SPRINT 1

Team ID	PNT2022TMID30738
Project Title	Hazardous Area Monitoring for Industrial Plant Powered By IOT

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 value
int buzzer = 12;

void setup(){
//Initialize
LCD, DHT22 sensor and buzzer:
lcd.init();
lcd.backlight();
//Serial Communication is starting with 9600 of baudrate speed
Serial.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 temp H = dht.readHumidity();
  T = dht.readTemperature();

//Print temp and humidity values to serial monitor
Serial.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) #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!
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pinMode(13, OUTPUT);
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Serial.println("DHT22 sensor with Arduino Uno R3!");
pinMode(9, OUTPUT);
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void loop()
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//Print temp and humidity values to serial monitor
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Celsius then it will show on LCD „Too warm!
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{
  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);
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  digitalWrite(11, HIGH);
  lcd.println("Temp. & hum. are");
  lcd.setCursor(0, 1);
  lcd.println("in normal limits");
  lcd.setCursor(0, 0);
  digitalWrite(buzzer, 0);
}

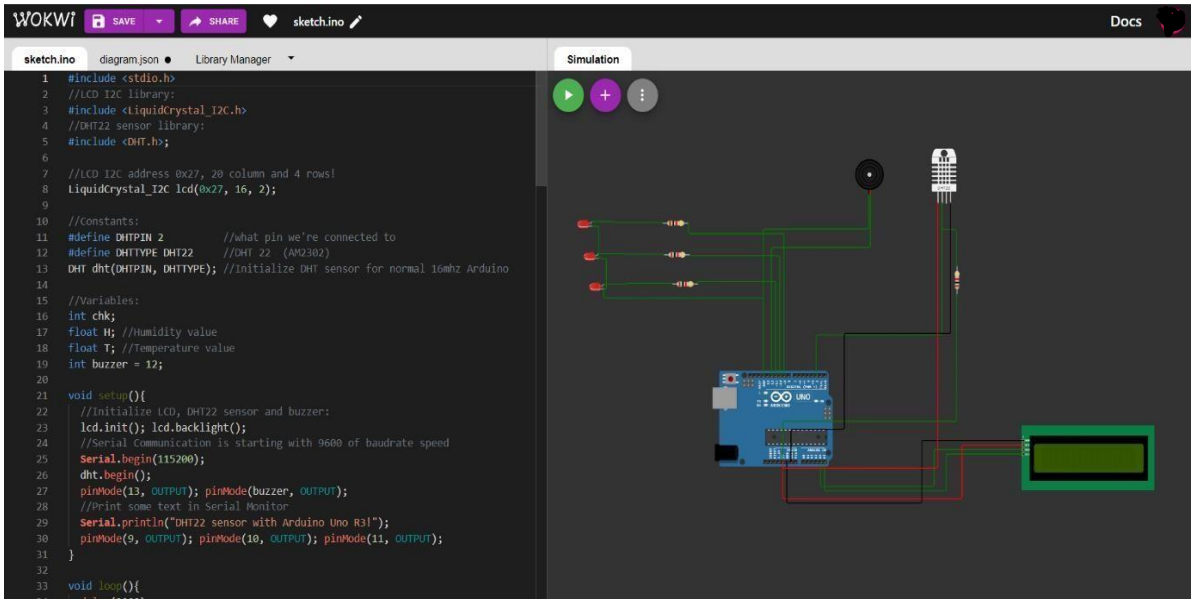
/*If either humidity is lower than 70%, but temperature is higher than 30
degrees Celsius, then it will show on LCD „Be ware! Temp. too high” or
humidity is higher than 70%, but temperature is lower than 30 degrees Celsius,
then it will show on
LCD „Be ware! Hum. too high”*/
if(H < 70.00 && T >= 30.00)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

