

SPRINT-1

Team ID	PNT2022TMID06909
Project Name	Hazardous Area Monitoring for Industrial Plant powered by IoT

Code:

Creating A Code for Connecting Sensor and Arduino:

```
#include <stdio.h>
```

```
//LCD I2C library:
```

```
#include <LiquidCrystal_I2C.h>
```

```
//DHT22 sensor library:
```

```
#include <DHT.h>;
```

```
//LCD I2C address 0x27, 20 column and 4
```

```
rows!LiquidCrystal_I2C lcd(0x27, 16, 2);
```

```
//Constants:
```

```
#define DHTPIN 2      //what pin we're connected
```

```
to#define DHTTYPE DHT22 //DHT 22 (AM2302)
```

```
DHT dht(DHTPIN, DHTTYPE); //Initialize DHT sensor for normal 16mhz Arduino
```

```
//Variables:
```

```
int chk;
```

```

float H; //Humidity value
float T; //Temperature
valueint buzzer = 12;

void setup(){
  //Initialize LCD, DHT22 sensor and buzzer:

  lcd.init(); lcd.backlight();

  //Serial Communication is starting with 9600 of baudrate
  speedSerial.begin(115200);
  dht.begin();

  pinMode(13, OUTPUT); pinMode(buzzer, OUTPUT);

  //Print some text in Serial Monitor
  Serial.println("DHT22 sensor with Arduino Uno R3!");
  pinMode(9, OUTPUT); pinMode(10, OUTPUT); pinMode(11, OUTPUT);
}

void loop(){
  delay(2000)
  ;

  //Read data and store it to variables hum and
  tempH = dht.readHumidity();
  T = dht.readTemperature();

  //Print temp and humidity values to serial
  monitorSerial.print("Humidity: ");
  Serial.print(H);
  Serial.println(" %; ");

```

```
Serial.print("Temperature:
");Serial.print(T);
Serial.println(" Celsius.\n");
```

```
/*If humidity is higher than 70% &
temperature is higher than 30 degrees
Celsius
then it will show on LCD „Too warm! Cool
down!“*/if(H >= 70.00 && T >= 30.00){
digitalWrite(9, HIGH);
digitalWrite(10,
LOW);
digitalWrite(11,
LOW);
```

```
lcd.println(" Too warm! ");
lcd.setCursor(0, 1);
lcd.println(" Cool down! ");
lcd.setCursor(0, 0);
```

```
digitalWrite(buzzer, 1); tone(buzzer, 900,
100);delay(400);
digitalWrite(buzzer, 0); tone(buzzer, 900,
100);delay(400);
digitalWrite(buzzer, 1); tone(buzzer, 900,
100);delay(400);
digitalWrite(buzzer, 0); tone(buzzer, 900,
100);delay(400);
```

```

}else{
/*If humidity is lower than 70% &
temperature is lower than 30 degrees Celsius
then it will show on LCD „Temp. & hum. are in normal
limits”*/digitalWrite(9, LOW);
digitalWrite(10,
LOW);digitalWrite(11,
HIGH);

lcd.println("Temp. & hum.
are");lcd.setCursor(0, 1);
lcd.println("in normal limits");
lcd.setCursor(0, 0);

digitalWrite(buzzer, 0);
}

/*If either humidity is lower than 70%, but
temperature is higher than 30 degrees Celsius,
then it will show on LCD „Be ware! Temp. too high”
or humidity is higher than 70%, but
temperature is lower than 30 degrees Celsius,
then it will show on LCD „Be ware! Hum. too
high”*/ if(H < 70.00 && T >= 30.00){
digitalWrite(9, LOW);
digitalWrite(10,
HIGH);

