Sprint 1

Team ID	PNT2022TMID01194
Project Name	Hazardous Area Monitoring for Industrial Plant powered by IoT

Creating A Code for Connecting Sensor and Arduino:

Code:

```
#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:
```

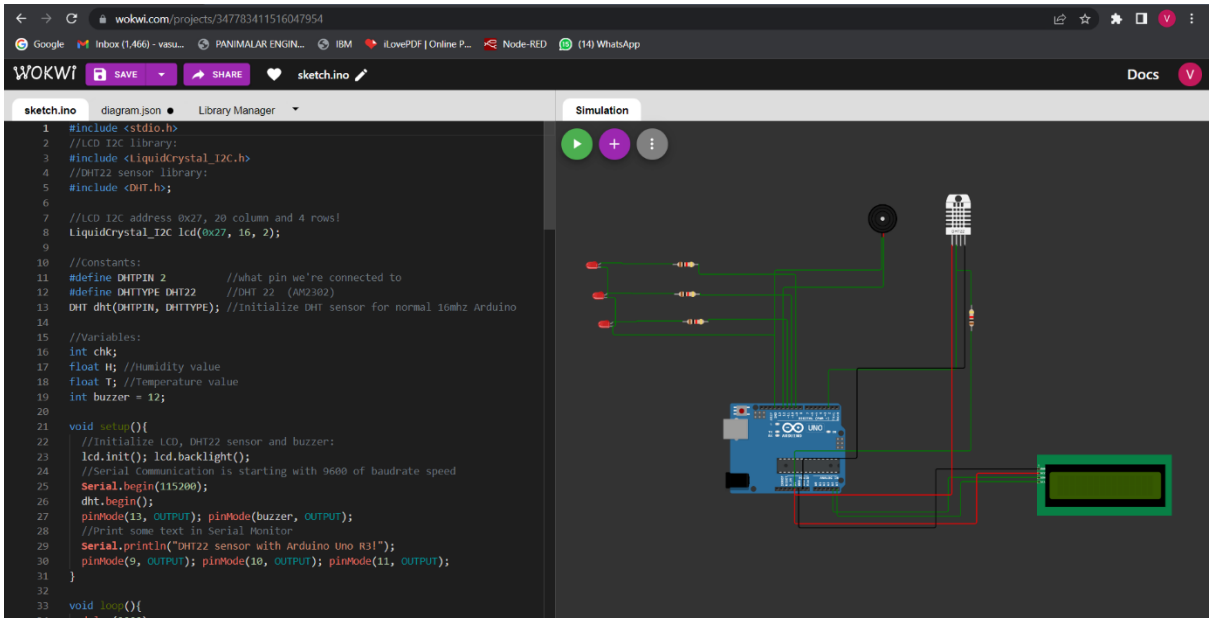
```
 lcd.init(); lcd.backlight();
 //Serial Communication is starting with 9600 of baudrate speed
 Serial.begin(115200);
 dht.begin();
 pinMode(13, OUTPUT); pinMode(buzzer, OUTPUT);
 //Print some text in Serial Monitor
 Serial.println("DHT22 sensor with Arduino Uno R3!");
 pinMode(9, OUTPUT); pinMode(10, 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);
```

