Temp-Humidity-Sensor-Project

Step-by-Step Instructions

1. Gather Components

- Arduino Uno
- DHT11 Sensor
- AHT10 Sensor
- 16x2 I2C LCD
- Jumper wires
- Breadboard (optional)

2. Install Required Libraries

I. Open the Arduino IDE.

II. Go to Sketch > Include Library > Manage Libraries...to open the LibraryManager.

III. Search for and install the following libraries:

- **Adafruit AHTX0** for the AHT10 sensor.
- **DHT sensor library** by Adafruit for the DHT11 sensor.
- **LiquidCrystal I2C** for the I2C LCD display.

3. Connect Components

Wiring Diagram

Use the following pin connections to set up your circuit:

- **DHT11 Sensor:**
  - VCC to 5V
  - GND to GND
  - Data pin to digital pin 2 on the Arduino

- **AHT10 Sensor:**
  - VCC to 3.3V (if it requires 3.3V) or 5V (if it supports 5V)
  - GND to GND
  - SCL to A5 (I2C clock)
  - SDA to A4 (I2C data)

- **I2C LCD Display:**
  - VCC to 5V
  - GND to GND
  - SCL to A5

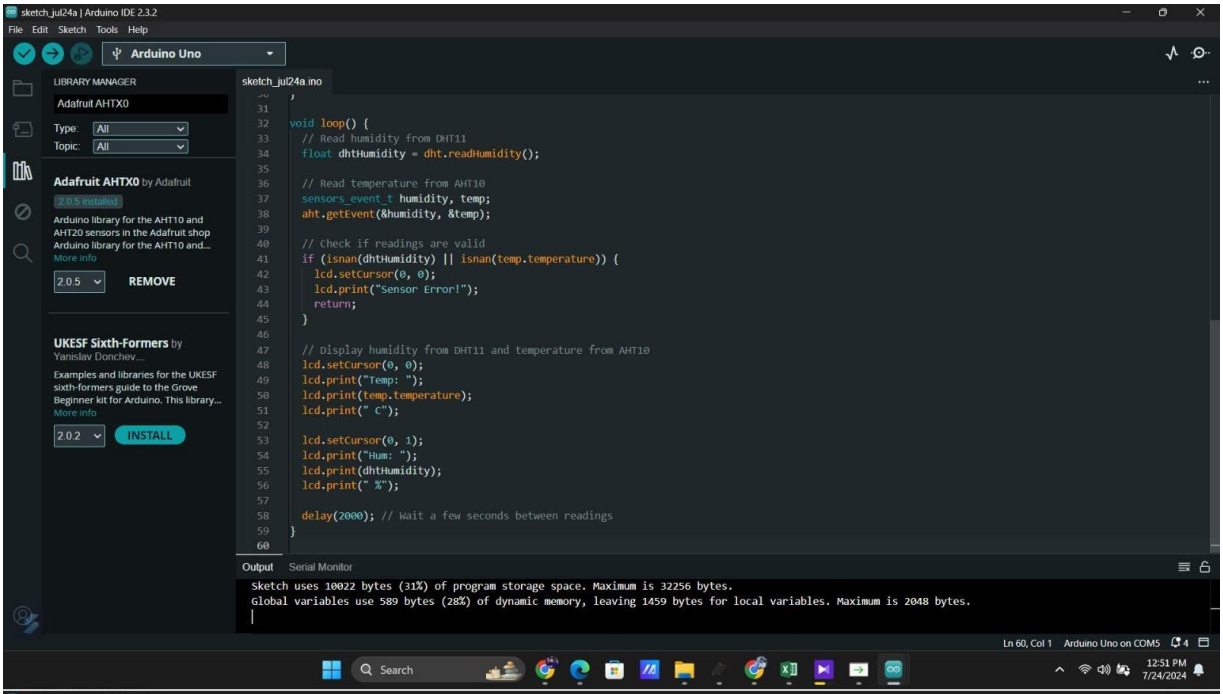
Code:

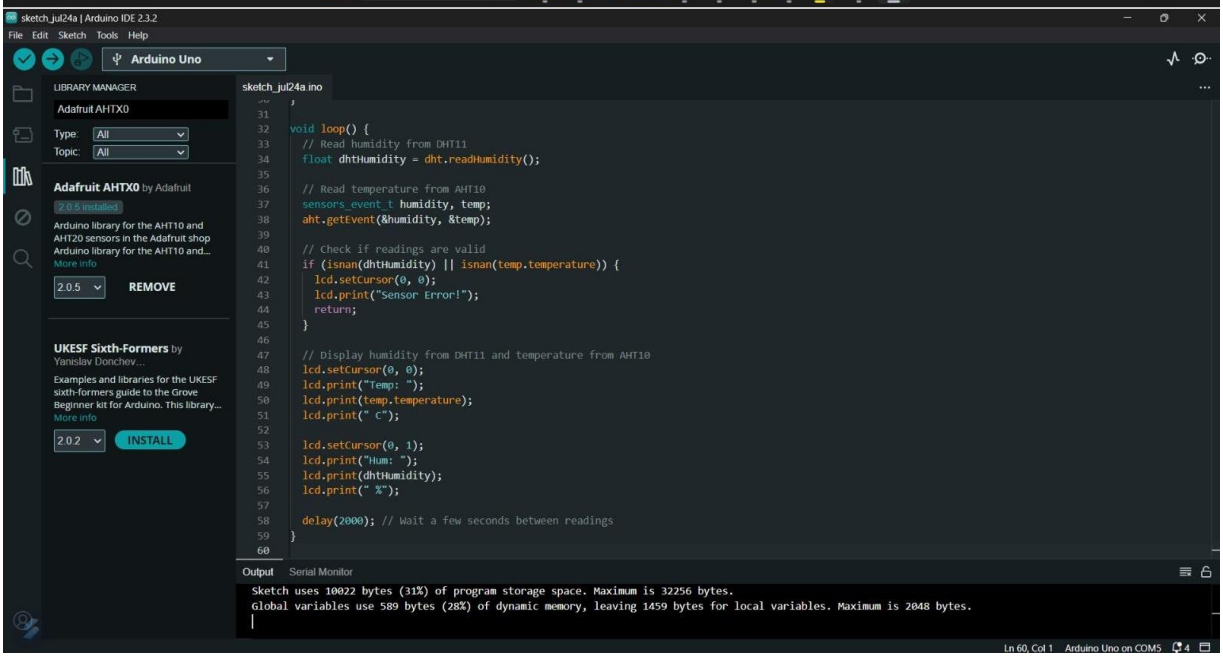
```
#include <Wire.h>
#include <LiquidCrystal_I2C.h>
#include <DHT.h>
#include <Adafruit_AHTX0.h>

// LCD settings
#define LCD_ADDRESS 0x27 // Change this to your LCD's I2C address#define
LCD_COLUMNS 16
#define LCD_ROWS 2

// DHT11 settings
#define DHTPIN 2                  // Digital pin connected to the DHT11 sensor#define
DHTTYPE DHT11                     // DHT 11

// Create instances of the libraries
LiquidCrystal_I2C lcd(LCD_ADDRESS, LCD_COLUMNS, LCD_ROWS);DHT dht(DHTPIN,
DHTTYPE);
Adafruit_AHTX0 aht;

void setup() {
  lcd.init();                  // Initialize the LCD
  lcd.backlight();               // Turn on the backlight

  dht.begin();                 // Initialize the DHT11 sensor if
  (!aht.begin()) {               // Initialize the AHT10 sensor
  lcd.setCursor(0, 0);
    lcd.print("AHT10 not found!");while
    (1); // Stop the program
  }
}

void loop() {
  // Read humidity from DHT11
  float dhtHumidity = dht.readHumidity();

  // Read temperature from AHT10
  sensors_event_t humidity, temp;
  aht.getEvent(&humidity, &temp);
```

```
  // Check if readings are valid
  if (isnan(dhtHumidity) || isnan(temp.temperature)) {
    lcd.setCursor(0, 0);
    lcd.print("Sensor Error!");
    return;
  }

  // Display humidity from DHT11 and temperature from AHT10lcd.setCursor(0, 0);
  lcd.print("Temp: ");
  lcd.print(temp.temperature);
  lcd.print(" C");

  lcd.setCursor(0, 1); lcd.print("Hum:
  "); lcd.print(dhtHumidity);lcd.print("
  %");

  delay(2000); // Wait a few seconds between readings
}
```

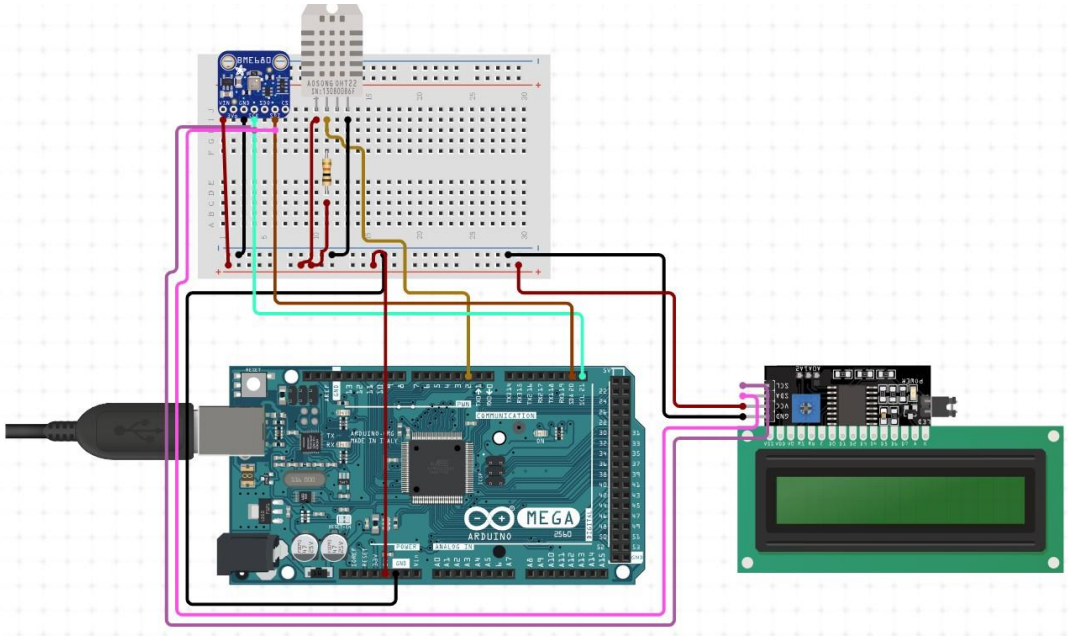
- **Connect your Arduino to your computer** via USB.
- **Select the correct board and port** from the Toolsmenu.
- **Click the Upload button** (right arrow icon) to upload the code to the Arduino.

Software & Code - Arduino IDE





Circuit Diagram



Practical Implementation