

Experiment 2.2

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1. Aim:

Interfacing of Arduino/Raspberry Pi with temperature and humidity sensor with real time application.

2. Objective:

- Learn about IoT based simulations.
- Learning the circuitry.

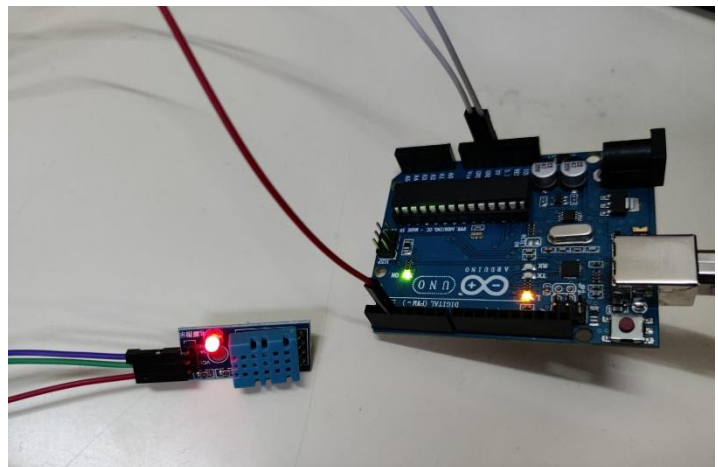
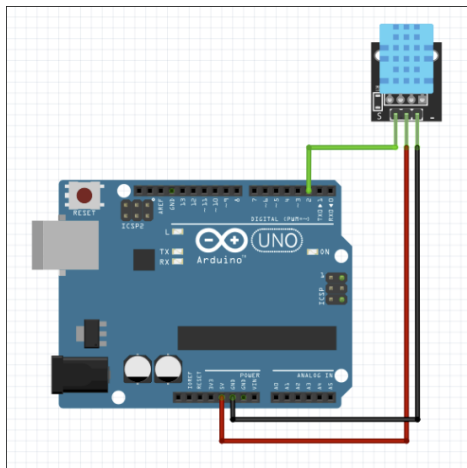
3. Code-Output:

- Hardware Requirement
 - Arduino Uno
 - DHT11
 - Jumper Wire

About DHT11 Sensor:

DHT11 Module features a temperature & humidity sensor complex with a calibrated digital signal output. The exclusive digital-signal-acquisition technique and temperature & humidity sensing technology ensure high reliability and excellent long-term stability. This sensor includes an NTC for temperature measurement and a resistive-type humidity measurement component for humidity measurement. These are connected to a high-performance 8-bit microcontroller, offering excellent quality, fast response, anti-interference ability, and cost-effectiveness.

➤ Circuit



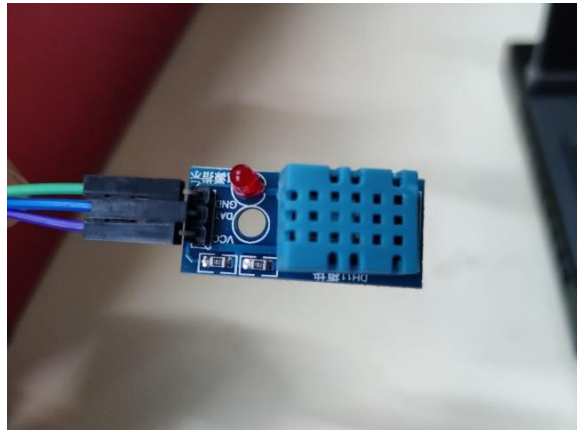
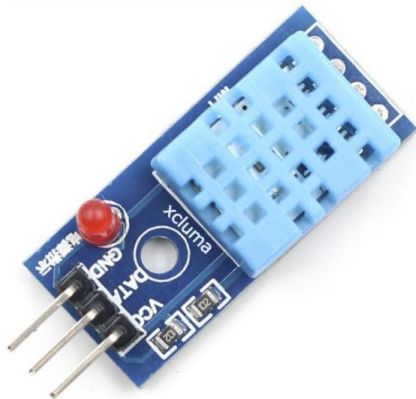
DHT11 Module Pinout:

The DHT11 module has a total of 3 pins. In which two are for power and one is for communication. The pinout of a DHT11 Sensor module is as follows:

DATA :- Data pin for 1-wire communication.

GND :- Ground Connected to Ground pin of the Arduino.

VCC :- Provides power for the module, Connect to the 5V pin of the Arduino.



Code :-

```
#include <Adafruit_Sensor.h>

#include <DHT.h>

#include <DHT_U.h>

#define DHTTYPE DHT11 // DHT 11

#define DHTPIN 2

DHT_Unified dht(DHTPIN, DHTTYPE);

uint32_t delayMS;

void setup() {

  Serial.begin(9600);

  dht.begin();

  sensor_t sensor;

  delayMS = sensor.min_delay / 1000;

}

void loop()

{
```

```
sensors_event_t event;  
dht.temperature().getEvent(&event);  
Serial.print(F("Temperature: "));  
Serial.print(event.temperature);  
Serial.println(F("°C"));  
dht.humidity().getEvent(&event);  
Serial.print(F("Humidity: "));  
Serial.print(event.relative_humidity);  
Serial.println(F("%"));  
delay(delayMS);  
}
```

OUTPUT : -

