

ENVIRONMENTAL MONITORING (phase-3)

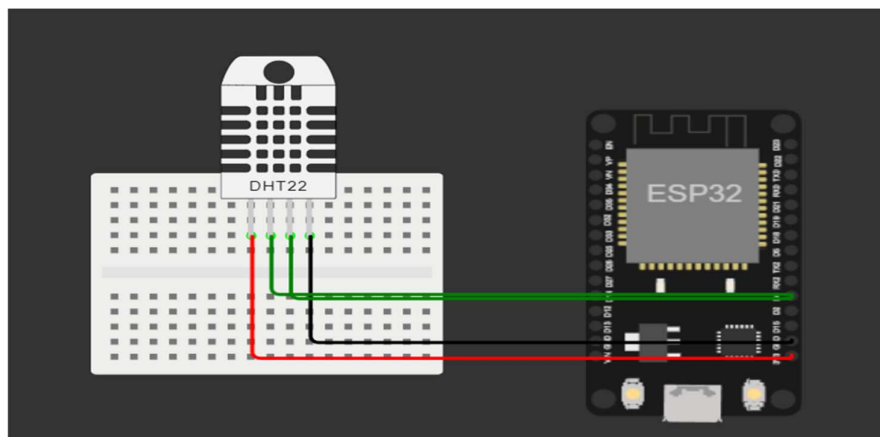
COMPONENTS:

- ✚ ESP32
- ✚ DHT22 Sensor
- ✚ LCD Display
- ✚ Connecting Wires





CONSTRUCTION OF THIS PROJECT :

- ✚ Select the suitable ESP32 board and the full size breadboard.
- ✚ To monitor the temperature and humidity level in public park we choose The DHT22 sensor continuously monitor the levels.
- ✚ To display the levels of both temperature and humidity in public park we choose the 16x2 LCD display and also we insert the Wi-Fi module to check the level from far away from the park.
- ✚ By connecting the DHT22 sensor and 16x2 LCD display we even monitor the temperature and humidity levels in offline while checking around the park.

SIMULATION:



Library Files:

-  HT sensor library
-  DHT22
-  WiFi
-  HttpClient
-  PubSubClient
-  Firebase ESP32 Client
-  FireBase32

CODING:

```
include <WiFi.h>
#include <HttpClient.h>
#include <DHT.h>

// WiFi credentials
const char* ssid = "Wokwi-GUEST";
const char* password = "";

// Beeeceptor endpoint
const char* serverUrl = "https://smartenviron.free.beeceptor.com/smartenviron/";

// DHT sensor configuration
#define DHTPIN 4    // Define the GPIO pin to which the DHT22 is connected
#define DHTTYPE DHT22 // Define the sensor type (DHT11 or DHT22)
DHT dht(DHTPIN, DHTTYPE);

void setup() {
  Serial.begin(9600);
  Serial.print("Connecting to WiFi");
  WiFi.begin("Wokwi-GUEST", "", 6);
  while (WiFi.status() != WL_CONNECTED) {
    delay(100);
    Serial.print(".");
  }
  Serial.println(" Connected!");

  // Initialize the DHT sensor
  dht.begin();
}

void loop() {
  // Read temperature and humidity
  float temperature = dht.readTemperature();
  float humidity = dht.readHumidity();

  if (!isnan(temperature) && !isnan(humidity)) {
    // Create an HTTP client
    HttpClient http;
```

```

// Send temperature and humidity data to BEECEPTOR as form parameters
String postData = "temperature=" + String(temperature) + "&humidity=" + String(humidity);
http.begin(serverUrl);
http.addHeader("Content-Type", "application/x-www-form-urlencoded");
int httpResponseCode = http.POST(postData);

if (httpResponseCode > 0) {
  Serial.print("HTTP Response code: ");
  Serial.println(httpResponseCode);
  Serial.println("Data sent to BEECEPTOR.");
} else {
  Serial.print("Error in HTTP request. HTTP Response code: ");
  Serial.println(httpResponseCode);
}

http.end();
} else {
  Serial.println("Failed to read from DHT sensor!");
}

delay(60000); // Send data every 1 minute (adjust as needed)
}

```

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