ASSIGNMENT-1

SMART HOME AUTOMATION

Assignment Date	16 September 2022
Student Name	ILAMATHI M
Student Roll Number	312319106052
Maximum Marks	2 Marks

QUESTION 1:

Make a smart home in TINKERCAD using 2+ sensors,LED, BuzzER in a single code and circuit.

SOLUTION:

SMART HOME AUTOMATION

In this project three sensors are used to guide various applications. An ultrasonic sensor is placed near the door to sense someone's presence and notify people inside or can be connected to an automatic door.

A temperature sensor is used to monitor the room's temperature and give feedback which can be applied to operate an air conditioner or a heater.

Lastly a Gas sensor is embedded to detect fire and can take action accordingly.

All the devices outputs are connected to an LCD to present the current status these feedbacks can be connected to drive further appliances accordingly..

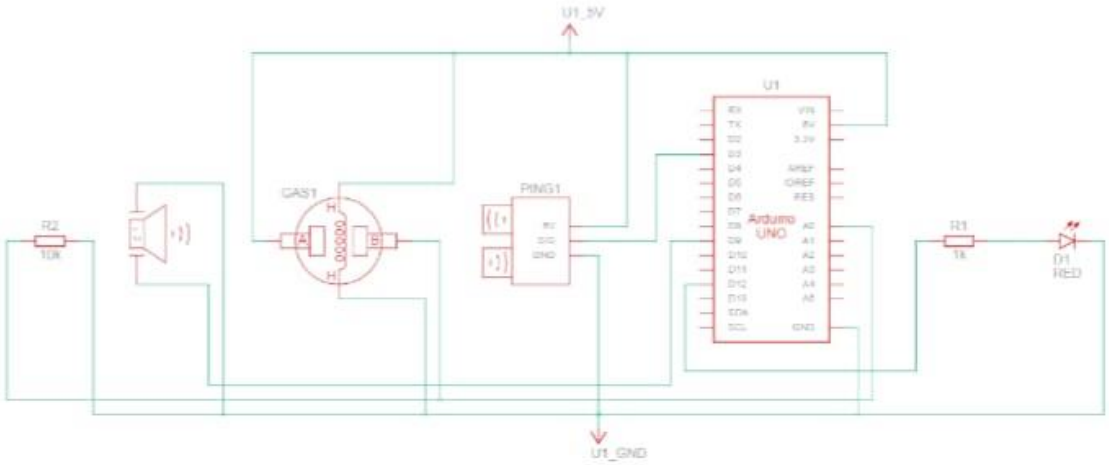
PROGRAM:

```
 //
        long readUltrasonicDistance(int triggerPin, int echoPin)
        {
  pinMode(triggerPin, OUTPUT);  // Clear the trigger
  digitalWrite(triggerPin, LOW);
  delayMicroseconds(2);
  // Sets the trigger pin to HIGH state for 10 microseconds
  digitalWrite(triggerPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(triggerPin, LOW);
  pinMode(echoPin, INPUT);
  // Reads the echo pin, and returns the sound wave travel time in microseconds
  return pulseIn(echoPin, HIGH);
}
int val = A0;
void setup()
{
  pinMode(12, OUTPUT);
  pinMode (9,OUTPUT);
  pinMode (A0,INPUT);
  Serial.begin(9600);
}
void loop()
{
  if (0.01723 * readUltrasonicDistance(3, 3) < 30) {
    digitalWrite(12, HIGH);
  } else {
    digitalWrite(12, LOW);
  }
  delay(10); // Delay a little bit to improve simulation performance
  val = analogRead (A0);
  if (val <500 )
  {digitalWrite (9, LOW);}
  else
  {digitalWrite(9, HIGH);}
}
```

