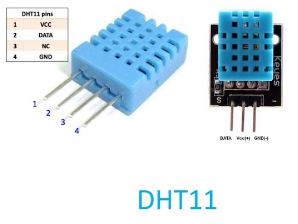
**Temperature and humidity measurement using Arduino**

**Introduction**

Humidity and temperature are common parameters to measure environmental conditions. In this Arduino based project we are going to measure ambient temperature and humidity and display it on a 16x2 LCD screen.

we have used a sensor module namely **DHT11**. This module features a humidity and temperature complex with a calibrated digital signal output means DHT11 sensor module is a combined module for sensing humidity and temperature which gives a calibrated digital output signal .



Components

Arduino uno

DHT 11 temperature and humidity sensor

16\*2 LCD

Breadboard

Connecting wires

Applicaton

This sensor is used in various applications such as measuring humidity and temperature values in heating, ventilation and air conditioning systems. Weather stations also use these sensors to predict weather conditions.  The humidity[sensor](https://en.wikipedia.org/wiki/Humidity) is used as a preventive measure in homes where people are affected by humidity.  Offices, cars, museums, greenhouses and industries use this sensor for measuring humidity values and as a safety measure.

Objective

During this activity ,you will help students to achieve following objectives

1. Understanding the principle and operation of humidity sensor
2. Design algorithm and flowchart to detect humidity and temperature
3. Programming humidity sensor using Arduino uno
4. Interfacing humidity sensor withArduino uno

Programming steps

1. Include libraries for DHT11 abd LCD
2. Define pins for DHT11 and LCD
3. Reads the sensor value
4. Display temperature and humidity values on LCD

Program

#include<dht.h>      // Including library for dht  
#include<LiquidCrystal.h>  
LiquidCrystal lcd(2, 3, 4, 5, 6, 7);

#define dht\_dpin 12

dht DHT;

byte degree[8] =   
              {  
                0b00011,  
                0b00011,  
                0b00000,  
                0b00000,  
                0b00000,  
                0b00000,  
                0b00000,  
                0b00000  
              };

void setup()  
{  
 lcd.begin(16, 2);  
 lcd.createChar(1, degree);  
 lcd.clear();  
 lcd.print("   Humidity   ");  
 lcd.setCursor(0,1);  
 lcd.print("  Measurement ");  
 delay(2000);  
 lcd.clear();  
 lcd.print("Circuit Digest ");  
 delay(2000);  
}

void loop()  
{  
  DHT.read11(dht\_dpin);  
  lcd.setCursor(0,0);  
  lcd.print("Humidity: ");  
  lcd.print(DHT.humidity);   // printing Humidity on LCD  
  lcd.print(" %");  
  lcd.setCursor(0,1);  
  lcd.print("Temperature:");  
  lcd.print(DHT.temperature);   // Printing temperature on LCD  
  lcd.write(1);  
  lcd.print("C");  
  delay(500);  
}

Hardware

Instruction

1. Connect sensors VCC and GND pin to 5 v supply pin and ground pin of arduino
2. Connect sensors data pin to digital pin 12
3. Connect LCDs VEE,VSS and RW pin to ground
4. Connect VDD pin to 5v pin of arduno
5. Connect data pin D7,D6,D5,D4 to the digital input pin 7,6,5,4 of arduino.
6. Connect connect enable pin to 3 and RS pin to 2 of arduino

