LIST OF COMPONENTS:

S.No.	Name of the Component	Quantity
1.	Arduino UNO R3	1
2.	DC Motor	1
3.	LED(Red)	1
4.	330 Ω Resistor	1
5.	Piezo	1
6.	Gas Sensor	1
7.	LCD 16 x 2	1
8.	1 kΩ Resistor	2
9.	250kΩ Potentiometer	1
10.	Pushbutton	1

HARDWARE INFORMATION :

ARDUINO UNO:

The Arduino Uno is a microcontroller board based on the ATmega328 (datasheet). It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz ceramic resonator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a ACtoDC adapter or battery to get started .

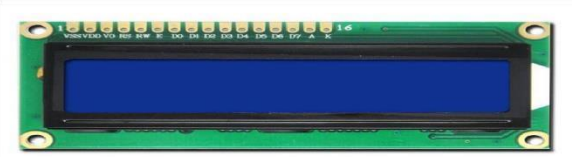
RESISTOR:

A passive electrical component with two terminals that are used for either limiting or regulating the flow of electric current in electrical circuits.

PIEZO:

A piezo is a device that generates a voltage when force is applied or becomes deformed when voltage is supplied.

LCD (Liquid Crystal Display):

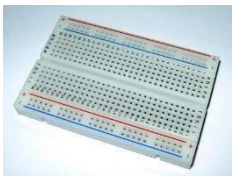


LCD stands for Liquid Crystal Display. 16×2 LCD is one kind of electronic device used to display the message and data. The display is named 16×2 LCD because it has 16 Columns and 2 Rows.

These LCD modules are low cost, and programmer-friendly, therefore, is used in various DIY circuits, devices, and embedded projects. LCD is finding wide spread use replacing LEDs (seven segment LEDs or other multi segment LEDs) because of the following reasons:

1. The declining prices of LCDs.
2. The ability to display numbers, characters and graphics. This is in contrast to LEDs, which are limited to numbers and a few characters.
3. Incorporation of a refreshing controller into the LCD, thereby relieving the CPU of the task of refreshing the LCD. In contrast, the LED must be refreshed by the CPU to keep displaying the data.

BREAD BOARD:



A breadboard is a widely used tool to design and test circuit. You do not need to solder wires and components to make a circuit while using a bread board. It is easier to mount components & reuse them. Since, components are not soldered you can change your circuit design at any point without any hassle. It consist of an array of conductive metal clips encased in a box made of white ABS plastic, where each clip is insulated with another clips. There are a number of holes on the plastic box, arranged in a particular fashion. A typical bread board layout consists of two types of region also called strips. Bus strips and socket strips. Bus strips are usually used to provide power supply to the circuit. It consists of two columns, one for power voltage and other for ground. Socket strips are used to hold most of the components in a circuit. Generally it consists of two sections each with 5 rows and 64 columns. Every column is electrically connected from inside.

GAS SENSOR:

A gas sensor is a device which detects the presence or concentration of gases in the atmosphere. Based on the concentration of the gas the sensor produces a corresponding potential difference by changing the resistance of the material inside the sensor, which can be measured as output voltage. Based on this voltage value the type and concentration of the gas can be estimated.

LED:

LED (Light Emitting Diode) is an optoelectronic device which works on the principle of electroluminance. Electro-luminance is the property of the material to convert electrical energy into light energy and later it radiates this light energy. In the same way, the semiconductor in LED emits light under the influence of electric field. The symbol of LED is formed by merging the symbol of P-N Junction diode and outward arrows. These outward arrows symbolise the light radiated by the light emitting diode.

DC MOTOR:

DC motor is an electrical machine that converts electrical energy into mechanical energy. In a DC motor, the input electrical energy is the direct current which is transformed into the mechanical rotation.

ROTARY POTENTIOMETER:

The rotary type potentiometers are used mainly for obtaining adjustable supply voltage to a part of electronic circuits and electrical circuits. The volume controller of a radio transistor is a popular example of a rotary potentiometer where the rotary knob of the potentiometer controls the supply to the amplifier. This type of potentiometer has two terminal contacts between which a uniform resistance is placed in a semi-circular pattern. The device also has a middle terminal which is connected to the resistance through a sliding contact attached with a rotary knob. By rotating the knob one can move the sliding contact on the semi-circular resistance.