```

```
digitalWrite(11,  
LOW);
```

```
lcd.println("Be ware!   ");  
lcd.setCursor(0, 1);  
lcd.println("Temp. too high!  
");lcd.setCursor(0, 0);
```

```
digitalWrite(buzzer, 1); tone(buzzer, 400,  
400);delay(400);  
digitalWrite(buzzer, 0); tone(buzzer, 400,  
400);delay(400);  
}
```

```
if(H >= 70.00 && T < 30.00){  
digitalWrite(9, LOW);  
digitalWrite(10,  
HIGH);  
digitalWrite(11,  
LOW);
```

```
lcd.println("Be ware!   ");  
lcd.setCursor(0, 1);  
lcd.println("Hum. too high!  
");lcd.setCursor(0, 0);
```

```
digitalWrite(buzzer, 1); tone(buzzer, 400, 400);  
  
delay(400);
```

```

digitalWrite(buzzer, 0); tone(buzzer, 400,

400);delay(400);

}

}

```

OUTPUT:

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sketch.ino diagram.json Library Manager

```

1 #include <stdio.h>
2 //LCD I2C library:
3 #include <LiquidCrystal_I2C.h>
4 //DHT22 sensor library:
5 #include <DHT.h>;
6
7 //LCD I2C address 0x27, 20 column and 4 rows!
8 LiquidCrystal_I2C lcd(0x27, 16, 2);
9
10 //Constants:
11 #define DHTPIN 2 //what pin we're connected to
12 #define DHTTYPE DHT22 //DHT 22 (AM2302)
13 DHT dht(DHTPIN, DHTTYPE); //Initialize DHT sensor for normal 16mhz Arduino
14
15 //Variables:
16 int chk;
17 float H; //Humidity value
18 float T; //Temperature value
19 int buzzer = 12;
20
21 void setup(){
22 //Initialize LCD, DHT22 sensor and buzzer:
23 lcd.init(); lcd.backlight();
24 //Serial communication is starting with 9600 of baudrate speed
25 Serial.begin(115200);
26 dht.begin();
27 pinMode(11, OUTPUT); pinMode(buzzer, OUTPUT);
28 //Print some text in Serial Monitor
29 Serial.println("DHT22 sensor with Arduino Uno R3!");
30 pinMode(9, OUTPUT); pinMode(10, OUTPUT); pinMode(11, OUTPUT);
31 }
32
33 void loop(){

```

WOKWI sketch.ino

sketch.ino diagram.json Library Manager

```

26 dht.begin();
27 pinMode(11, OUTPUT); pinMode(buzzer, OUTPUT);
28 //Print some text in Serial Monitor
29 Serial.println("DHT22 sensor with Arduino Uno R3!");
30 pinMode(9, OUTPUT); pinMode(10, OUTPUT); pinMode(11, OUTPUT);
31 }
32
33 void loop(){
34 delay(2000);
35 //Read data and store it to variables hum and temp
36 H = dht.readHumidity();
37 T = dht.readTemperature();
38
39 //Print temp and humidity values to serial monitor
40 Serial.print("Humidity: ");
41 Serial.print(H);
42 Serial.println(" %; ");
43 Serial.print("Temperature: ");
44 Serial.print(T);
45 Serial.println(" celsius.\n");
46
47 /*If humidity is higher than 70% &
48 temperature is higher than 30 degrees celsius
49 then it will show on LCD „Too warm! Cool down!“*/
50 if(H >= 70.00 && T >= 30.00){
51 digitalWrite(9, HIGH);
52 digitalWrite(10, LOW);
53 digitalWrite(11, LOW);
54
55 lcd.println(" Too warm! ");
56 lcd.setCursor(0, 1);
57 lcd.println(" cool down! ");
58 lcd.setCursor(0, 0);

```

Simulation controls: Play, Stop, Pause, Reset, Full Screen, 100% zoom.

Editing DHT22: Pause

Temperature: -27.2°C

Humidity: 10.5%

Humidity: 10.50 %;

Temperature: -27.20 Celsius.

Humidity: 10.50 %;

Temperature: -27.20 Celsius.