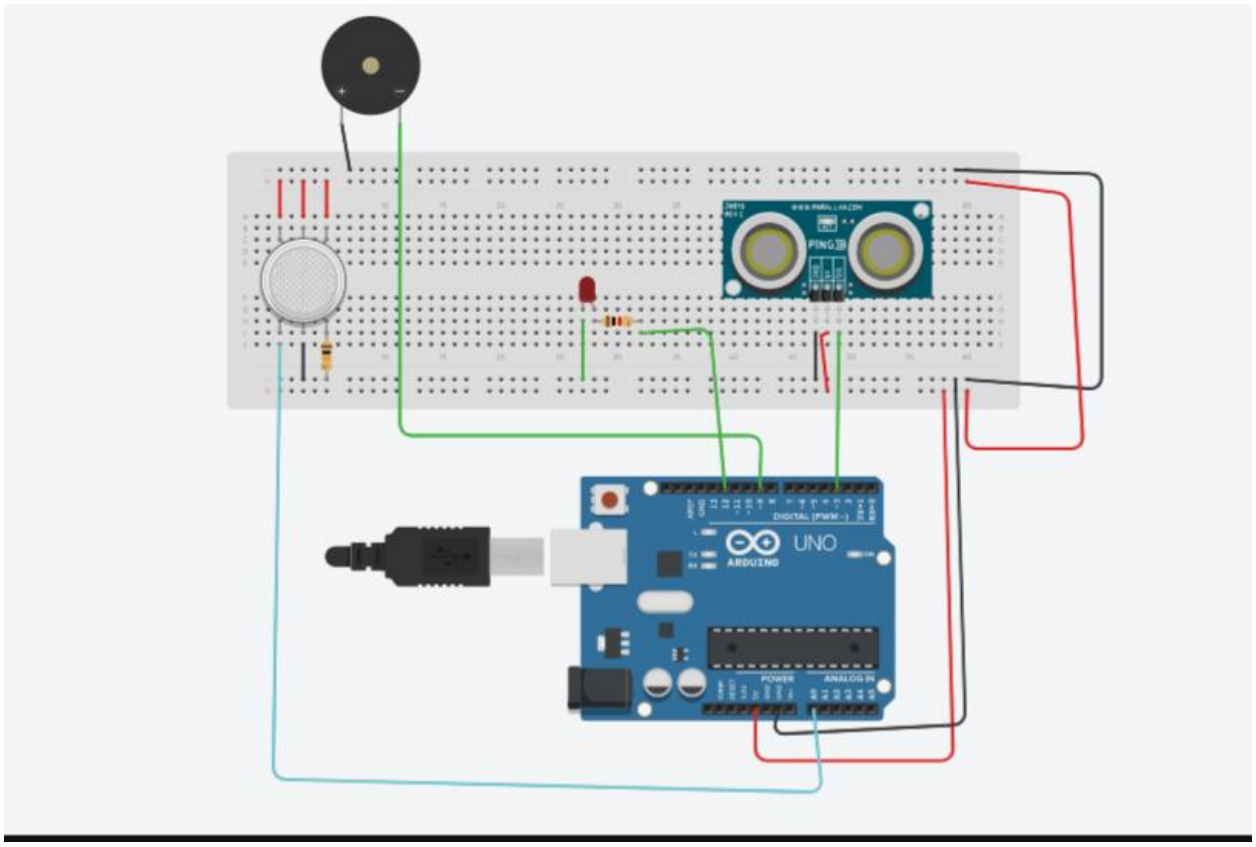
COMPONENT:

S.No	Name	Quantity	Component
1	U1	1	Arduino Uno R3
2	D1	1	Red LED
3	PING1	1	Ultrasonic Distance Sensor
4	GAS1	1	Gas Sensor
5	R1	1	1K ohm
6	PIEO1	1	Piezo
7	R2	1	10K ohm Resister

SCHEMATIC DIAGRAM:



CIRCUIT DIAGRAM:



SIMULATION LINK:

https://www.tinkercad.com/things/bemJ5mMwsgG-glorious-robo-maimu/editel?tenant=circuits