

IIOT Pratical codes

1.LED character

```
void setup() {
  Serial.begin(9600);
  pinMode(13, OUTPUT);
  pinMode(12, OUTPUT);
  pinMode(11, OUTPUT);
}

void loop() {

  while(Serial.available() != 0)
  {
    char c;
    Serial.println("\nEnter the first letter of led colour which you want to glow : ");
    c = Serial.read();
    switch(c)
    {
      case 'r':
        digitalWrite(13, HIGH);
        delay(1000);
        digitalWrite(13, LOW);
        delay(1000);
        break;
      case 'g':
        digitalWrite(12, HIGH);
        delay(1000);
        digitalWrite(12, LOW);
        delay(1000);
        break;
      case 'b':
        digitalWrite(11, HIGH);
        delay(1000);
        digitalWrite(11, LOW);
        delay(1000);
        break;
      default :
        Serial.println("\n!!! Invalid Choice !!!");
    }
  }
}
```

2.soil Moisture Sensor

```
const int sensor_pin = A1; /* Soil moisture sensor O/P pin */
```

```

void setup() {
  Serial.begin(9600); /* Define baud rate for serial communication */
}

void loop() {
  float moisture_percentage;
  int sensor_analog;
  sensor_analog = analogRead(sensor_pin);
  moisture_percentage = ( 100 - ( sensor_analog/1023.00 ) * 100 ) );
  Serial.print("Moisture Percentage = ");
  Serial.print(moisture_percentage);
  Serial.print("%\n\n");
  delay(1000);
}

```

#3.Ultrasonic Sensor

```

long duration;
int distance_cm;
const int DISTANCE_THRESHOLD=30;
void setup()
{
  Serial.begin(9600);
  pinMode(13,OUTPUT); // Led
  pinMode(3,INPUT); // Echo
  pinMode(2,OUTPUT); // Trig
}
void loop()
{
  digitalWrite(2,HIGH);
  delayMicroseconds(10);
  digitalWrite(2,LOW);
  duration=pulseIn(3,HIGH);
  delay(1000);
  distance_cm=0.017*duration;
  if(distance_cm < DISTANCE_THRESHOLD)
  {
    // tone(13,500,500);
    digitalWrite(13,HIGH);
  }
  else
  {
    digitalWrite(13,LOW);
  }
  Serial.print("Distance :");
  Serial.print(distance_cm);
  Serial.println("cm");
  delay(500);
}

```

4.Counter LED

```
// C++ code

int cnt;
void setup()
{
  Serial.begin(9600);
  pinMode(13, OUTPUT);
  pinMode(12, OUTPUT);
  pinMode(11, OUTPUT);
}

void loop()
{
  Serial.println(cnt);
  if(cnt<=10)
  {
    digitalWrite(13, HIGH);
    delay(1000);
    digitalWrite(13, LOW);
    delay(1000);
    cnt++;
  }
  else if(cnt>10 && cnt<=20)
  {
    digitalWrite(12, HIGH);
    delay(1000);
    digitalWrite(12, LOW);
    delay(1000);
    cnt++;
  }
  else if(cnt>20)
  {
    digitalWrite(11, HIGH);
    delay(1000);
    digitalWrite(11, LOW);
    delay(1000);
    cnt++;
  }
}
```

5. IR Sensor

```
int SensorPin = 9;
int OutputPin = 13;

void setup() {
  pinMode(OutputPin, OUTPUT);
  pinMode(SensorPin, INPUT);
  Serial.begin(9600);
}
```

```

}

void loop() {
  int SensorValue = digitalRead(SensorPin);

  Serial.print("SensorPin Value: ");
  Serial.println(SensorValue);
  delay(1000);
  if (SensorValue==LOW){ // LOW MEANS Object Detected
    digitalWrite(OutputPin, HIGH);
  }
  else
  {
    digitalWrite(OutputPin, LOW);
  }
}

```

6.PIR sensor

```

void setup() {
  pinMode(3,INPUT);
  pinMode(13,OUTPUT);

  // initialize serial communication at 9600 bits per second:
  Serial.begin(9600);
}

```

// the loop routine runs over and over again forever:

```

void loop() {
  // read the input on analog pin 0:
  int sensorValue = digitalRead(3);
  // print out the value you read:
  Serial.println(sensorValue);

  if (digitalRead(3)==HIGH){

    digitalWrite(13,HIGH);
    Serial.println("Object is Detected");
  }
}

```

```
    }  
    else{  
  
        digitalWrite(13,LOW);}  
        delay(100);  
        // delay in between reads for stability  
    }  
}
```

7.GAS Sensor

```
// Define pins for gas sensor and LED  
int gasSensorPin = A0;  
int ledPin = 13;  
  
void setup() {  
    Serial.begin(9600);  
    pinMode(ledPin, OUTPUT);  
}  
  
void loop() {  
    int sensorValue = analogRead(gasSensorPin);  
    Serial.print("Gas Sensor Value: ");  
    Serial.println(sensorValue);  
  
    if (sensorValue > 70) {  
        // Gas is detected (you may need to adjust this threshold)  
        digitalWrite(ledPin, LOW); // Turn off LED  
    }  
}
```

```
else {  
    // No gas detected  
    digitalWrite(ledPin, HIGH); // Blink the LED  
    delay(500); // Blink for 500 milliseconds  
    digitalWrite(ledPin, LOW);  
    delay(500); // Off for 500 milliseconds  
}  
  
delay(1000); // Adjust the delay as needed  
}
```

8 .node MC