

PROBLEM STATEMENT :

IoT Based Smart Solution for Railways

DOMAIN :

Internet of Things

ASSIGNMENT 1:

Smart home with at least two sensors and led, buzzer in TinkerCad

By,

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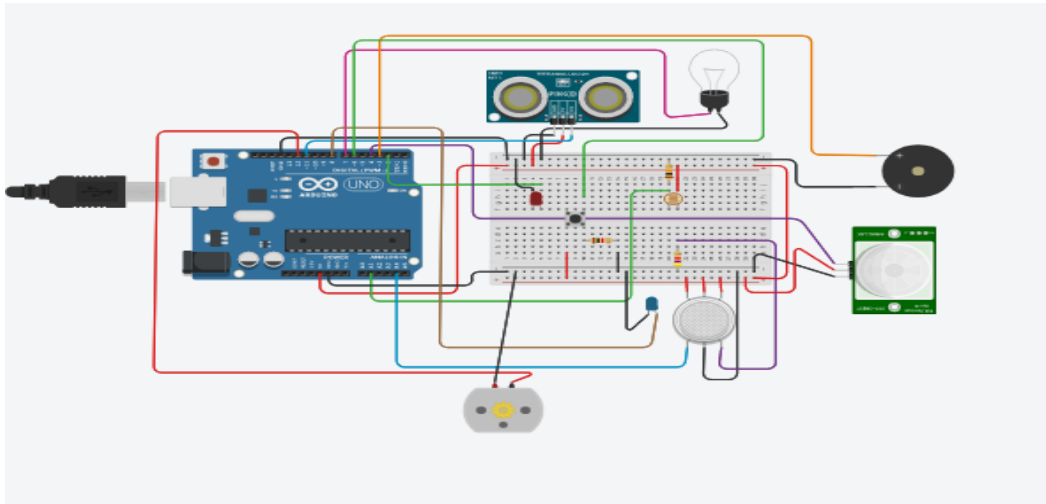
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Link:

https://www.tinkercad.com/things/39SEf7Fqr4h-terrific-luulia%20%20%20%20%20%20%20%20amur/editel?sharecode=FKQR_ZuHMpvx0HiLrnrJOIagb3g2hb1sZ9oTxZPFFAo

CIRCUIT DIAGRAM :



ARDUINO UNO CODE:

```
const int pingPin = 11;

const int ledUS = 2;

const int led = 7;

const int pirsensor = 4;

#define photoSensor A1

#define sound 3

int const PINO_SGAS = A4;

int const ledGas = 8;

int const button = 6;

int const motor = 12;

void setup()
{
  pinMode(ledUS, OUTPUT);
  pinMode(led, OUTPUT);
  pinMode(sound, OUTPUT);
  pinMode(ledGas, OUTPUT);
  pinMode(motor, OUTPUT);
  pinMode(pirsensor, INPUT);
```

```

pinMode(button, INPUT);
pinMode(photoSensor, INPUT);
Serial.begin(9600);
}

void loop()
{
    long duration, cm;
    int valLight = analogRead(photoSensor);
    int valPIR= digitalRead(pirsensor);
    int valGAS = analogRead(PINO_SGAS);
    valGAS = map(valGAS, 350, 800, 0, 150);
    int valBt = digitalRead(button);
    pinMode(pingPin, OUTPUT);
    digitalWrite(pingPin, LOW);
    delayMicroseconds(4);
    digitalWrite(pingPin, HIGH);
    delayMicroseconds(8);
    digitalWrite(pingPin, LOW);

    pinMode(pingPin, INPUT);
    duration = pulseIn(pingPin, HIGH);

    cm = microsecondsToCentimeters(duration);

    if(cm < 600){
        digitalWrite(ledUS, HIGH);
    }else{
        digitalWrite(ledUS, LOW);
    }

    if(valLight < 700){

```

```
    digitalWrite(led, HIGH);  
  }else{  
    digitalWrite(led, LOW);  
  }
```

```
if(valPIR == 1){  
  digitalWrite(sound, HIGH);  
}else{  
  digitalWrite(sound, LOW);  
}
```

