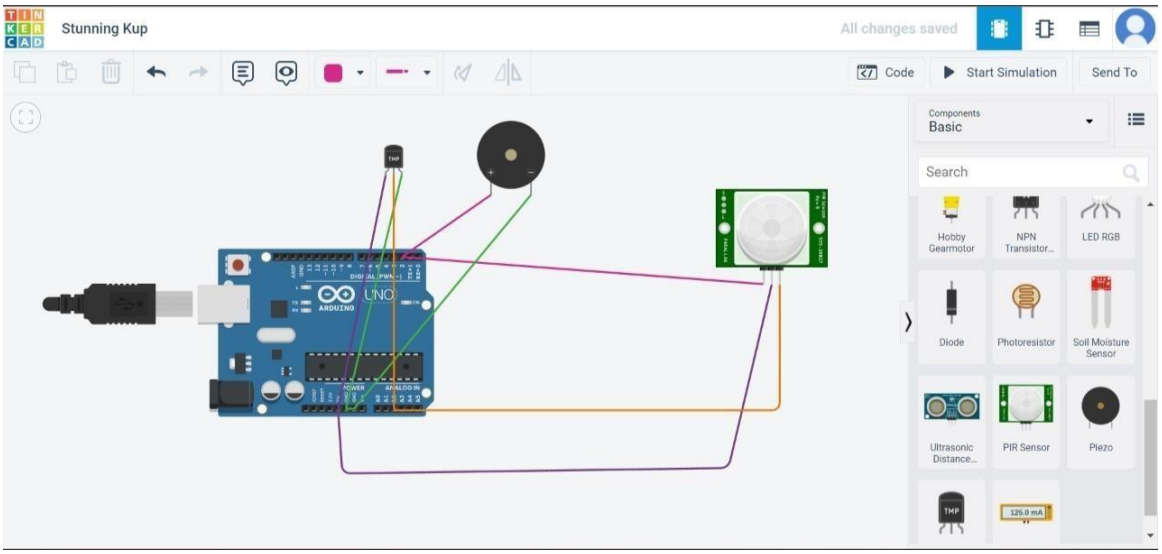
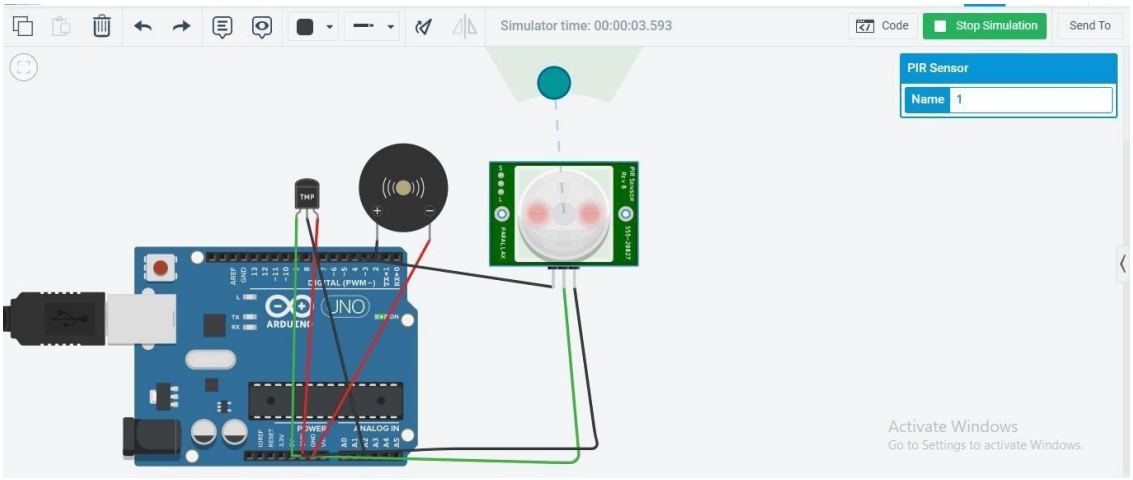
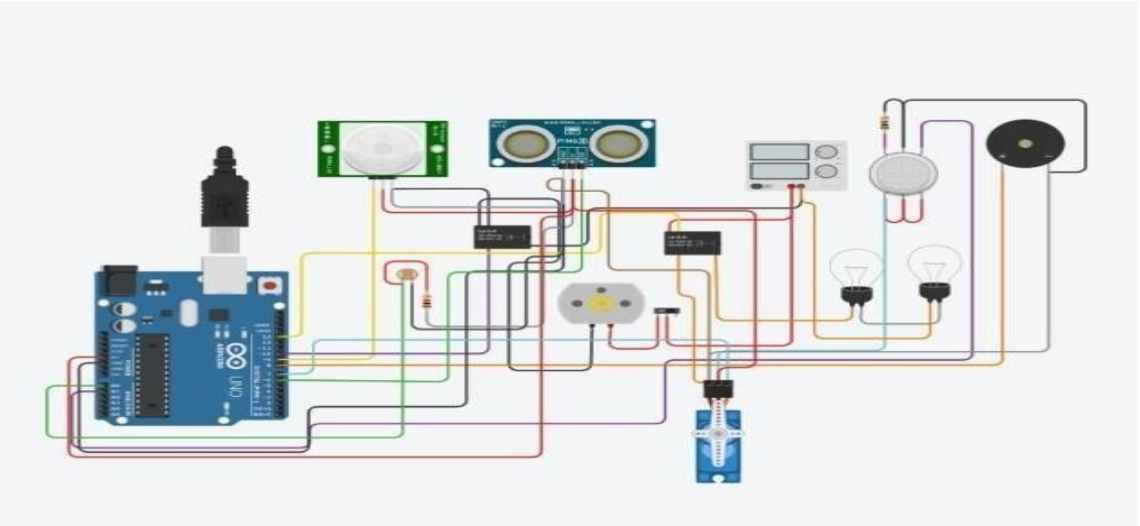
ASSIGNMENT 1

