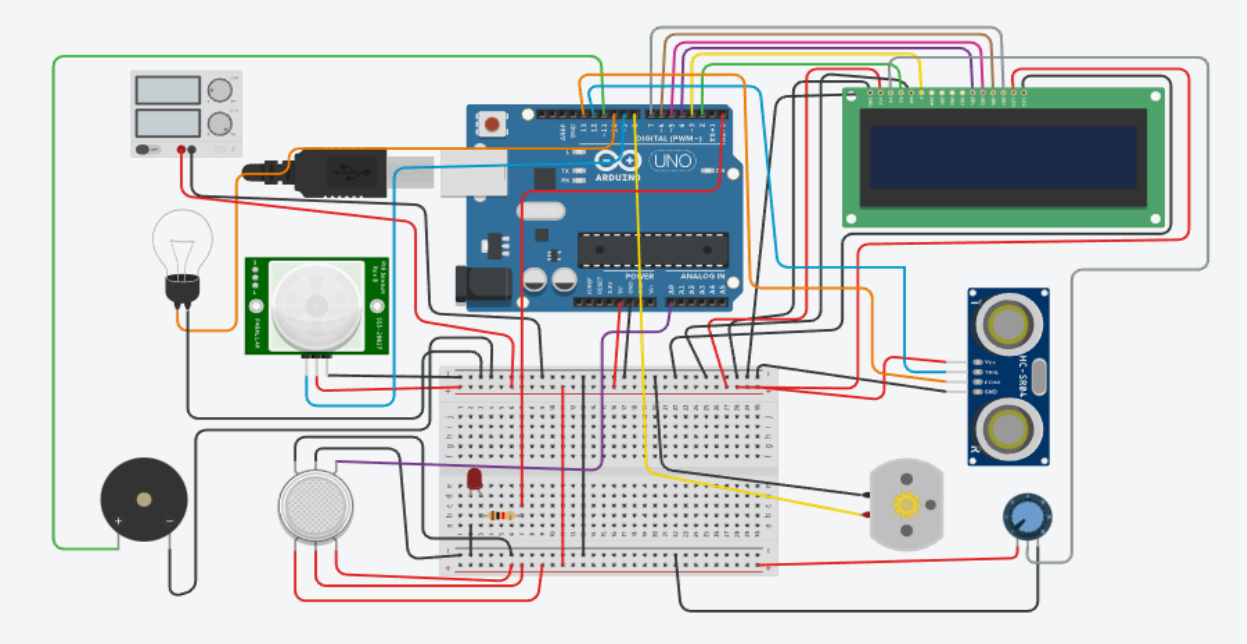
Circuit:



Program:

```
#include<LiquidCrystal.h>

LiquidCrystal lcd(2,3,4,5,6,7);

int trigPin = 12;

int echoPin = 13;

float travelTime;

float level;

float speed;//miles per hour


float readStatusofContainer(int trigPin,int echoPin)

{

  //sending ping

  digitalWrite(trigPin,LOW);

  delayMicroseconds(100);

  digitalWrite(trigPin,HIGH);

  delayMicroseconds(10);
```

```
  digitalWrite(trigPin,LOW);
  return pulseIn(echoPin,HIGH);
}
int motorPin = 8;
int pirPin = 9;
int lightPin = 10;
int gasPin = A0;
int threshold = 400;
int buzzPin = 11;
int ledPin = 0;
void setup()
{
  Serial.begin(9600);
  lcd.begin(16,2);
  pinMode(trigPin,OUTPUT);
  pinMode(echoPin,INPUT);
  pinMode(motorPin,OUTPUT);
  pinMode(pirPin,INPUT);
  pinMode(lightPin,OUTPUT);
  pinMode(gasPin,INPUT);
  pinMode(buzzPin, OUTPUT);
  pinMode(ledPin,OUTPUT);
}

void loop()
{
  travelTime = readStatusofContainer(trigPin,echoPin);//microseconds
  travelTime = travelTime/1000000;//seconds
  travelTime = travelTime/3600;//hours
```

```
speed = 60.0;//miles per hour(86.4 for 5 inches)
level = speed * travelTime;//miles
level = level/2;//because travelTime is round trip time
level = level * 63360;//inch
if(level <= 4.5)
{
  //dispaly status
  lcd.clear();
  lcd.setCursor(0,0);
  lcd.print("Trash Level:");
  lcd.setCursor(0,1);
  lcd.print(level);
          lcd.print(" inches");
          delay(100);
}
else
{
  //dispaly status
  lcd.clear();
  lcd.setCursor(0,0);
  lcd.print("Trash is full");
  lcd.setCursor(0,1);
  lcd.print(level);
          lcd.print(" inches away");
          delay(100);
}
travelTime = readStatusofContainer(trigPin,echoPin);//microseconds
travelTime = travelTime/1000000;//seconds
travelTime = travelTime/3600;//hours
```

```
speed = 240.1;//miles per hour(345.3 for 20 inches)
level = speed * travelTime;//miles
level = level/2;//because travelTime is round trip time
level = level * 63360;//inch
if(level <= 19.0)
{
  //dispaly status and Turn on motor
        digitalWrite(motorPin,HIGH);
  lcd.clear();
  lcd.setCursor(0,0);
  lcd.print("Level:    Motor");
  lcd.setCursor(0,1);
  lcd.print(level);
        lcd.print(" in   On");
        delay(100);
}
else
{
  //dispaly status and Turn off motor
  digitalWrite(motorPin,0);
  lcd.clear();
  lcd.setCursor(0,0);
  lcd.print("Level:    Motor");
  lcd.setCursor(0,1);
  lcd.print(level);
        lcd.print(" in   Off");
        delay(100);
}
if(digitalRead(pirPin)==HIGH)
```

```
        digitalWrite(lightPin, HIGH);
  else
    digitalWrite(lightPin, LOW);
  delay(100);

  // *** Detects flammable gases ***
  if(analogRead(gasPin) >= threshold)
  {
    digitalWrite(ledPin,HIGH);
        digitalWrite(buzzPin,HIGH);
  }
  else
  {
    digitalWrite(ledPin,LOW);
    digitalWrite(buzzPin,LOW);
  }
  delay(100);
}
```