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```
1 #include <stdio.h>
2 //LCD I2C library:
3 #include <LiquidCrystal_I2C.h>
4 //DHT22 sensor library:
5 #include <DHT.h>;
6
7 //LCD I2C address 0x27, 20 column and 4 rows!
8 LiquidCrystal_I2C lcd(0x27, 16, 2);
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13 DHT dht(DHTPIN, DHTYPE); //Initialize DHT sensor for normal 16mhz Arduino
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15 //Variables:
16 int chk;
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18 float T; //Temperature value
19 int buzzer = 12;
20
21 void setup(){
22 //Initialize LCD, DHT22 sensor and buzzer:
23 lcd.init(); lcd.backlight();
24 //Serial communication is starting with 9600 of baudrate speed
25 Serial.begin(115200);
26 dht.begin();
27 pinMode(13, OUTPUT); pinMode(buzzer, OUTPUT);
28 //Print some text in Serial Monitor
29 Serial.println("DHT22 sensor with Arduino Uno R3!");
30 pinMode(9, OUTPUT); pinMode(10, OUTPUT); pinMode(11, OUTPUT);
31 }
32
33 void loop(){
```

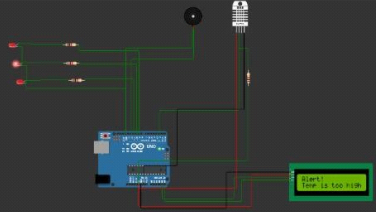
Simulation

00:34.693 98%

Editing DHT22

Temperature: 69.7°C

Humidity: 40.0%



Humidity: 40.00 %;
Temperature: 69.70 Celsius.

Humidity: 40.00 %;
Temperature: 69.70 Celsius.

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```
1 #include <stdio.h>
2 //LCD I2C library:
3 #include <LiquidCrystal_I2C.h>
4 //DHT22 sensor library:
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29 Serial.println("DHT22 sensor with Arduino Uno R3!");
30 pinMode(9, OUTPUT); pinMode(10, OUTPUT); pinMode(11, OUTPUT);
31 }
32
33 void loop(){
```

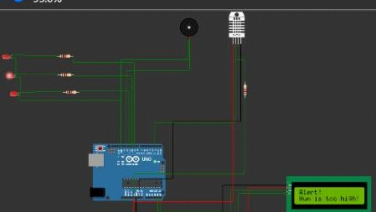
Simulation

01:36.995 98%

Editing DHT22

Temperature: -23.8°C

Humidity: 95.0%



Humidity: 95.00 %;
Temperature: -23.80 Celsius.

Humidity: 95.00 %;
Temperature: -23.80 Celsius.

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```
1 #include <stdio.h>
2 //LCD I2C library:
3 #include <liquidCrystal_I2C.h>
4 //DHT22 sensor library:
5 #include <DHT.h>;
6
7 //LCD I2C address 0x27, 20 column and 4 rows!
8 liquidCrystal_I2C lcd(0x27, 16, 2);
9
10 //Constants:
11 #define DHTPIN 2 //what pin we're connected to
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23   lcd.init(); lcd.backlight();
24   //Serial communication is starting with 9600 baudrate speed
25   Serial.begin(115200);
26   dht.begin();
27   pinMode(13, OUTPUT); pinMode(buzzer, OUTPUT);
28   //Print some test in Serial Monitor
29   Serial.println("DHT22 sensor with Arduino uno R3!");
30   pinMode(9, OUTPUT); pinMode(10, OUTPUT); pinMode(11, OUTPUT);
31 }
32
33 void loop(){
```

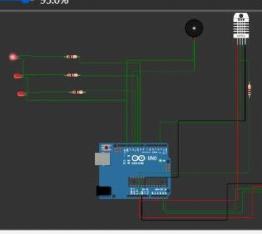
Simulation

00:52.298 101%

Editing DHT22

Temperature: 73.1°C

Humidity: 95.0%



Humidity: 95.00 %;

Temperature: 73.10 Celsius.

Humidity: 95.00 %;

Temperature: 73.10 Celsius.