Smoke/Gas Leakage Detector

Project Report submitted in partial fulfillment of the requirements for the Degree of

BACHELOR OF TECHNOLOGY

In

ELECTRONICS AND COMMUNICATION ENGINEERING

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CERTIFICATE

This is to certify that the project work entitled **"Smoke/Gas leakage detector"** submitted by **Kajal Mukherjee (34200319033), Soham Chakraborty (34200319016), Shatadru Sen (34200319028), Srijoni Das (34200319032)** in the partial fulfillment for the award of the degree of Bachelor of Technology in **Electronics and Communication Engineering** at Future Institute of Technology, is a bonafide work done by them.

The matter presented in this thesis has not been submitted for the award of any other degree of this or any other Institute/University.

I wish them all success in life.

Date:

……..

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At last, I end up by thanking all who helped me in finalizing the project within the limited time frame.

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MINI PROJECT REPORT BY TEAM MAVERICK

Name of the Project - Smoke/Gas Leakage Detector

Introduction - The leakage of gases only can be detected by human nearby and if there are no human nearby, it cannot be detected. But sometimes it cannot be detected by human that has low sense of smell. Thus this system will help to detect the presence of gas leakage.

Here, for this project we wanted to build a system that can detect the leaked gas, smoke and send the information to the emergency contact.

Components –

- Arduino Uno (1)
- Bread Board (1)
- Buzzer(1)
- MQ-2 Sensor (1)
- GSM Module (1)
- 12V Adapter (2)
- Jumper (10)

Circuit Diagram

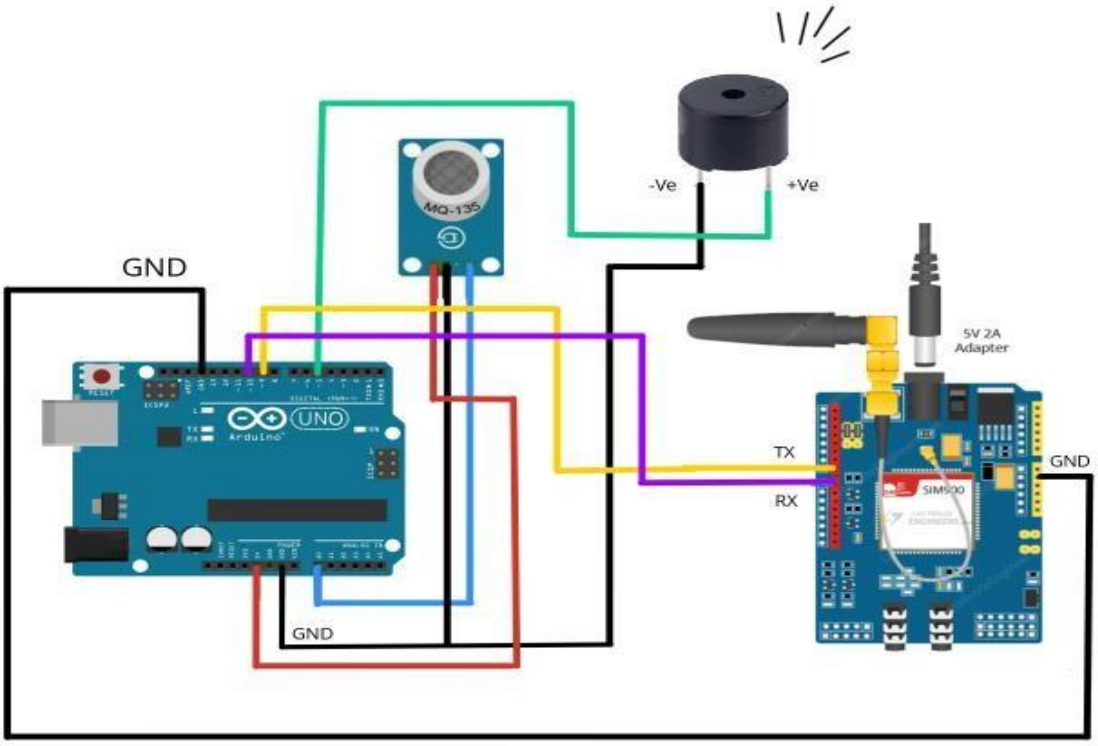

Fig 1

Working Principle -

For this project, we have used a MQ-2 sensor, a buzzer, a GSM module and an Arduino UNO.

The MQ-2 sensor detects the analog value of Gas and Smoke and is connected to A0 port of Arduino. Similarly, the GSM Module is Connected to Port 9 & 10 of Arduino and buzzer is connected to port 5.

When the Analog Gas Value exceeds the Predefined threshold value the Ports 5, 9, 10 are activated.This circuit triggers the alert system when smoke or gas leakage is detected. The buzzer starts alerting and the GSM Send an SMS alert.

The circuit mainly uses the **MQ2 Smoke/Gas sensor and Arduino** to detect and smoke and gas leak. The sensor has excellent sensitivity combined with the quick response time. This low signal is monitored by the

microcontroller and sends the signal to the GSM module Sim800 to send messages as “Excess Gas Detected. Open Windows” to a mobile number written in code.

ADVANTAGES AND DISADVANTAGES - There are various advantages and disadvantages of using LPG Gas detection system/kit using GSM module installed at residential homes/industries etc. They are discussed below.

Advantages

1. Low cost

2. Low power consumption

3. High accuracy

4. It also detects alcohol so it is used as liquor tester.

5. The sensor has excellent sensitivity combined with a quick response time

Disadvantages

1. No prevention of fires possible with kit.

2. Applicable only as an indicator/alarming device.

3. It works only when at 5V power supply is given.

4. Its sensitivity depends on Humidity and temperature.

5. It is a little sensitive to smoke.

Future prospect - Can be used in factories with a lot of combustion systems to alert the workers at the earliest. Another GPS Module can be added to the circuit to send the SMS alert with location of the fire outbreak. The whole system is modular and can be customized according to the users. A small exhaust fan system can also be added with relay to help the excess smoke go out.

Budget –

Sl. No	Component	Costing
1.	Arduino Uno R3	1x550
2.	MQ-2 Sensor	1x130
3.	GSM Module SIM800A	1x730
4.	Buzzer	1x10
5.	12V Adapter	2x260
6.	Bread Board	1x60
7.	Jumpers (x10)	50

Table 1