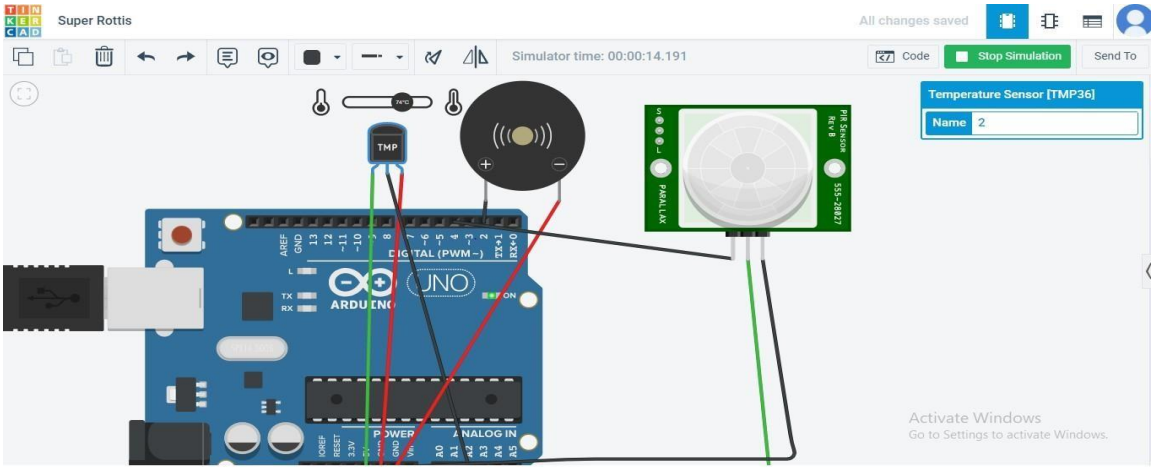
DOMAIN: IOT
PROJECT TITLE: GAS LEAKAGE MONITORING & ALERTING SYSTEM FOR INDUSTRIES
TEAM ID: PNT2022TMID15954
TEAM MEMBERS:

1) BHERMAL ADARSH JAIN (TEAM LEADER)
2) GUVVALA NIKHIL REDDY
3) JAY BALDIYA JAIN
4) A. LALITH KUMAR









SourceCode:

```
#include <Servo.h>

int output1Value = 0;
int sen1Value  =  0;
int sen2Value = 0;
int const gas_sensor = A1;
int const LDR = A0;
int limit = 400;

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);
}

Servo servo_7;

void setup()
{
   Serial.begin(9600);              //initialize serial communication
  pinMode(A0, INPUT);               //LDR
  pinMode(A1,INPUT);                //gas sensor
  pinMode(13, OUTPUT);                      //connected to relay
  servo_7.attach(7, 500, 2500); //servo motor

  pinMode(8,OUTPUT);                //signal to piezo buzzer
  pinMode(9, INPUT);                //signal to PIR
  pinMode(10, OUTPUT);                      //signal to npn as switch
  pinMode(4, OUTPUT);                       //Red LED
  pinMode(3, OUTPUT);                       //Green LED

}

void loop()
{
  //------light intensity control ----- //
    int val1 = analogRead(LDR);
  if (val1 > 500)
            {
            digitalWrite(13, LOW);
    Serial.print("Bulb ON = ");
    Serial.print(val1);
            }
  else
            {
            digitalWrite(13, HIGH);
     Serial.print("Bulb OFF = ");
    Serial.print(val1);
            }
//------ light & fan control --------//

  sen2Value = digitalRead(9);
  if (sen2Value == 0)
            {
            digitalWrite(10, LOW); //npn as switch OFF
            digitalWrite(4, HIGH); // Red LED ON,indicating no motion
            digitalWrite(3, LOW); //Green LED OFF, since no Motion detected
    Serial.print("     || NO Motion Detected  " );
            }

  if (sen2Value == 1)
            {
            digitalWrite(10, HIGH);//npn as switch ON
    delay(5000);
            digitalWrite(4, LOW); // RED LED OFF
```

```
        digitalWrite(3, HIGH);//GREEN LED ON , indicating motion detected
    Serial.print("              || Motion Detected!      " );
        }
  // ------- Gas Sensor --------//
int val = analogRead(gas_sensor);      //read sensor value
  Serial.print("|| Gas Sensor Value = ");
  Serial.print(val);                                        //Printing in serial monitor
//val = map(val, 300, 750, 0, 100);
  if (val > limit)
        {
        tone(8, 650);
        }
        delay(300);
        noTone(8);

 //-------  servo motor --------- //
  sen1Value = 0.01723 * readUltrasonicDistance(6, 6);

  if (sen1Value < 100)
        {
        servo_7.write(90);
    Serial.print("              || Door Open! ; Distance = ");
    Serial.print(sen1Value);
   Serial.print("\n");

        }
  else
        {
        servo_7.write(0);
    Serial.print("              || Door Closed! ; Distance = ");
    Serial.print(sen1Value);
    Serial.print("\n");
  }
  delay(10); // Delay a little bit to improve simulation performance
}
```