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Automatic Car Window Opening System by using Oxygen and Sound Sensor

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ABSTRACT

Now a day's maximum car interrupt on air-condition will be attached that is condition may be reduction on oxygen in vehicle full closed system, the oxygen which detecting on less oxygen in vehicle will be there on human being automatic windows open system. The present invention comprises a system and method for automatic opening and closing system on the car windows. This method includes a higher sound and less oxygen element detection sensor which may human being safety consideration work in windows opening system the interior of the automobile by contacting the material when the automobile is left unattended with the automobile power windows in an open or lowered position. The human oxygen and sound detection sensor accordingly automatically operates the power windows without the intervention of the automobile operator. The system evaluates human Exide the still contacting the automobile and may return the power windows to the position they were in prior to the more amount of oxygen filling sound don't be created windows automatically closed.

INTRODUCTION

This project idea was selected because we all are interested in working with and learning about sensors, microcontrollers, and automobile electronics. We are excited about this project because we will be building and testing our own sensor system and implementing it into a vehicle. In the cold winter or hot summer, many motorists like a long time to open the car air conditioning, due to the small interior space, doors and windows closed, the air inside and outside the car difficult to form convection, long-term operation of the engine will emit large amounts of carbon monoxide, these part of the gas into the car, and a long stay in the car, the occupants will be carbon monoxide poisoning unknowingly lose severe life

OBJECTIVES

The main goal of the less amount of oxygen and more amount of sound detection system is to grant the driver the convenience of having his or her car windows automatically open in the event of human safety precaution. This sensor then sends a signal to a microcontroller located inside the car, which in turn sends a signal to drive the window motors to opening the windows.

FEATURES

1. Oxygen and sound sensor which open all vehicle windows when the vehicle is on system.

2. ON/OFF switch located close to the driver so driver can override system at any time

3. Oxygen and sound sensor made with impedance one of the gas sensor technologies which makes it high cost, durable, and more reliable than other oxygen and sound sensors on the market

4. Provides convenience to drivers by allowing them to keep windows close while they away and not have to rush out to open them if it begins to less oxygen and over sound detecting sensor inner side.

COMPONENTS

The components that are used in the project AUTOMATIC CAR WINDOW OPENING SYSTEM

BY USING OXYGEN & SOUND SENSOR are as follows,

- Rack and pinion,
- Battery,
- Motor,
- Control unit,
- Oxygen sensor.

DESCRIPTION

Rack and Pinion

A rack and pinion is a type of linear actuator that comprises a pair of gears which convert rotational motion into linear motion. A circular gear called "the pinion" engages teeth on a linear "gear" bar called "the rack"; rotational motion applied to the pinion causes the rack to move relative to the pinion, thereby translating the rotational motion of the pinion into linear motion.

Battery

In isolated systems away from the grid, batteries are used for storage of excess solar energy converted into electrical energy. The only exceptions are isolated sunshine load such as irrigation pumps or drinking water supplies for storage. In fact for small units with output less than one kilowatt. Batteries seem to be the only technically and economically available storage means. Since both the photo-voltaic system and batteries are high in capital costs. It is necessary that the overall system be optimized with respect to available energy and local demand pattern.

Motor

An electric motor is a machine which converts electrical energy to mechanical energy. Its action is based on the principle that when a current-carrying conductor is placed in a magnetic field, it experiences a magnetic force whose direction is given by Fleming's left hand rule. When a motor is in operation, it develops torque. This torque can produce mechanical rotation. DC motors are also like generators classified into shunt wound or series wound or compound wound motors.

FLEMING'S LEFT HAND RULE

Keep the force finger, middle finger and thumb of the left hand mutually perpendicular to one another. If the fore finger indicates the direction of magnetic field and middle finger indicates direction of current in the conductor, then the thumb indicates the direction of the motion of conductor.

Principle of operation of DC motor

Figure I show a uniform magnetic field in which a straight conductor carrying no current is placed. The conductor is perpendicular to the direction of the magnetic field. In figure II the conductor is shown as carrying a current away from the viewer, but the field due to the N and S poles has been removed. There is no movement of the conductor during the above two conditions. In figure III the current carrying conductor is placed in the magnetic field. The field due to the current in the conductor supports the main field above the conductor, but opposes the main field below the conductor.

Control Unit

In automotive electronics, Electronic Control Unit (ECU) is a generic term for any embedded system that controls one or more of the electrical system or subsystems in a motor vehicle. Types of ECU include Electronic/engine Control Module (ECM), Power train Control Module (PCM), Transmission Control Module (TCM), Brake Control Module (BCM or EBCM), Central Control Module (CCM), Central Timing Module (CTM), General Electronic Module (GEM), Body Control Module (BCM), Suspension Control Module (SCM), control unit, or control module. Taken together, these systems are sometimes referred to as the car's computer. Technically there is no single computer but multiple ones. Sometimes one assembly incorporates several of the individual control modules. Some modern motor vehicles have up to 80 ECUs. Embedded software in ECUs continues to increase in line count, complexity, and sophistication. Managing the increasing complexity and number of ECUs in a vehicle has become a key challenge for original equipment manufacturers (OEMs).In our project we use the control unit for controlling the DC motor that activates/deactivates the vehicle braking system. It is very simple in operation that, when the brake lock system is activated from the remote, the control unit switches on the motor and when it is deactivated from the remote, then the control unit reverses the motor direction.