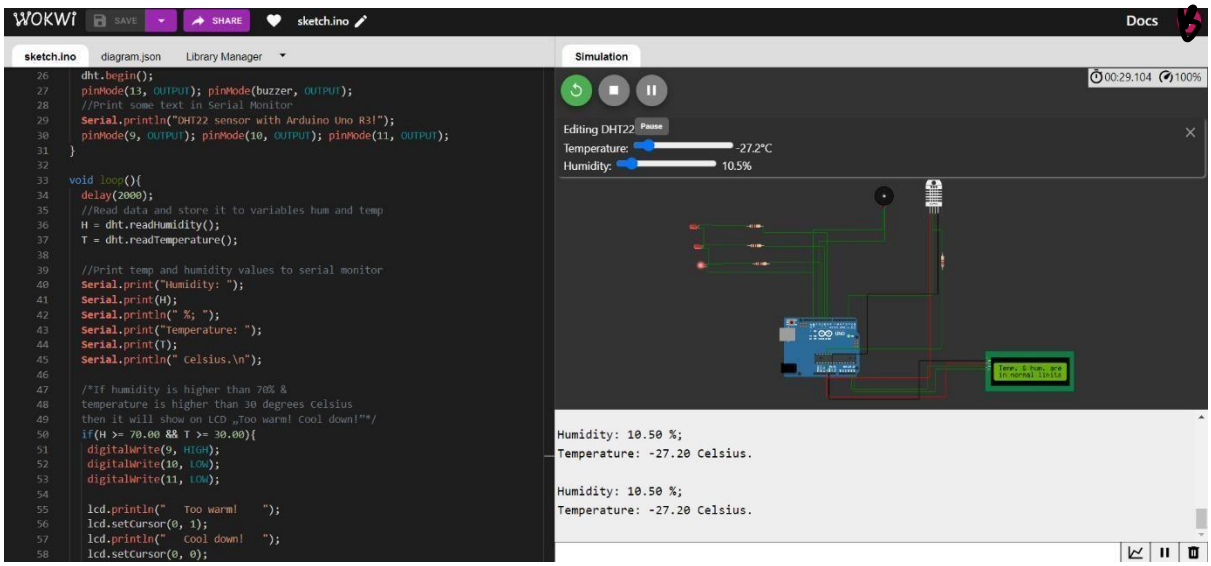


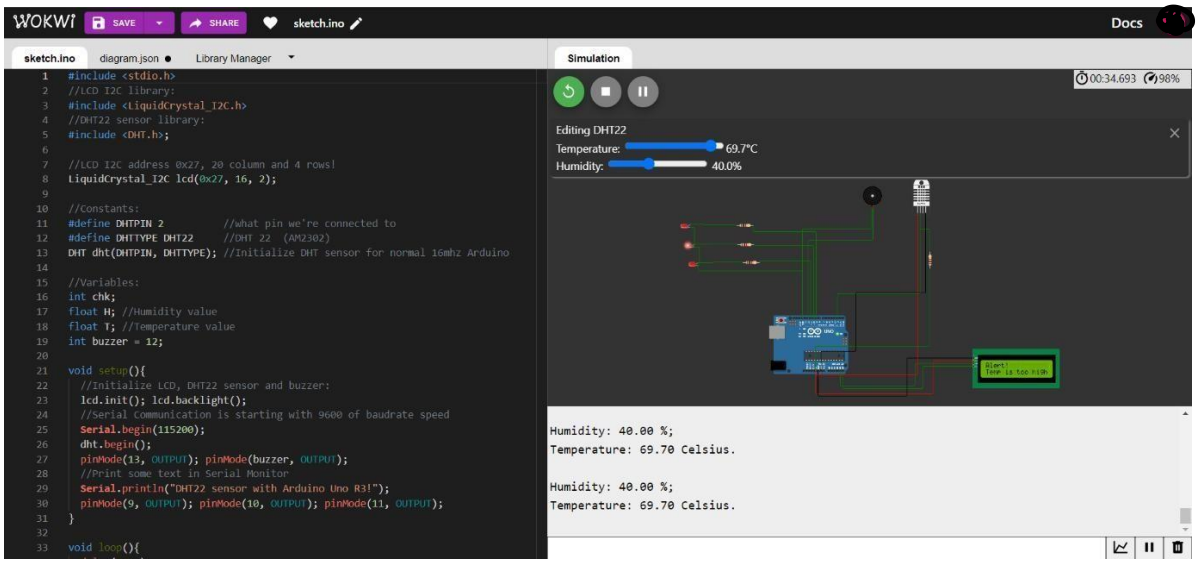
{
```

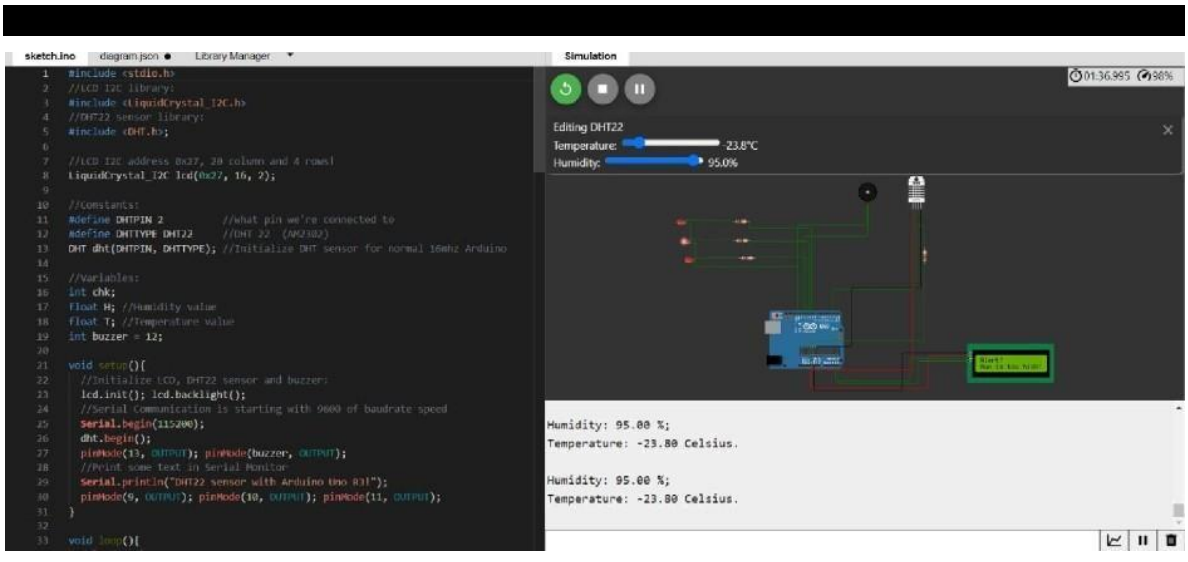
```
  digitalWrite(9, LOW);
  digitalWrite(10, HIGH);
  digitalWrite(11, LOW);
  lcd.println("Be ware!");
  lcd.setCursor(0, 1);
  lcd.println("Hum. too high! ");
  lcd.setCursor(0, 0);
  digitalWrite(buzzer, 1);
  tone(buzzer, 400, 400);
  delay(400);
  digitalWrite(buzzer, 0);
  tone(buzzer, 400, 400);
  delay(400);
}
}
```

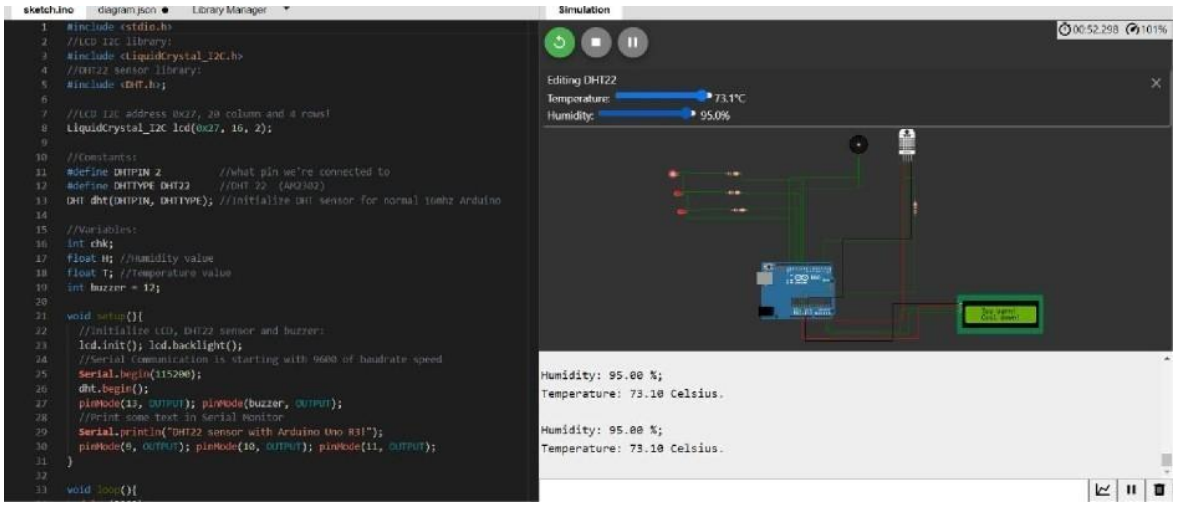
Output:




WOKWI
SAVE
SHARE
sketch.ino
Docs
sketch.ino
diagram.json
Library Manager
Simulation
00:29.104
100%
Editing DHT22
Pause
Temperature:
-27.2°C
Humidity:
10.5%
Humidity: 10.50 %;
Temperature: -27.20 Celsius.
Humidity: 10.50 %;
Temperature: -27.20 Celsius.


WOKWI
SAVE
SHARE
sketch.ino
Docs
sketch.ino
diagram.json
Library Manager
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.


sketch.ino
diagram.json
Library Manager
Simulation
01:36.995
96%
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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  //Initialize LCD, DHT22 sensor and buzzer:
  lcd.init(); lcd.backlight();
  //Serial communication is starting with 9600 of baudrate speed
  Serial.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(8, OUTPUT); pinMode(10, OUTPUT); pinMode(11, OUTPUT);
}

void loop(){
```