TOXIC GAS DEFENDER

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ABSTRACT

Automobile is one of the major important role in our life. Now a days nearly 90% of people are using automobiles. Some of the accidents are occurred in this automobile due to many Reason. We have taken the reason of toxic gas formed in automobile. Its impacts to human life. Main objective of this project is to prevent the accident in automobile. There are used six Sensors such as temperature, carbon monoxide, oxygen, LPG, leather (Hydrogen cyanide) and Smoke whenever toxic gas is formed in car then sensors will sense that gas and send the signal to window and door to open by automatically. In this process window and door will be automatically open by even one sensor sense the toxic gas. This opening function is based on **Sliding Mechanism**.

Keywords—sliding mechanism, sensors, toxicgas(carbon monoxide, hydrogen cyanide, LPG).

INTRODUCTION

In our project there are six sensor they are Gas sensor, Temperature sensor, LPG sensor, oxygen sensor, leather sensor and smoke sensor are used to sense the leakage of gas and also from the heat. By this the window and door will automatically open, while the leakage of gas it will get outside the environment and risk of fire is reduced. Then the temperature sensor is used by sensing some limitation of temperature the window and door will open, it's easy to pass co2 inside the automobile car .then the oxygen sensor is used to sense the amount of oxygen needed inside the vehicle and opens the window automatically. This will save many human lives while accident and also reduce the damages. It is easy way to escape humans from that issues. The sensor is connected with the arduino board, sensor sense the gas flow and temperature and passes the data to the arduino board.Our project title is "TOXIC GAS DEFENDER" In this a prevention of toxic gas issues by using the sensors. The risk of firing, explosion, suffocation all are based on their physical properties such flammability, toxicity etc. The number of deaths due to the explosion of gas cylinders has been increasing in recent years. The reason for such explosion is due to sub-standard cylinders, old valves, worn out regulators and lack of awareness using gas cylinders add to the risks. Inspections by oil companies found that many LPG consumers are unaware of safety checks of gas cylinders. Another reason is illegal filling of gas cylinder also causes accidents. There is a need for a system to detect and also prevent leakage of LPG. In the past, it has been a conventional practice to employ combustion apparatus such as a furnace, heater, stove or LPG kit in cars, which utilizes a combustible vapour or gas to produce heat energy when properly ignited. In the use of combustible apparatus in which a combustible gas such as natural or liquid propane gas is burned in heating boilers, domestic water heaters, ovens, stoves and the like, the apparatus or appliance is generally of an automatic recycling type. That is to say, the equipment is generally in operation for short periods of time after which is shut down for a short period of time. The equipment has intermediate operation and the appliance is generally started and stopped at the signal of an automatic controller, such as a thermostat, which may be actuated by temperature, pressure, or the like. The LPG Kit installed is many times installed inside the car creating possibilities of large accidents. This function is operated by means of logical condition. While running condition of car if there's any formation of toxic gas then sensors sense that gas and send the signal to open windows only. If car is in static condition and there's any formation of toxic gas then sensors sense the gas and send the signal to open both windows and doors. Whenever windows/doors open by automatically due to this process it will indicate the information about that windows/doors are opened to car driver/owner.

Function of sensors are followed by, temperature sensor is used to sense whenever temperature is raised in car and it'll affect the seats of car so there may be formation of leather gas in this case leather (Hydrogen cyanide) sensor is used to sense the formation of hydrogen cyanide, smoke sensor is used to sense the smoking gas, co sensor is used to sense whenever co is increased in car, oxygen sensor is used to sense whenever oxygen is decreased at certain limit in car and LPG gas sensor is used to sense the leakage of LPG gas.

LITERATURE REVIEW

[1] Monish Jaishankar Heavy metal toxicity has proven to be a major threat and there are several health risks associated with it. The toxic effects of these metals, even though they do not have any biological role, remain present in some or the other form harmful for the human body and its proper functioning. They sometimes act as a pseudo element of the body while at certain times they may even interfere with metabolic processes. Few metals, such as aluminum, can be removed through elimination activities, while some metals get accumulated in the body and food chain, exhibiting a chronic nature. Various public health measures have been undertaken to control, prevent and treat metal toxicity occurring at various levels, such as occupational exposure, accidents and environmental factors. Metal toxicity depends upon the absorbed dose, the route of exposure and duration of exposure, i.e. acute or chronic. This can lead to various disorders and can also result in excessive damage due to oxidative stress induced by free radical formation. This review gives details about some heavy metals and their toxicity mechanisms, along with their health effects.

[2]Xiao Liu   in 2012 To evaluate the performance of gas sensing methods or gas sensors, several indicators should be considered: (1) sensitivity: the minimum value of target gases' volume concentration when they could be detected; (2) selectivity: the ability of gas sensors to identify a specific gas among a gas mixture; (3) response time: the period from the time when gas concentration reaches a specific value to that when sensor generates a warning signal; (4) energy consumption; (5) reversibility: whether the sensing materials could return to its original state after detection; (6) adsorptive capacity (also affects sensitivity and selectivity); (7) fabrication cost. More indicators for different sensing methods will be listed and compared in Section 4. Besides, gas sensors designed for the market must   guarantee the stability of their operation, in other words, they should exhibit a stable and reproducible signal for a period of time. There are several factors leading to gas sensor's instability (extracted and concluded from [116].

[3]Ran Zhao, Accurate temperature measurements are crucial for many applications, such as chemical processing, power generation, and engine monitoring. As a result, development of temperature sensors has always been a focus of micro sensor field. A variety of materials have been studied for temperature sensor applications, for example, semiconducting silicon and silicon carbide. Silicon based sensors are typically used at temperatures lower than 350∘ C due to accelerated material degradation at higher temperature [1, 2]. Silicon carbide based sensors are better than silicon based sensors in high temperature measurement and can be applied in temperatures up to 500∘ C.We develop a temperature sensor using PDC and an embedded system. Comparing to the National Instruments data acquisition equipment used in the previous paper, the newly developed embedded sensor is much smaller (9.7 dm3 versus 0.3 dm3), lighter (5.97 kg versus 0.19 kg), and cheaper (approximately $8000 versus $170). A WiFi module is also added so the temperature measurement can be transmitted wirelessly. The embedded board and WiFi module used in this paper are commercially available. The experiments in this paper demonstrate the possibility of deploying PDC based sensors for real world applications.

PROBLEM IDENTIFICATION

 LPG leakage leads to various accidents resulting into both financial loss as well as human injuries. In human's daily life, environment gives the most significant impact to their health issues. Inspections by oil companies found that many LPG consumers are unaware of safety checks of gas cylinders. Another reason is illegal filling of gas cylinder also causes accidents. There is a need for a system to detect and also prevent leakage of gas.When the temperature increase in the car the hydrogen cyanide and carbon monoxide are formed because of this oxygen value is reduced. By this the Dizziness is formed so the damage will be high and also there will be problem on lungs.

METHODOLOGY

The main process used in this method is automatic process it plays a vital role in current scenario, in this we used two boards one is arduino board and other one is bread board.
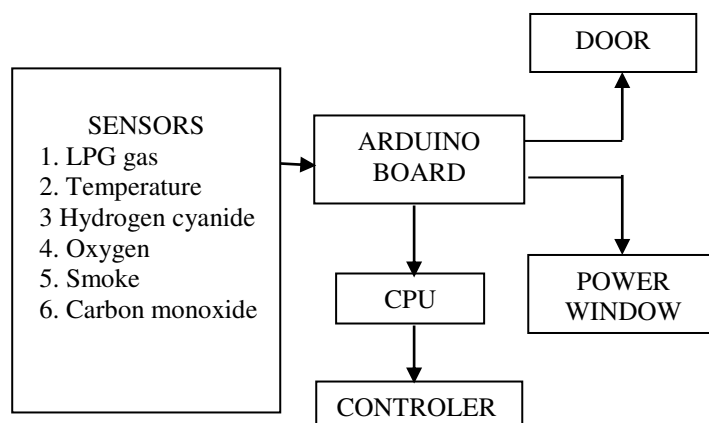
Which is connected with the six sensors program is loaded in the board and it's passed to the sliding mechanism, then it is easy to open the window at the right time needed and it's easy to save many life.

OBJECTIVE
1. To prevent the accidents occurred due to toxic gas formation in automobile.
2. To avoid disease due to toxic gas and to increase the human life.

MATERIAL SELECTION

S. NO	PARTS	MATERIAL
1	Sensors	Nano materials
2	CD loader	Plastic
3	Arduino board	plastic
4	Breadboard	plastic
5	DC motor	Stainless steel
6	Wheels	plastic
7	Battery	Metallic lithium

CONCLUSION

This system helps you to upgrade your safety standards, comply statutory requirements on environmental commitments and most important and basic function being prevent accidents and protect life and property from disaster. That is to say, the equipment is generally in operation for short periods of time after which is shut down for a short period of time. The equipment has intermediate operation and the appliance is generally started and stopped at the signal of an automatic controller, such as a thermostat, which may be actuated by temperature, pressure, or the like. The LPG Kit installed is many times installed inside the car creating possibilities of large accidents.

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