OXYGEN SENSOR

An oxygen sensor (or *lambda sensor*) is an electronic device that measures the proportion of oxygen (O_2) in

the gas or liquid being analyzed. It was developed by the Robert Bosch GmbH company during the late 1960s under the supervision of Dr. Günter Bauman. The original sensing element is made with a thimble-shaped zirconia ceramic coated on both the exhaust and reference sides with a thin layer of platinum and comes in both heated and unheated forms. The planar-style sensor entered the market in 1990, and significantly reduced the mass of the ceramic sensing element as well as incorporating the heater within the ceramic structure. This resulted in a sensor that started sooner and responded faster. The most common application is to measure the exhaust gas concentration of oxygen for internal combustion engines in automobiles and other vehicles. Divers also use a similar device to measure the partial pressure of oxygen in their breathing gas. Scientists use oxygen sensors to measure respiration or production of oxygen and use a different approach. Oxygen sensors are used in oxygen analyzers which find a lot of use in medical applications such as anesthesia monitors, respirators and oxygen concentrators. Oxygen sensors are also used in hypoxic air fire prevention systems to monitor continuously the oxygen concentration inside the protected volumes. There are many different ways of measuring oxygen and these include technologies such as zirconia, electrochemical (also known as Galvanic), infrared, ultrasonic and very recently laser methods. Each method has its own advantages and disadvantages.

BLOCK DIAGRAM

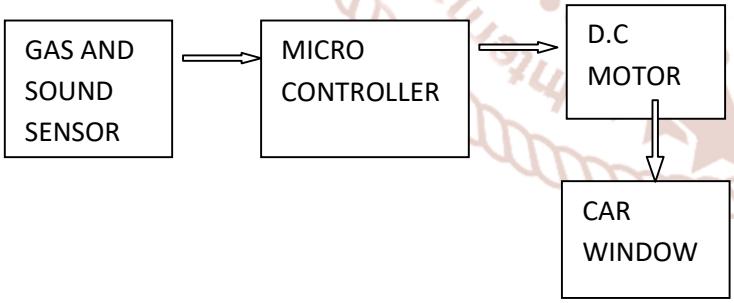

Fig 1:block diagram of automatic car window opening system by using sound and oxygen sensor

DETAILED DRAWING

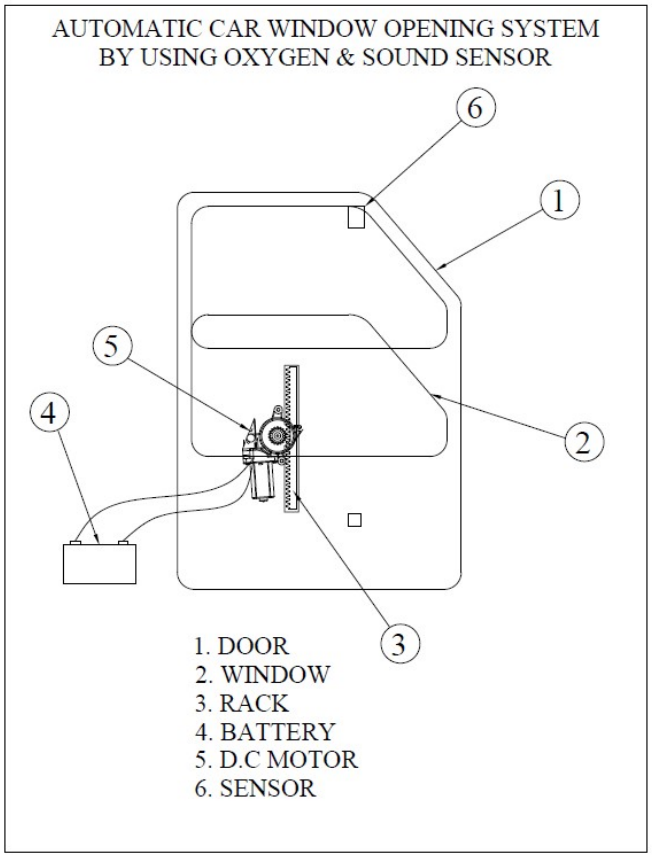

Fig 2: attachment diagram of automatic car window opening system by using sound and oxygen sensor.

WORKING PRINCIPLE

An oxygen sensor is installed inside the car which senses the amount of oxygen present inside the vehicle frequently and sends signals to the control unit continuously. The control unit is connected with the motor which in turn is coupled with the rack and the pinion arrangement. The rack and the pinion arrangement is connected with the sun roof. This rack and pinion arrangement is used to convert the rotary motion of the motor to the reciprocating motion of the sun roof. This helps to open and close the sun roof of the car. When the oxygen level inside the car goes below the desired level, the control unit sends signals to the motor such that the motor is activated and the rack and pinion opens the sun roof. Thus when the oxygen level is too high, the control unit sends signals to the motor to rotate in opposite direction so that the sun roof is closed.

ADVANTAGES

- Stay safe in your car
- Automatically closes when the oxygen level is reached.
- Safe and easy do-it-yourself installation —no professional electrician required.
- Add-on accessories allow you to customize a system for you.

CONCLUSION

Thus project helps to Protects the inside of the vehicle seating human being safety consideration. Provides convenience to drivers by allowing them to keep windows close while they are away and not having to rush out to open them if it begins to less oxygen and over sound detecting sensor inner side.

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