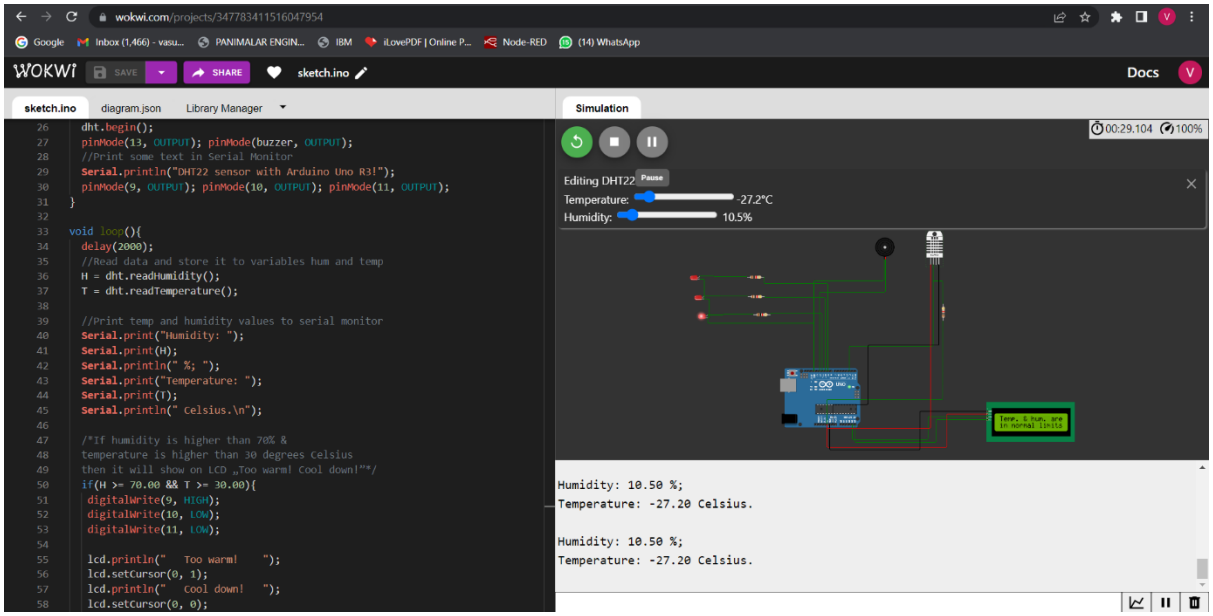
```
 lcd.println("   Too warm!    ");
 lcd.setCursor(0, 1);
 lcd.println("   Cool down!   ");
 lcd.setCursor(0, 0);

 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){
 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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   lcd.setCursor(0, 1);
   lcd.println("   Cool down!   ");
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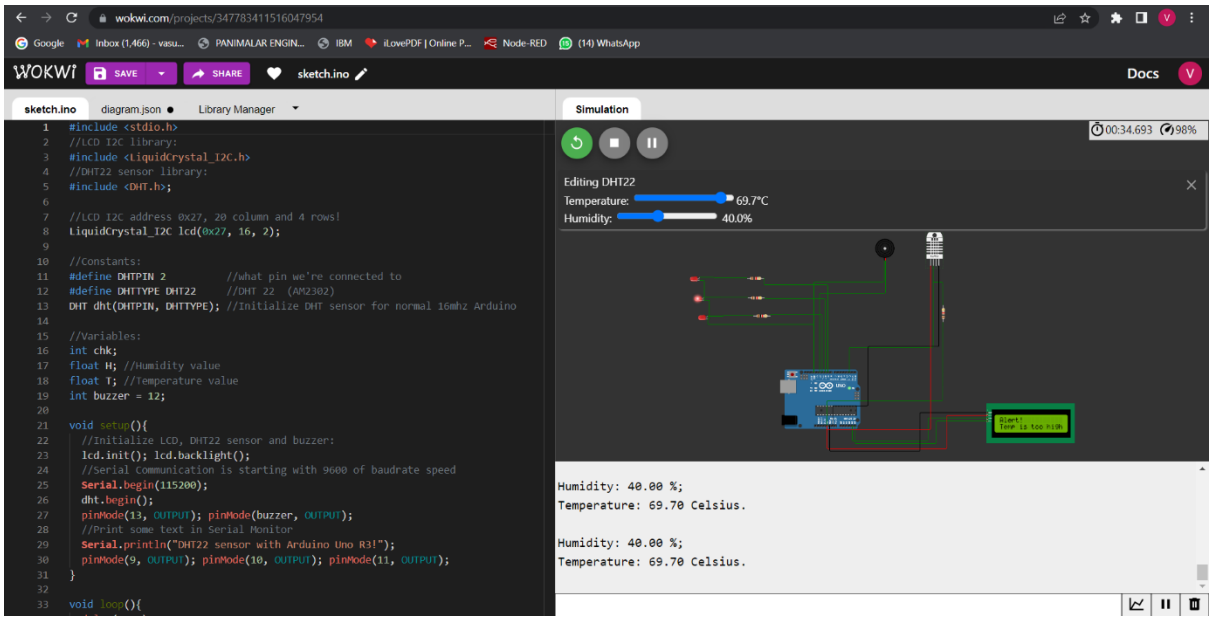


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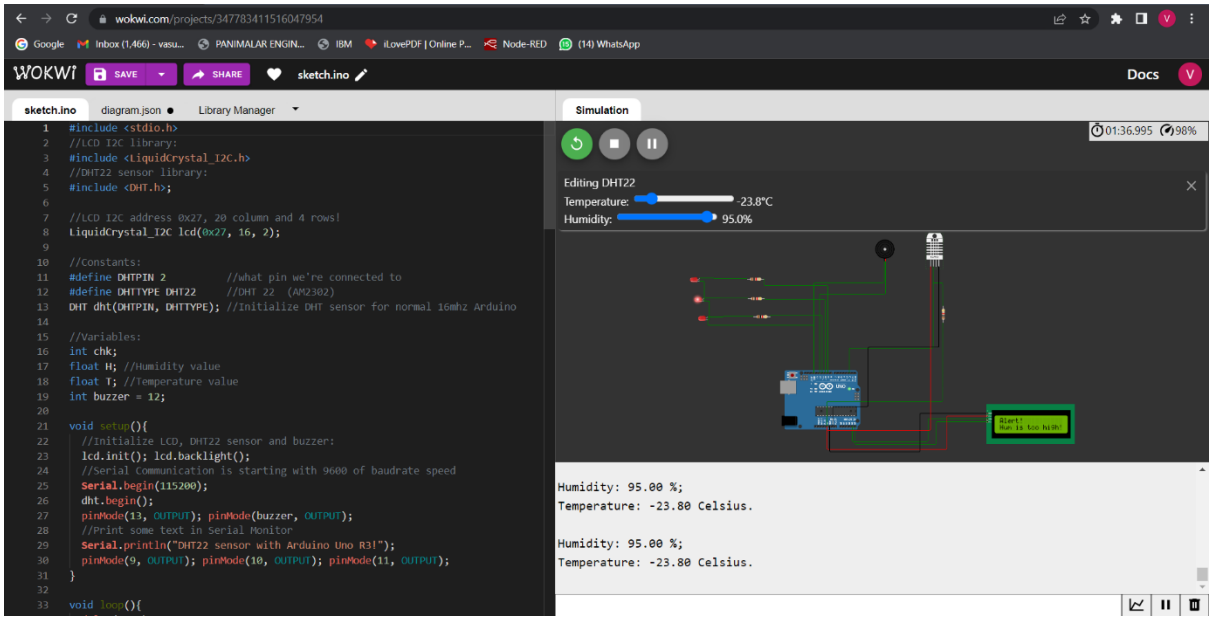
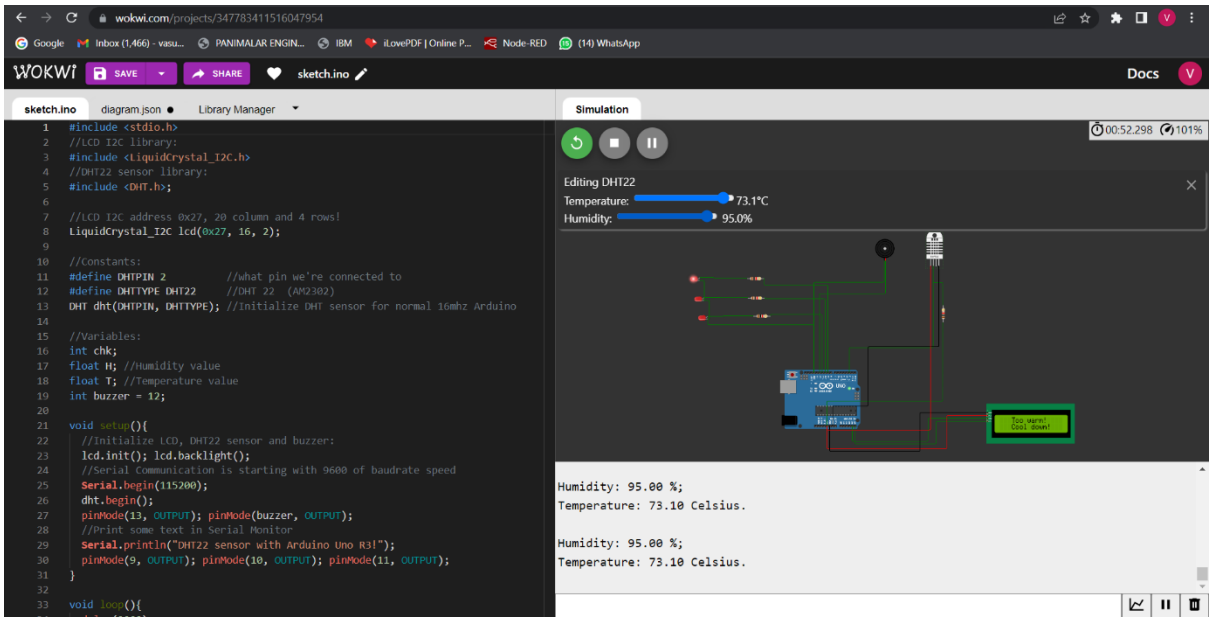

wokwi.com/projects/347783411516047954
WOKWI
SAVE
SHARE
sketch.ino
Docs
sketch.ino
diagram.json
Library Manager
Simulation
01:36.995
98%
Editing DHT22
Temperature: -23.8°C
Humidity: 95.0%
Alert!
Hum is too high!
Humidity: 95.00 %;
Temperature: -23.80 Celsius.
Humidity: 95.00 %;
Temperature: -23.80 Celsius.


wokwi.com/projects/347783411516047954
WOKWI
SAVE
SHARE
sketch.ino
Docs
sketch.ino
diagram.json
Library Manager
Simulation
00:52.298
101%
Editing DHT22
Temperature: 73.1°C
Humidity: 95.0%
Too warm!
Cool down!
Humidity: 95.00 %;
Temperature: 73.10 Celsius.
Humidity: 95.00 %;
Temperature: 73.10 Celsius.