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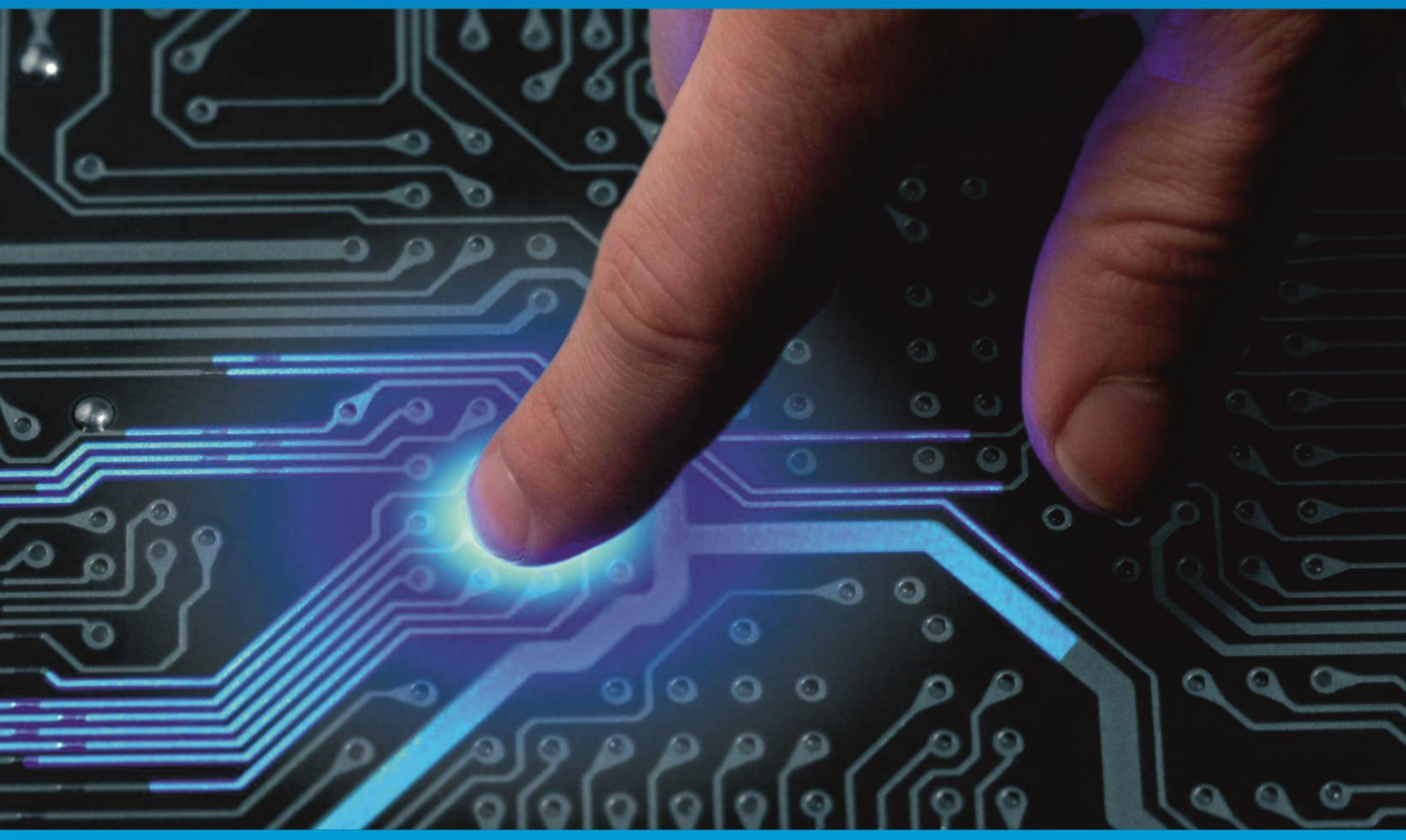

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Gas Leakage Detector Using Arduino UNO

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ABSTRACT: This Type of device is important in day to day life, because it can detect various gases present in the environment which can be harmful to organic life it not only detects the gases but can also detect smoke present. It also shows the available amount of percent of smoke present in the environment. By using this type of devices we can prevent accidents.

KEYWORDS: Arduino UNO, MQ2 Sensor, Bread Board, LCD Display.