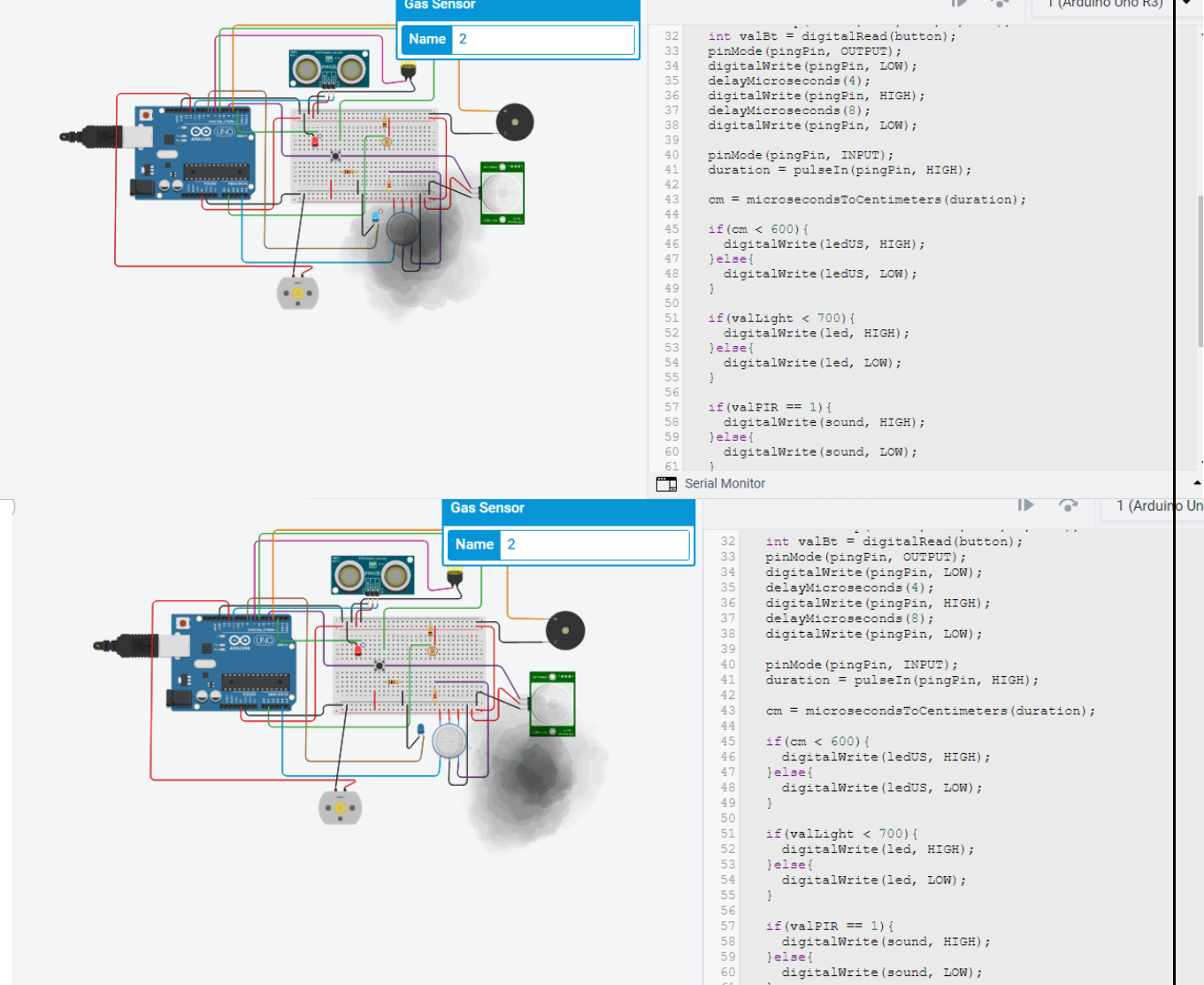
```
if(valBt == 1){  
  digitalWrite(motor, HIGH);  
}else{  
  digitalWrite(motor, LOW);  
}
```

```
if(valGAS > 20){  
  digitalWrite(ledGas, HIGH);  
}else{  
  digitalWrite(ledGas, LOW);  
}
```

```
Serial.print(valPIR);  
Serial.println();  
}
```

```
long microsecondsToCentimeters(long microseconds) {  
  
  return microseconds / 29 / 2;  
}
```

OUTPUT:



The image displays two identical screenshots of an Arduino IDE interface, showing a circuit diagram and the corresponding code for a gas sensor project. The circuit diagram on the left features an Arduino Uno R3 connected to a breadboard. A gas sensor module is connected to the breadboard, with its pins linked to the Arduino's digital pins. A push button is connected to digital pin 2 (labeled 'Name 2' in a blue box) and ground. A small LED (ledUS) and a larger LED (led) are connected to digital pins 4 and 5, respectively, and ground. A buzzer is connected to digital pin 8 and ground. The code on the right is as follows:

```
32 int valBt = digitalRead(button);
33 pinMode(pingPin, OUTPUT);
34 digitalWrite(pingPin, LOW);
35 delayMicroseconds(4);
36 digitalWrite(pingPin, HIGH);
37 delayMicroseconds(8);
38 digitalWrite(pingPin, LOW);
39
40 pinMode(pingPin, INPUT);
41 duration = pulseIn(pingPin, HIGH);
42
43 cm = microsecondsToCentimeters(duration);
44
45 if(cm < 600){
46   digitalWrite(ledUS, HIGH);
47 }else{
48   digitalWrite(ledUS, LOW);
49 }
50
51 if(valLight < 700){
52   digitalWrite(led, HIGH);
53 }else{
54   digitalWrite(led, LOW);
55 }
56
57 if(valPIR == 1){
58   digitalWrite(sound, HIGH);
59 }else{
60   digitalWrite(sound, LOW);
61 }
```

The IDE window title is '1 (Arduino Uno R3)' and the Serial Monitor is open at the bottom.