**LED ON OFF:**

#define LED 13

void setup() {

pinMode(LED, OUTPUT);

}

void loop() {

 digitalWrite(LED, HIGH);

 delay(5000);

 digitalWrite(LED, LOW);

 delay(2000);

}

**LED BRIGHTNESS:**

#define LED 13

void setup() {

pinMode(LED, OUTPUT);

}

void loop() {

  for(int i=0;i<200;i++)

  {

    analogWrite(LED,i);

    delay(1);

  }

 for(int i=200;i>0;i++)

 {

  analogWrite(LED,i);

  delay(1);

 }

}

**SMOKE SENSOR:**

int redLed = 12;

int buzzer = 4;

int smokeA0 = A0;

int sensorThres = 700;

void setup() {

  pinMode(redLed, OUTPUT);

  pinMode(buzzer, OUTPUT);

  pinMode(smokeA0, INPUT);

  Serial.begin(9600);

}

void loop() {

  int analogSensor = 800;

  Serial.print("Pin A0: ");

  Serial.println(analogSensor);

  if (analogSensor < sensorThres)

  {

    digitalWrite(redLed, LOW);

    Serial.println("no smoke");

    noTone(buzzer);

  }

  else

  {

    digitalWrite(redLed, HIGH);

    Serial.println("smoke detected");

    tone(buzzer, 1000, 200);

  }

  delay(100);

}

**RAIN SENSOR:**

const int sensorMin = 0;

const int sensorMax = 1024;

int redLed = 13;

int buzzer = 4;

// the setup function runs once when you press reset or power the board

void setup() {

  pinMode(0,INPUT);

  pinMode(redLed, OUTPUT);

  pinMode(buzzer, OUTPUT);

  Serial.begin(9600);

}

// the loop function runs over and over again forever

void loop() {

  if(analogRead(0)==1023){

    Serial.println("no rain");

    }

    else{

     int sensorReading = analogRead(A0);

     int range = map(sensorReading, sensorMin, sensorMax, 0, 3);

  switch (range)

    {

      case 0:

        Serial.println("RAINING");

         digitalWrite(redLed, HIGH);

         tone(buzzer, 1000, 200);

        break;

      case 1:

        Serial.println("RAIN WARNING");

        break;

      case 2:

        Serial.println("NOT RAINING");

         digitalWrite(redLed, LOW);

    noTone(buzzer);

        break;

    }

  delay(1000);

    }

}

**ULTRASONIC SENSOR:**

#define LED 13

const int trigPin = 5;

const int echoPin = 4;

int Buzzer = 15;

void setup() {

  Serial.begin(9600);

}

void loop()

{

  long duration, inches, cm;

  pinMode(LED, OUTPUT);

  pinMode(Buzzer, OUTPUT);

  pinMode(trigPin, OUTPUT);

  digitalWrite(trigPin, LOW);

  delayMicroseconds(2);

  digitalWrite(trigPin, HIGH);

  delayMicroseconds(10);

  digitalWrite(trigPin, LOW);

  pinMode(echoPin, INPUT);

  duration = pulseIn(echoPin, HIGH);

  inches = microsecondsToInches(duration);

  cm = microsecondsToCentimeters(duration);

 if( cm>5 && cm <550)

 {

  if(cm<10)

  Serial.print(inches);

  Serial.print("in, ");

  Serial.print(cm);

  Serial.print("cm");

  Serial.println();

  digitalWrite(LED, HIGH);

   tone(Buzzer, 1000,500);

 }

 else {

  digitalWrite(LED, LOW);

  noTone(Buzzer);

  delay(100);

}

}

long microsecondsToInches(long microseconds)

{

  return microseconds / 74 / 2;

}

long microsecondsToCentimeters(long microseconds)

{

  return microseconds / 29 / 2;

}

**Temperature sensor:**

const int LM\_35 = A0; // Assigning Pin to LM35

int input\_val = 0; // TO store input value

float temp = 0; // To store final temperature output

void setup() {

Serial.begin(9600);

}

void loop() {

input\_val = analogRead(LM\_35); // Reading analog input

temp = (5.0 \* input\_val \* 100.0) / 1024; // Some calculation to convert analog value to temperature

Serial.print("Temperature is : " );

Serial.println(temp);

delay(1000);

}

**soil moisture sensor**

int WET= 16; // Wet Indicator at Digital pin D0

int DRY= 2;  // Dry Indicator at Digital pin D4

int sense\_Pin = 0; // sensor input at Analog pin A0

int value = 0;

void setup() {

   Serial.begin(9600);

   pinMode(WET, OUTPUT);

   pinMode(DRY, OUTPUT);

   delay(2000);

}

void loop() {

   Serial.print("MOISTURE LEVEL : ");

   value= analogRead(sense\_Pin);

   value= value/10;

   Serial.println(value);

        if(value<50)

        {

            digitalWrite(WET, HIGH);

        }

       else

       {

           digitalWrite(DRY,HIGH);

       }

       delay(1000);

       digitalWrite(WET,LOW);

       digitalWrite(DRY, LOW);

}