I. INTRODUCTION

A Gas Leakage Detector is a device used for detection of gases present in the environment. It can detect smoke, hydrogen, LPG, methane, propane, carbon di oxide gases using **MQ2 sensor.** As soon as leakage is detected by the sensor it notifies the users around it by **buzzer** sound and also displays it on a LCD Display how much amount of gas is leaked in the form of percentage. The MQ2 sensor used in this project can the mentioned gases concentrations anywhere from 200 to 10000ppm.

This type of devices are of great use in day to day life to prevent accidents caused by the leakage of gases and smoke which can help in preventing accidents, and also keep the organic life as well as human and animals safe form such disasters. If this kind of devices were available in past we could prevent the various gas tragedy occurred in the past few years in India. Our project can help overcome this problems by notifying the operator in advance if it detects any of the minor presence of the gas in the environment.

II. LITERATURE REVIEW

A gas detector is a device that detects the presence of gases in an area, often as part of a safety system. This type of equipment is used to detect a gas leak or other emissions and can interface with a control system so a process can be automatically shut down. A gas detector can sound an alarm to operators in the area where the leak is occurring, giving them the opportunity to leave. This type of device is important because there are many gases that can be harmful to organic life, such as humans or animals.

Gas detectors can be used to detect combustible, flammable and toxic gases, and oxygen depletion. This type of device is used widely in industry and can be found in locations, such as on oil rigs, to monitor manufacture processes and emerging technologies such as photovoltaic. They may be used in firefighting.

Gas leak detection is the process of identifying potentially hazardous gas leaks by sensors. Additionally a visual identification can be done using a thermal camera .These sensors usually employ an audible alarm to alert people when a dangerous gas has been detected. Exposure to toxic gases can also occur in operations such as painting, fumigation, fuel filling, construction, excavation of contaminated soils, landfill operations, entering confined spaces, etc. Common sensors include combustible gas sensors, photoionization detectors, infrared point sensors, ultrasonic sensors, electrochemical gas sensors, and metal-oxide-semiconductor sensors (MOS sensors). More recently, infrared imaging sensors have come into use. All of these sensors are used for a wide range of applications and can be found in industrial plants, refineries, pharmaceutical manufacturing, fumigation facilities, paper pulp mills, aircraft and shipbuilding facilities, hazmat operations, waste-water treatment facilities, vehicles, indoor air quality testing and homes.

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III. SYSTEM DESIGN

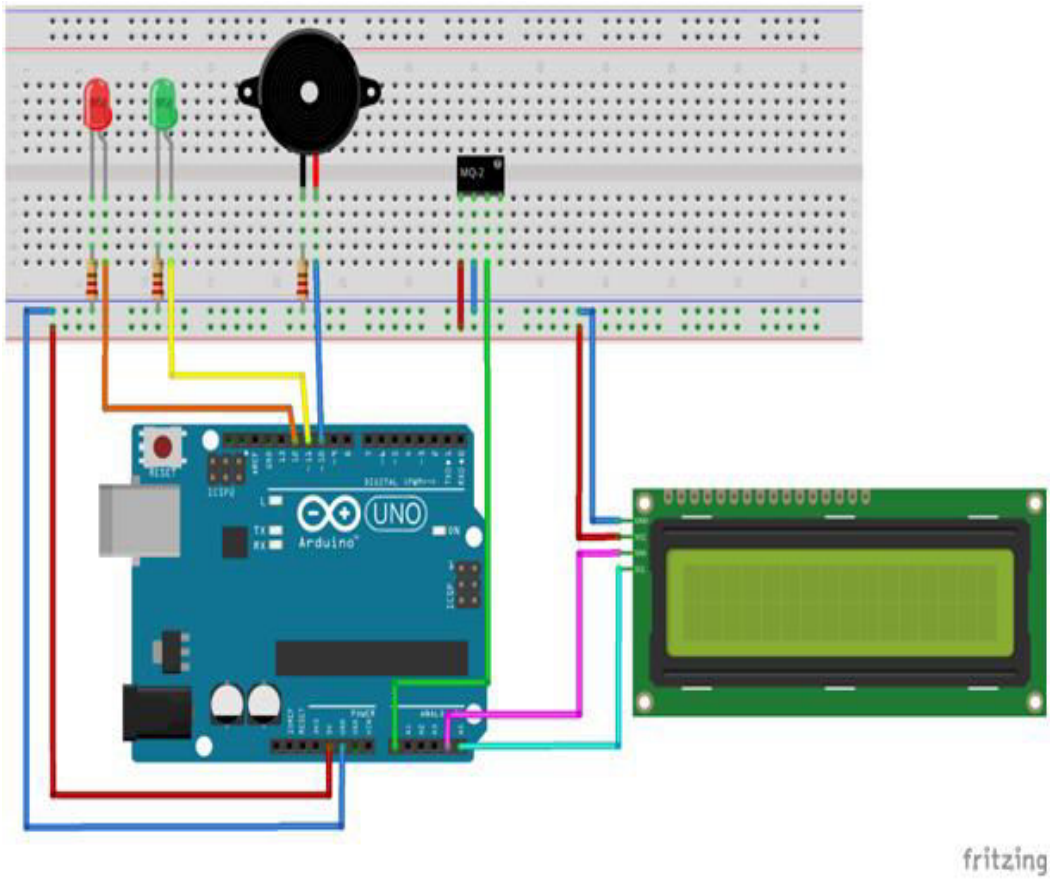
Required Software:

Arduino IDE

Required Hardware:

1. Arduino UNO
2. MQ2 Sensor
3. Bread Board
4. Jumper Wires
5. LCD Display
6. Buzzer
7. Glue Gun

System Diagram:



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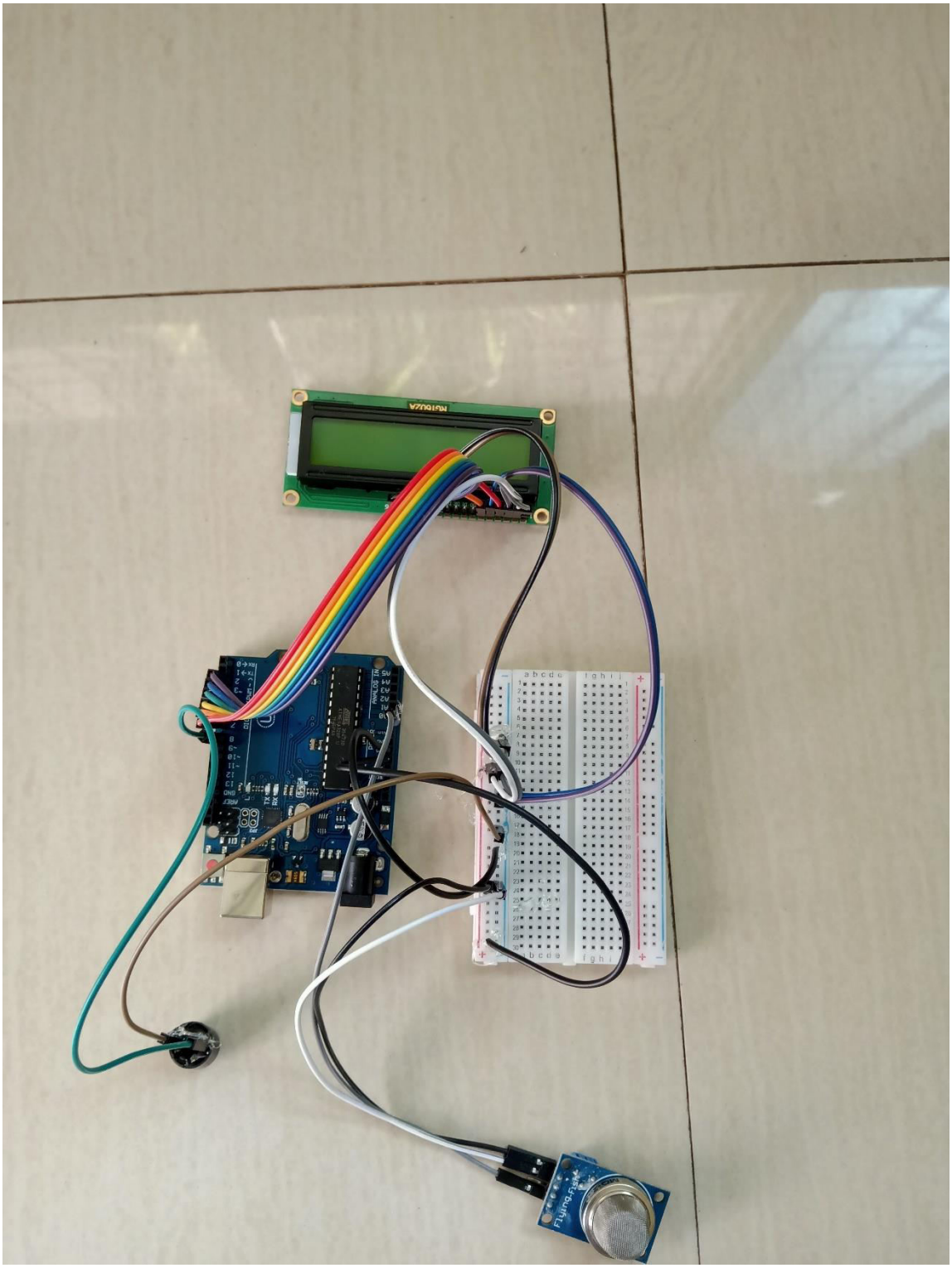
Actual System:



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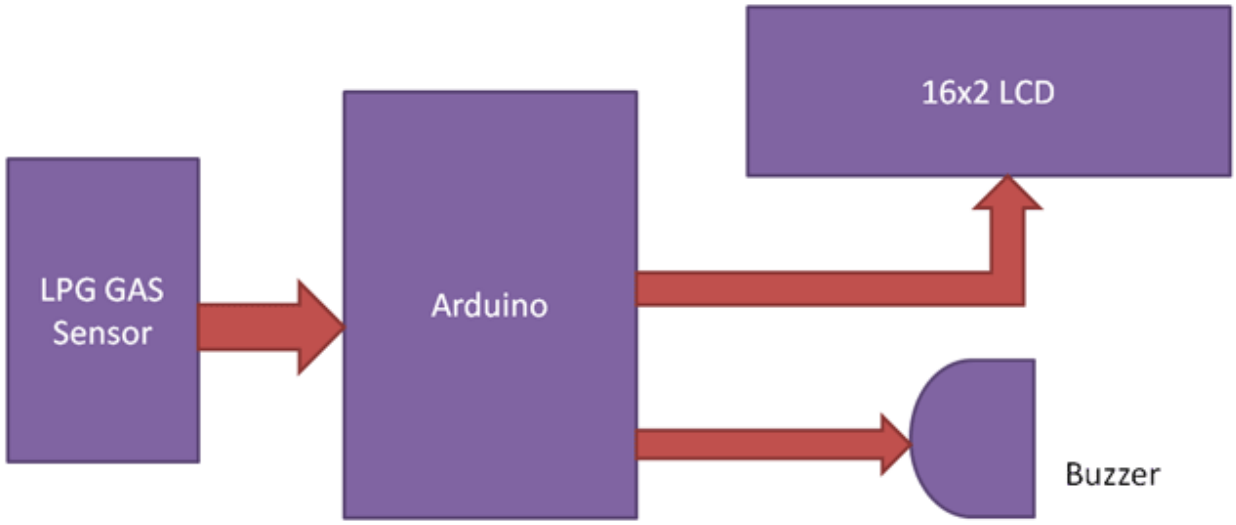
IV. METHODOLOGY

We are using Arduino UNO for code executing, and for sensing we are using MQ2 sensor which works on 5v DC current and draws around 800mW. The MQ2 sensor can detect various gases such as LPG, Smoke, Methane, Propane, Carbon di oxide and Hydrogen concentrations anywhere from range of 200 to 10000ppm. We are using a small LCD display to display the amount of gas/smoke detected by the sensor.

The project runs by connecting Arduino UNO with the laptop which provides power to the project and as well as it also it runs the code through it using Arduino IDE. As soon as the power is connected the MQ2 sensor starts and after a minute or two it settles down and simultaneously the LCD display is on which starts measuring Gases/Smoke present in the environment. As soon as it detects any gas or smoke present in the environment it sounds an alarm by switching on the buzzer as well as displaying the amount of gas/smoke detected on the LCD Display.

Block Diagram:



V. CONCLUSION

A simple but useful project called Gas Leakage Detector using Arduino is designed and developed here. Using this project, our aim is to make our environment more safe and secure to live.

REFERENCES

1. Arduino Uno Wikipedia :https://en.wikipedia.org/wiki/Arduino_Uno
2. MQ2 Gas Sensor :https://lastminuteengineers.com/mq2-gas-senser-arduino-tutorial/
3. Gas Detector Wikipedia:https://en.wikipedia.org/wiki/Gas_detector
4. "Programming Arduino Getting Started with Sketches". McGraw-Hill. Nov 8, 2011. Retrieved2013-03-28.
5. Massimo Banzi, “Getting Started with Arduino” USE, Dale Dougherty, 2009

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