timing the signals sent by GPS satellites high above the Earth [3]. Each satellite continually transmits messages which include—

- The time the message was transmitter
- Satellite position at time of message transmission



The receiver uses the messages it receives to determine the transit time of each message and computes the distance to each satellite [3]. These distances along with the satellites locations are used with the possible aid of trilateration, to compute the position of the receiver. This position is then displayed, with a moving map display or latitude and longitude. Many GPS units show derived information such as direction and speed, calculated from position changes.

DC MOTOR: In any electric motor, operation is based on simple electromagnetism. A current-carrying conductor generates a magnetic field, when this is then placed in an external magnetic field, it will experience a force proportional to the current in the conductor, and to the strength of the external magnetic field. The internal configuration of a DC motor is designed to harden the magnetic interaction between a current-carrying conductor and an external magnetic field to generate rotational motion.

Every DC motor has six basic parts — axle, rotor (armature), stator, commutator, field magnet(s), and brushes. In most common DC motors, the external magnetic field is produced by high-strength permanent magnets. The stator is the stationary part of the motor i.e., this includes the motor casing, as well as two or more permanent magnet

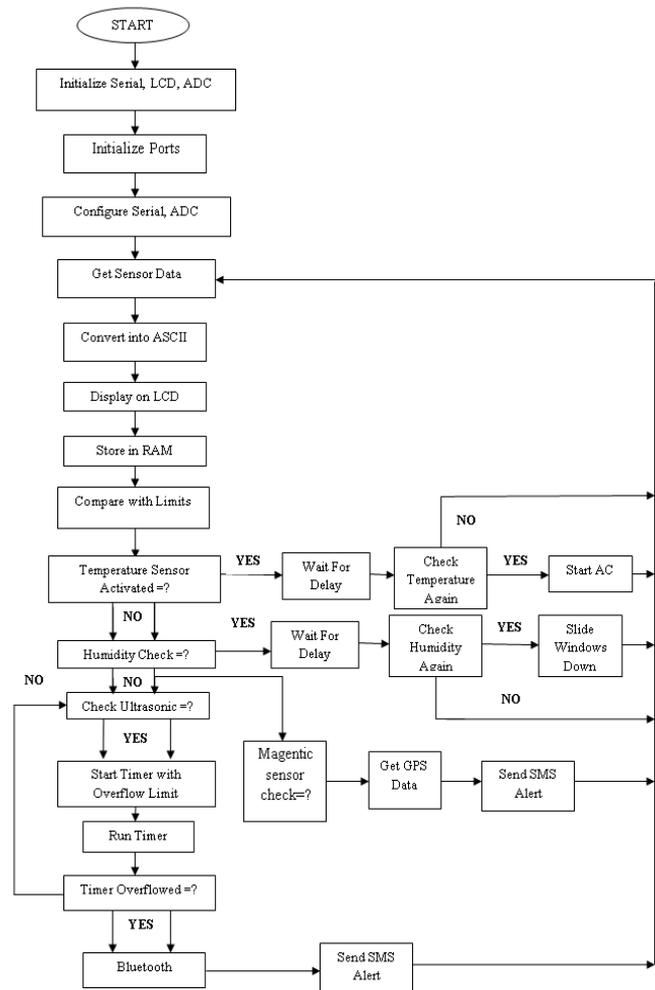
pole pieces. The rotor rotates with respect to the stator. The rotor consists of windings, the windings being electrically connected to the commutator.

WORKING

The proposed system works mainly on two basic sensors namely, temperature sensor, ultrasonic echo sensor. In car automation the humidity control setup is also involved. This kind of sensor operates based on the humidity levels, the side windows gets opened or closed automatically inside the car. The use of temperature sensor is to check the mode of temperatures inside the car. The air conditioner in the car gets on/off based on the temperature inside the car. The function of ultrasonic echo sensor is to reduce the thefts. Here we adjust the time delay in the sensor. For example, if we set the time delay for five minutes then any person is revolving around our car it cracks the person and identify the unauthorized person and then produces a buzzer sound and sends the message to the owner immediately by Bluetooth. So that immediately we can find out the unauthorized person without happening any theft of our vehicle. This kind of automatic system was very useful in these modern days.



FLOW CHART



Final output

Firstly initializing the required ports like LCD and ADC is done. After initialising the ports and configuring the serial and ADC the data from sensors is obtained. Then conversion of data from analog to digital takes place and thus obtained digital data is converted to ASCII code and displayed on LCD. Data displayed on LCD is stored in RAM. Now the data is compared with the limits and activates the sensors accordingly. If the temperature sensor is activated, after some delay the controller again checks the temperature and turns on the AC if the temperature is high. If the temperature sensor is not activated it checks for humidity levels, after some delay it again checks the humidity levels and slides down the windows respectively. The ultrasonic sensors on all sides of the car will be activated when a person stands besides the car (upto unit distance more than unit time). When the ultrasonic sensors are activated the timer starts and after the timer is overflowed the controller sends the sms alert to the owner of the car and then activates the alarm.

CONCLUSION

The car indoor parameter system that utilizes ultrasonic echo sensor was designed, developed, and tested. This is very advanced designed system which ensures safer and comfortable driving. This paper deals with the new fatigue detection algorithms & techniques using ultrasonic, temperature, sensors etc. In this technique the temperature, humidity will be detected immediately and regularly. This kind of theories was helpful in reducing the thefts. Through this paper we can automate the system by controlling temperature and humidity levels and then providing high security.

FUTURE SCOPE

Here, in the proposed system the ultrasonic sensor detects and sounds the alarm if any object or person (who comes near to the vehicle and stay more time). But, animals standing or staying near the vehicle creates no threat or vehicle to the vehicle. The alarm should activate if and only if any human stands near the vehicle (for more time). So this problem can be solved through image processing (i.e., taking the images and comparing them and activating the alarm if it is human being)

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