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Gas Sensor Using Arduino UNO & MQ2 Sensor

Prof. Parag Naik[1], Pranay Dhopte[2], Rajat Wanode[3], Roheet Kantode[4], Saurabh Nagre[5]

Professor, Department of Computer Science And Engineering, Priyadarshini Institute of Engineering and Technology, Nagpur, India[1]

Students, Department of Computer Science And Engineering, Priyadarshini Institute of Engineering and Technology, Nagpur, India[2-5]

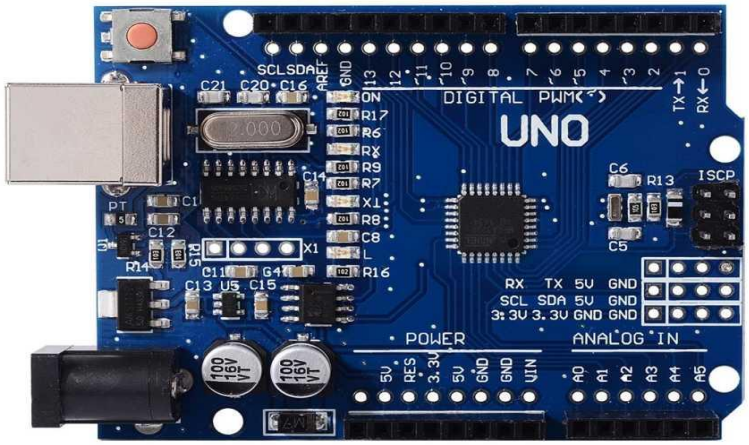
Abstract: In today's world, everyone is busy in their own life that people rarely take care of using resources effectively. We know gas is a useful component in environment. Some gases do not cause any harm if emitted in excess amount but some do. Gas like LPG is used household purpose for cooking food. Not only in household purpose but also in hotels, restaurants, hospitals, etc where there is human interaction. Also we can see CNG operated vehicles. If there is any amount of leakage of these type gases it can cause a huge loss to life and property. So what if we get a way to reduce or abandon the chances of this loss.

Keywords: Arduino, UNO, MQ2, CNG, LPG.

INTRODUCTION

A Arduino based MQ2 sensor which will detect gas leakage. As we have seen the use of various gases in various fields, if there is any leakage of any such gases, then it can be detected and a harm can be minimised. It has a high response for LPG and natural gases. It also detects smoke but has a small sensitivity towards it. As any of these gases are detected the sensor will sense those and the buzzer alarm will be turned on. Alarm will inform the locals that there is a leakage of gas somewhere so that they will take steps to minimize the harm. If the problem rises even after the alarm and no steps are taken then owner of the place will be informed and if still no action is taken then emergency services will be informed so as to minimize the disaster.

FIG. ARDUINO UNO



In the coding for arduino particular values of different gases will be mentioned so as to detect. Otherwise a small detection will inform the emergency services. For this the arduino will be given information for various buzzer for various gases and smoke detection values.

For example: A incense stick smoke is detected at the value of 200 and then the buzzer is given.

Objective: We know that fire attacks due to gas leakage in buildings, restaurants, etc are increased severely. If the gas knob is left open accidently for a few hours it only smells and does not catch fire, but it is kept open for a long time, and then if there is any ignition then the gas rapidly catches fire. In vehicles where we use CNG , if there is any leakage then there is also same possibility of the vehicle catching fire. The sensor in the circuit will sense the leakage, if the leakage is of high intensity it will put the alarm or the buzzer on so the owners will be alert so as to take precautious measures to minimize the possibility to catch fire or any loss to life or property.

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FIG. MQ2 SENSOR

FIG. BUZZER

IMPLEMENTATION

Given project has a very sleek and compact design. Given project is very sleek to design it has a very simple circuit. The sensor is connected to the input of the arduino with the help of connecting cables or jumper cables. Further the circuit goes towards output where the buzzer is connected. If we differ the delay value of the buzzer then we get a variation in the buzzer sound. This can be applicable to detect various gases. Arduino is specially used in this design as it is easy to use in the circuit and the program upload is also very simple. That is why arduino is used. It is provided with 5v dc , which is a advantage that it won't require much power and is easy to install.

PARAMETER	VALUES
Operating voltage	+5v DC regulated
Gas Detection	Indicated by LED

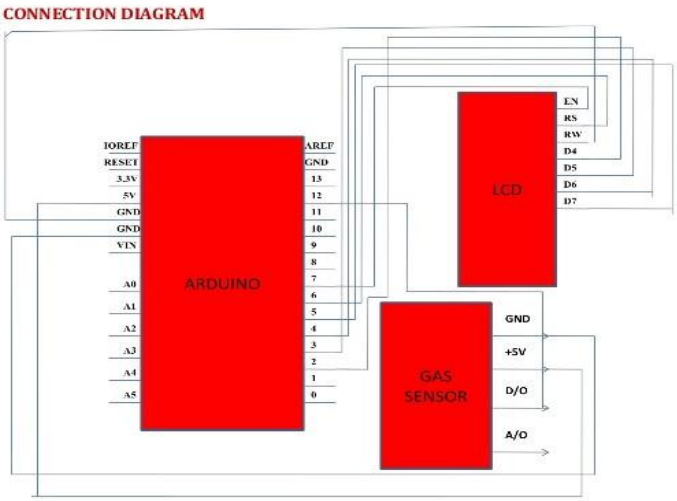

Fig1

BLOCK DIAGRAM

CONCLUSION

Thus, the conclusion is that we can be aware of any danger that can be caused by gas leakage and further catching fire and causing more damage and danger. It's SMS technique can also be used with GSM technology to send messages to emergency services. We can also use it to detect various other gases other than LPG and CNG. It will be helpful in public places like Mall's, hospital's, hotel's etc. In such places there is a huge rush of people, women and small children.

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