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Gas Detector in Car

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Abstract: This project is based on the gas detection in the car. Gas Detector is used to detect the gases present in the certain area. so this device is used in the car to detect the gas level present inside the car. Because many death occurs in car due to breathing problem by air conditioner or by smoking inside the car causes suffocation inside the car that effect unconsciousness death and this device in car is to detect the level of oxygen depletion or exceed of any harmful gases and it gives signal to microcontroller and it controls the car's windows motor and it opens the windows of car automatically. Due to the opening of the window, it allows the atmospheric air inside the car which helps to breathe. Hence we can reduce the accident and death rate by this project.

Keywords: Suffocation, Microcontroller, Gas detector, oxygen depletion, car windows

I. INTRODUCTION

Suffocation is the Main issues while sleeping inside the locked car and this can be avoided by implementing this project in the car. The gas detector is a device that detects the presence of gases in a certain area. It is often as part of a safety system and it is mainly used in chemical factories to detect the leakage gases it can sound an alarm to operators in the area where the leak is occurring. This type of device is important because there are many gases that can be harmful to organic life like humans and animals.

It can be used to detect combustible, flammable and toxic gases and oxygen depletion. It detects the hazardous gas by sensors. Sensors used in this device are Electrochemical gas Sensor and Semiconductor sensors. Detected gases and their measuring range are shown in Table I and specification of gas detector is shown in Table II.

TABLE I
MEASURING RANGE

S.No	Gases	Range
1	Oxygen	0 - 30%.
2	Carbon monoxide	1-1000ppm
3	Hydrogen	0-200ppm
4	Combustible gases	0-90%.
5	Methane	200ppm



Fig. 1 MSA Multigas detector

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TABLE III
SPECIFICATION

S.No	Parameter	Values
1	Input voltage	12 V-24V
2	Supply current	110mA
3	Alarm output voltage	5.3V
4	Humidity	10%-100%
5	Size	5.1x 3.2 x 1.9 in

II. COMPONENT USED IN THIS PROJECT

- A. The battery used in this project to power up the detector and Microcontroller and this power source are taken from car battery itself.
- B. Gas detector for this project the MSA Orion Multigas Detector is used.
- C. Microcontroller for this project the PIC 18F8720 is used.
- D. Power Window (Motor) of Car.

III. WORKING PROCEDURE

In this project uses the Gas detector and Microcontroller .it detects the oxygen and harmful gases level present inside the car. If it is lower than the human breathing level it gives the signal to the microcontroller and the microcontroller is connected to the detector and the motor switch of car's power window. By with the help of microcontroller to Controls the motor of car's power window .which opens the window.

Due to the opening of the window, it permits the harmful gas to get out and allows the atmospheric air to inside the car. Which help to breathe for the human. Therefore we can save the human from death.

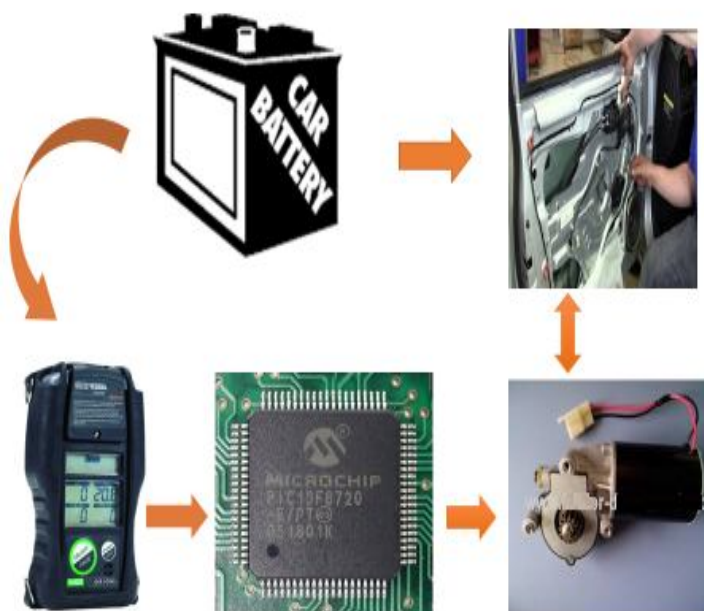


Fig. 2 Implementation of Gas Detector in Car

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A. Microcontroller Programing

```
Void main ()
{
    TRISB = 0; // PORT B as output port
    PORTB = 1; // Set RB0 to high
    Do
    {
        //To turn motor clockwise
        PORTB.F0 = 1;
        Delay_ms (2000);          //2 seconds delay

        //To stop motor
        PORTB = 0;                // or PORTB = 3
        Delay_ms (2000);          //2 seconds delay

        //To turn motor anticlockwise direction
        PORTB.F1 = 1;
        Delay_ms (2000);          //2 seconds delay
        //To stop motor
        PORTB = 0;                // or PORTB = 3 (3 = 0b00000011)
        Dealy_ms (2000);          // 2 seconds delay

    } while (1);
}
```

IV. CAUSES FOR USING GAS - DETECTOR IN CAR

The important causes of using this detector in the car because of much death Occur in the car due to suffocation problem by an air conditioner or by smoking inside the car and in absence of parents, some small kids are playing inside the car. When they accidentally locked themselves inside the car and window getting closed. They unable to open the door or window and they struggle to breathe inside the car after an hour .this may turn to unconscious and cause death.

Many people are sleeping inside the car with fully closed window and with air conditioner sometimes this may cause unconsciousness death. Because Experts say that in less than an hour one can die of carbon monoxide from the air conditioner.

V. RECENT DEATH

- A. In Hyderabad 3-year old Child died inside the locked car at [September 07, 2016].
- B. Cab Driver Found dead inside the Locked car in Dawarka, Southwest Delhi [August 12, 2016].
- C. At September two girl kids from kادarpur area of Gurgaon died due to suffocation of air inside the car. When they accidentally locked themselves inside the car [Rithika (age 5) and Himashi (age 9) -sep11, 2015].
- D. At Tamilnadu (Tuticorin) four children died in the locked car due to suffocation [August 13, 2014].



Fig.2 Suffocation Death in Car

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VI. DEATH RATE ANALYSIS

- A. Due to suffocation, nearly 40 peoples are died among per million populations in a year.
B. The death rate increases year by year as graph Shown in Fig.3

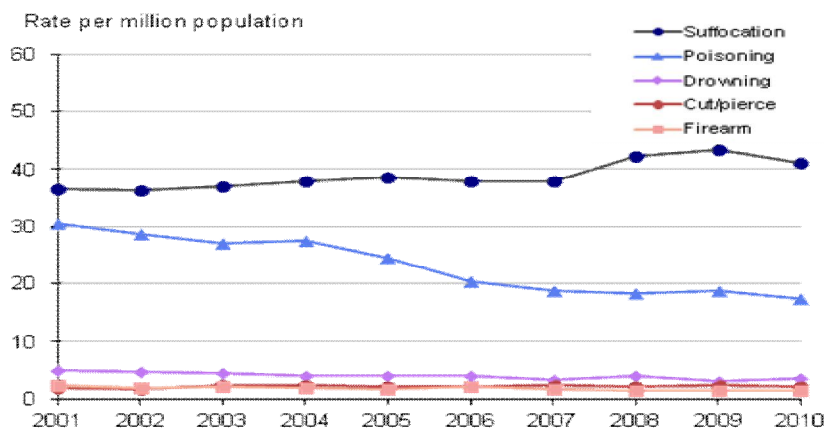


Fig.3 Death rate Per Year

VII. CONCLUSION

This project is mostly used in day to day life as car play a vital role in all our life. Therefore by implementing this project in real time applications, we can avoid unnecessary death due to suffocation. Also, it is possible to save valuable human lives from suffocation death in the car and reduces the death rate. This application by implementing would bring a minor revolution in automobile field by using automation.

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