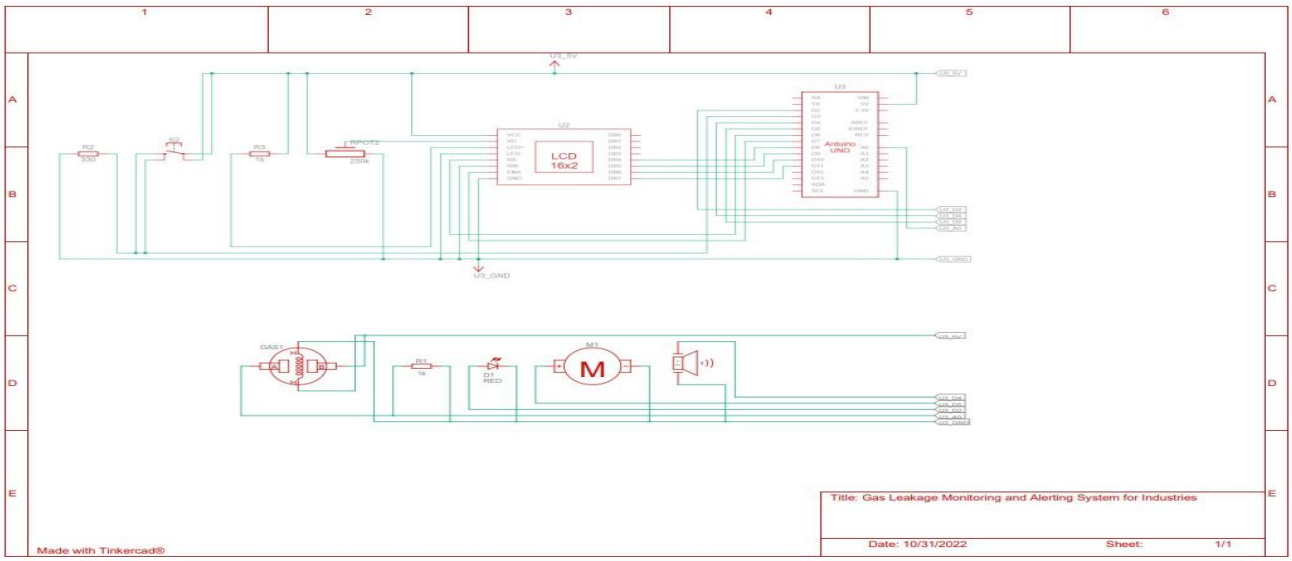
PUSH BUTTON:

A **push-button** (also spelled **pushbutton**) or simply **button** is a simple switch mechanism to control some aspect of a machine or a process. Buttons are typically made out of hard material, usually plastic or metal.

JUMPER WIRE:

Jumper wires are electrical wires with connector pins at each end. They are used to connect two points in a circuit without soldering.

7.3 Database schema:

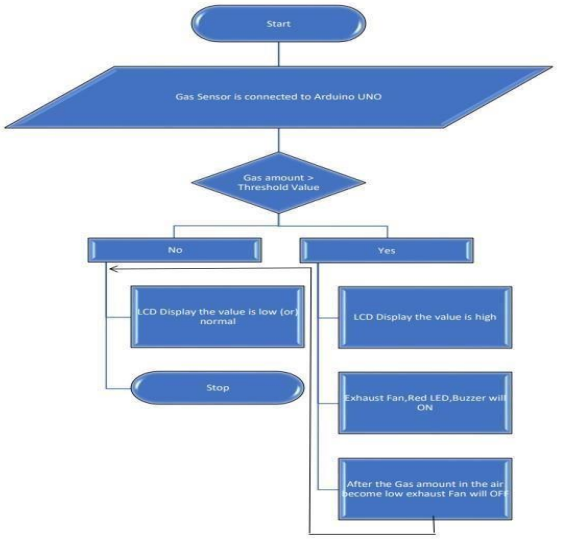


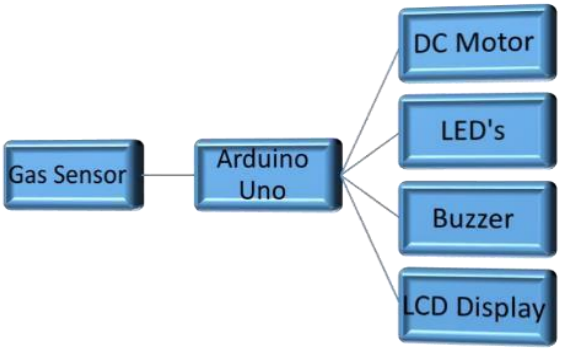
PROPOSED METHOD :

In this project our central component is Arduino UNO. Arduino UNO (Atmega-328) is the main unit of the system which performs the following tasks. A signal conditioning of the Arduino UNO is done by output signal of the sensor, provided input to Arduino. Arduino will make decision when the gas amount is more than the threshold value, an automatic fan will ON and deduct the extra gas from the room or kitchen.

Here, we have a gas sensor that will connect with the Arduino. The gas sensor will read the gas amount from the air. Then we must set a gas threshold value. When the gas value of the air of our home or kitchen is more than the threshold value. The exhaust fan will automatically ON. After eliminating the gas amount from the air, the exhaust fan will automatically OFF. Arduino UNO is the main unit of the system which performs the following tasks. A signal conditioning of the Arduino UNO is done by output signal of the sensor, provided input to Arduino. The detection results displayed on LCD. Indicates the people of danger in work place, factory, home. Buzzer activity with beep sound is made.

BLOCK DIAGRAM:





8.RESULTS:

8.1 CIRCUIT DIAGRAM: