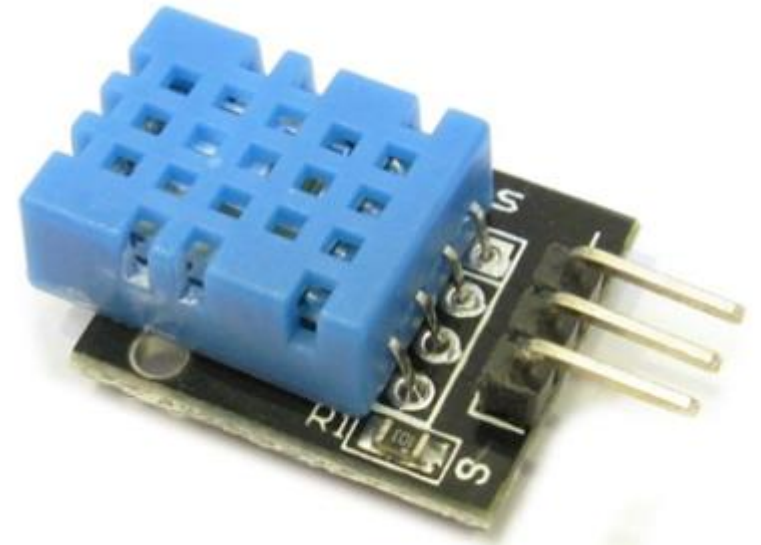


온습도 센서 실험

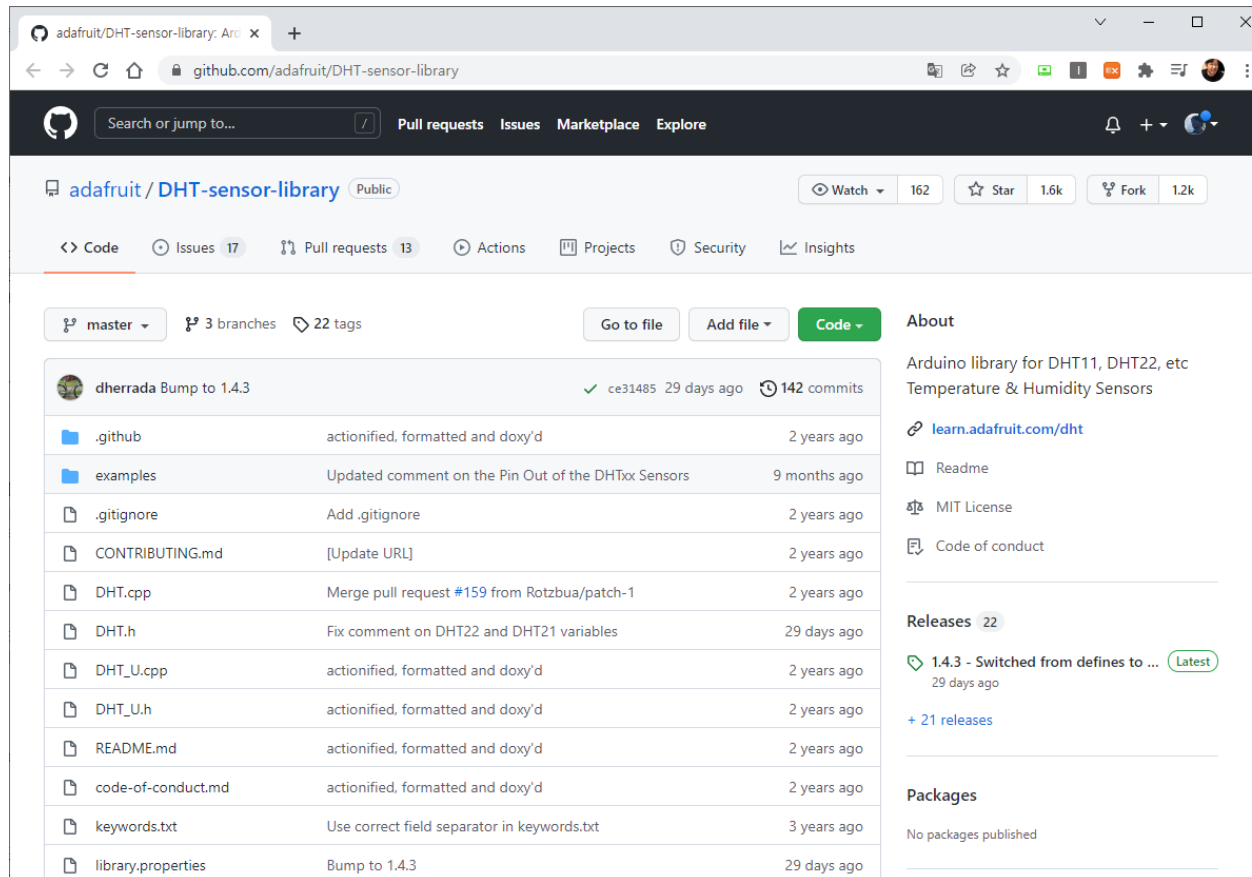
DHT11

- 동작 전압 (Power) 3~5 V
- 온도 측정 범위 (Temperature range) 0 ~ 50 °C (± 2 °C)
- 습도 측정 범위 (Humidity range) 20 ~ 80 % (± 5 %)
- 최대소비전력 (Max. current) 2.5 mA
- 데이터 주기 (sampling rate) 1 Hz

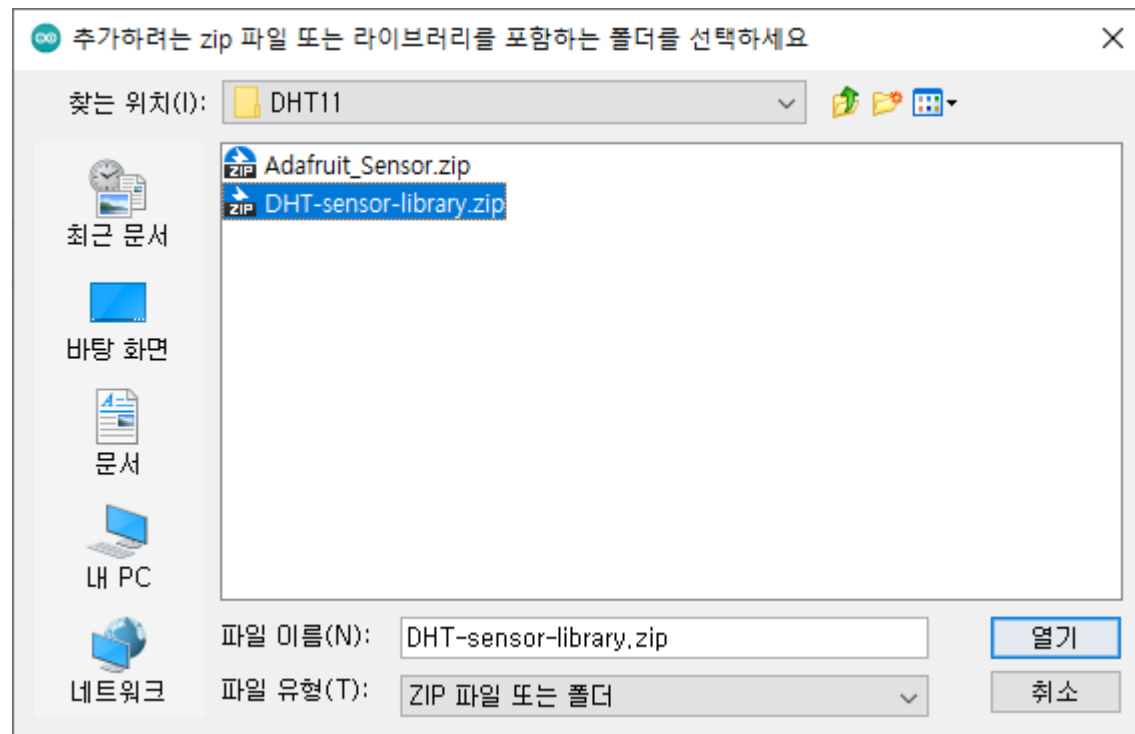
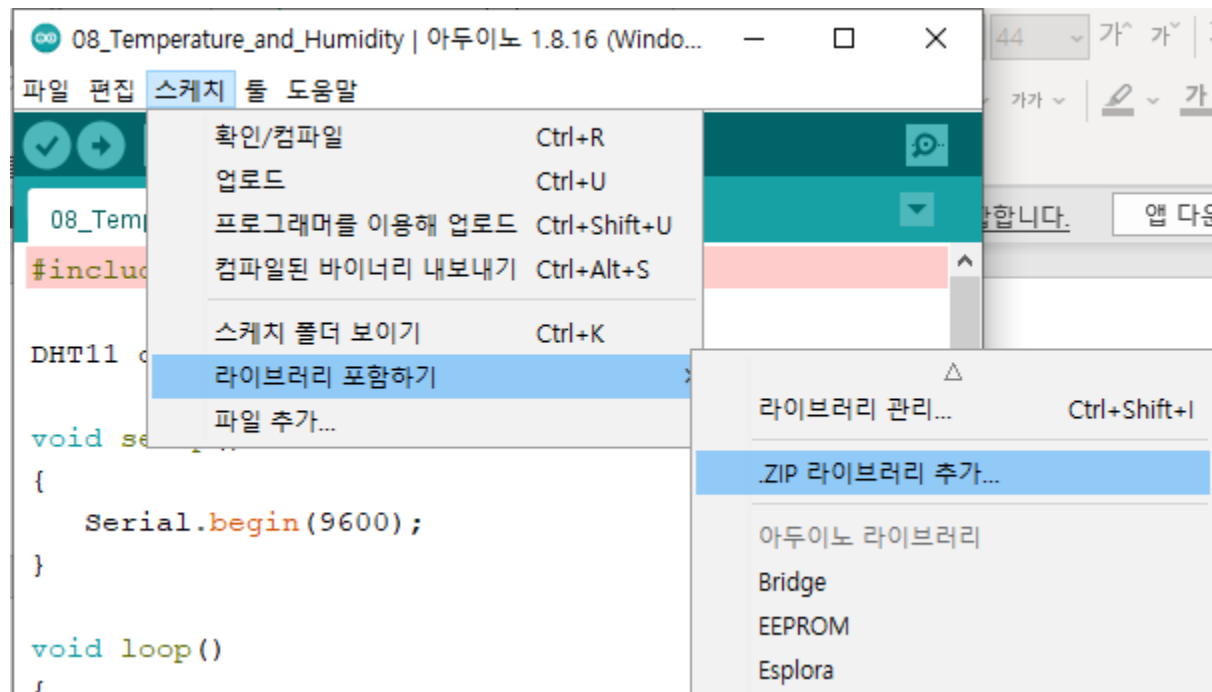


DHT11 라이브러리 사용

- <https://github.com/adafruit/DHT-sensor-library>

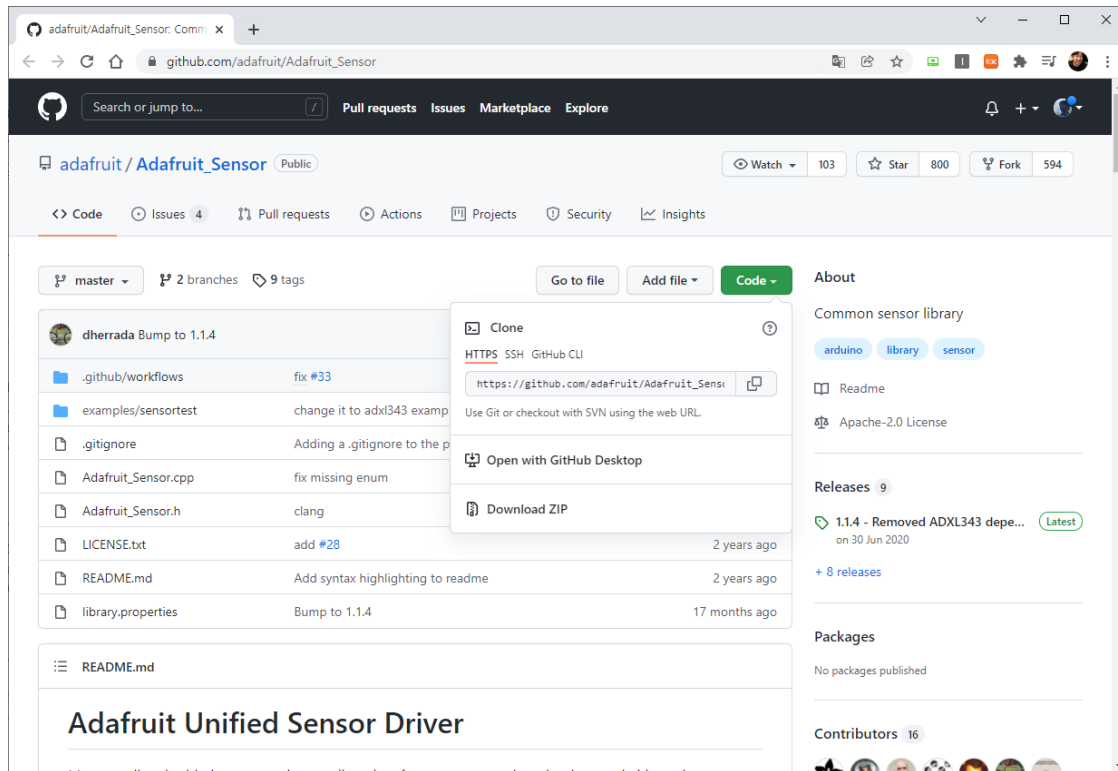


DHT11 라이브러리 사용

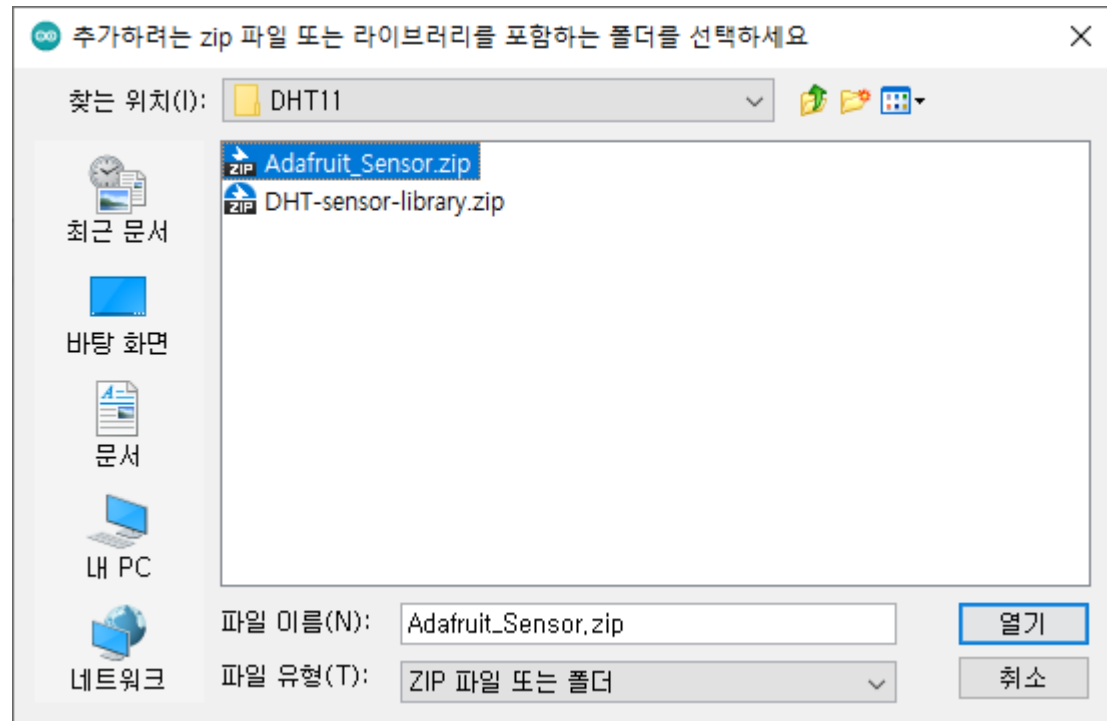
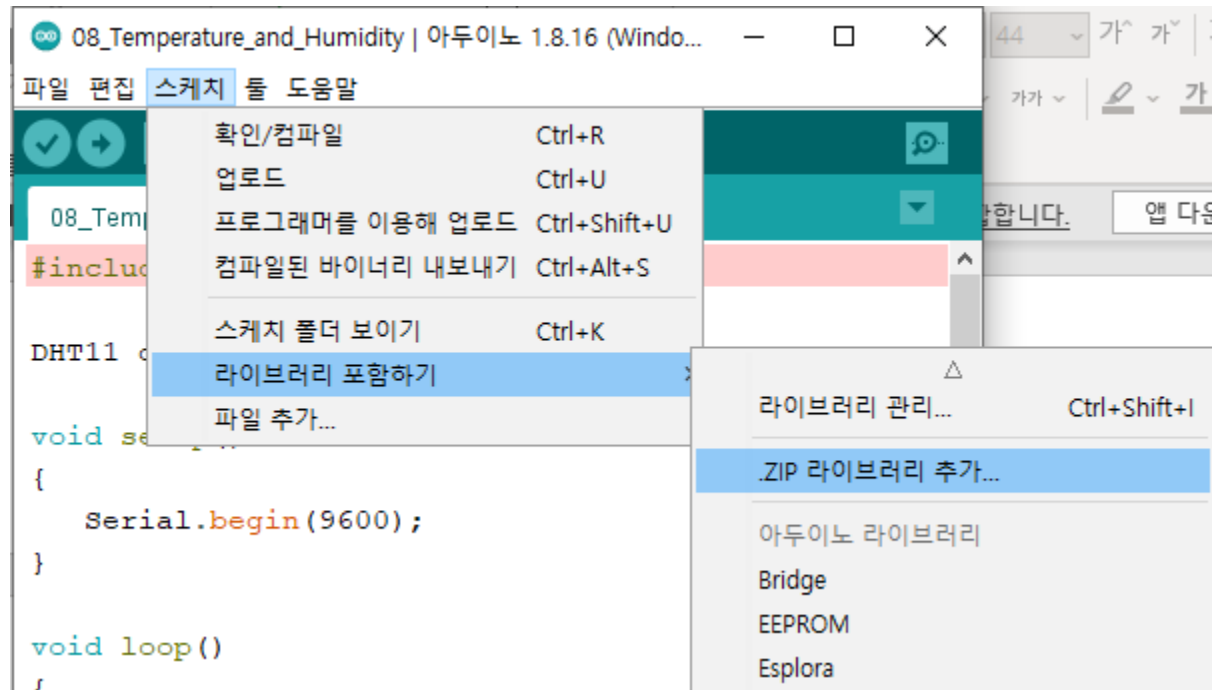


DHT11 라이브러리 사용

- adafruit_sensor.h no such file 에러 발생
- https://github.com/adafruit/Adafruit_Sensor 라이브러리 추가

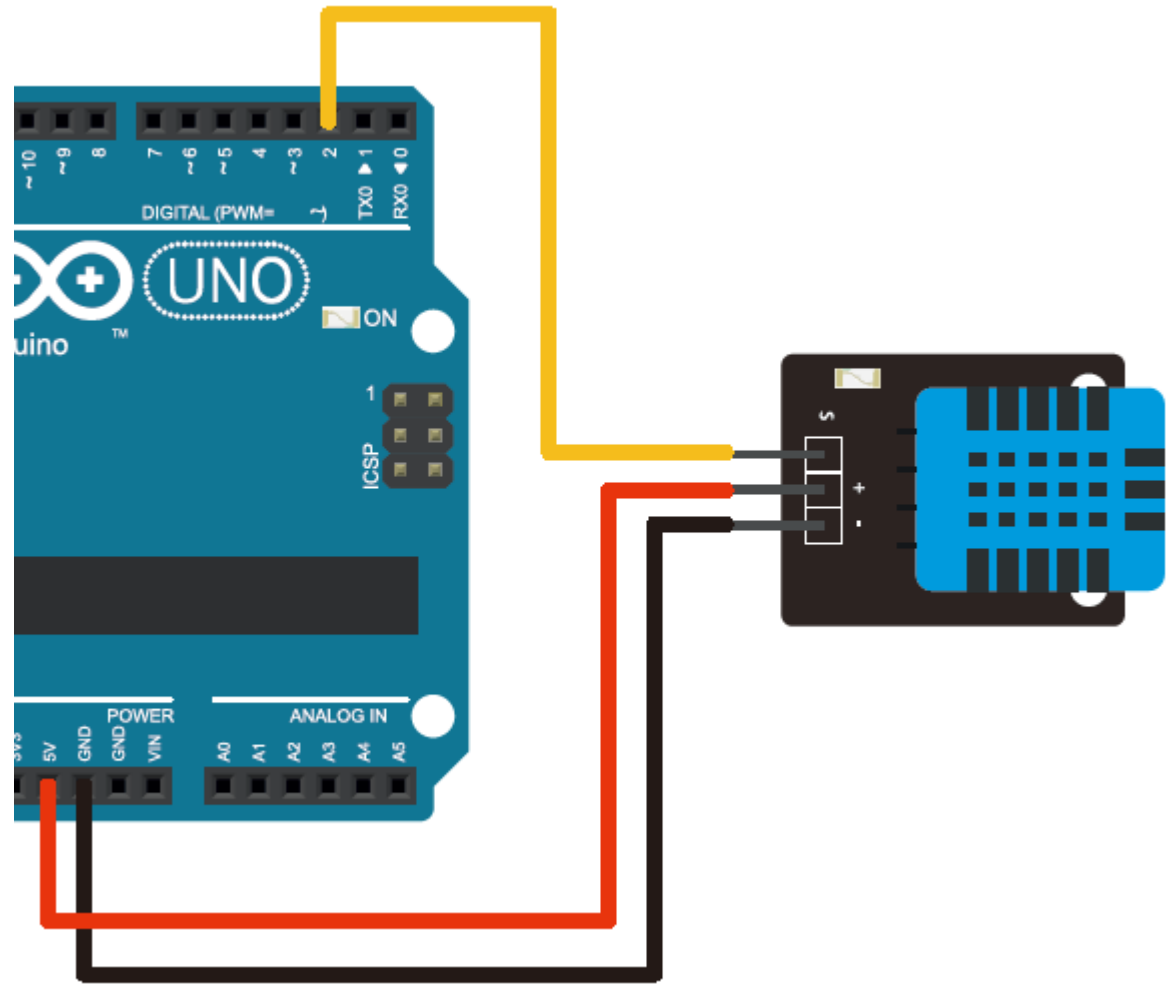


DHT11 라이브러리 사용



DHT11 아두이노 테스트

- S(signal) : 아두이노 2번핀
- + : VCC(5V)
- - : GND(0V)



DHT11 아두이노 테스트

예제 : 08_Temperature_and_Humidity

```
#include "DHT.h"

#define DHTPIN 2
#define DHTTYPE DHT22 // DHT 22 (AM2302), AM2321

DHT dht(DHTPIN, DHTTYPE);

void setup() {
  Serial.begin(9600);
  Serial.println(F("DHTxx test!"));

  dht.begin();
}

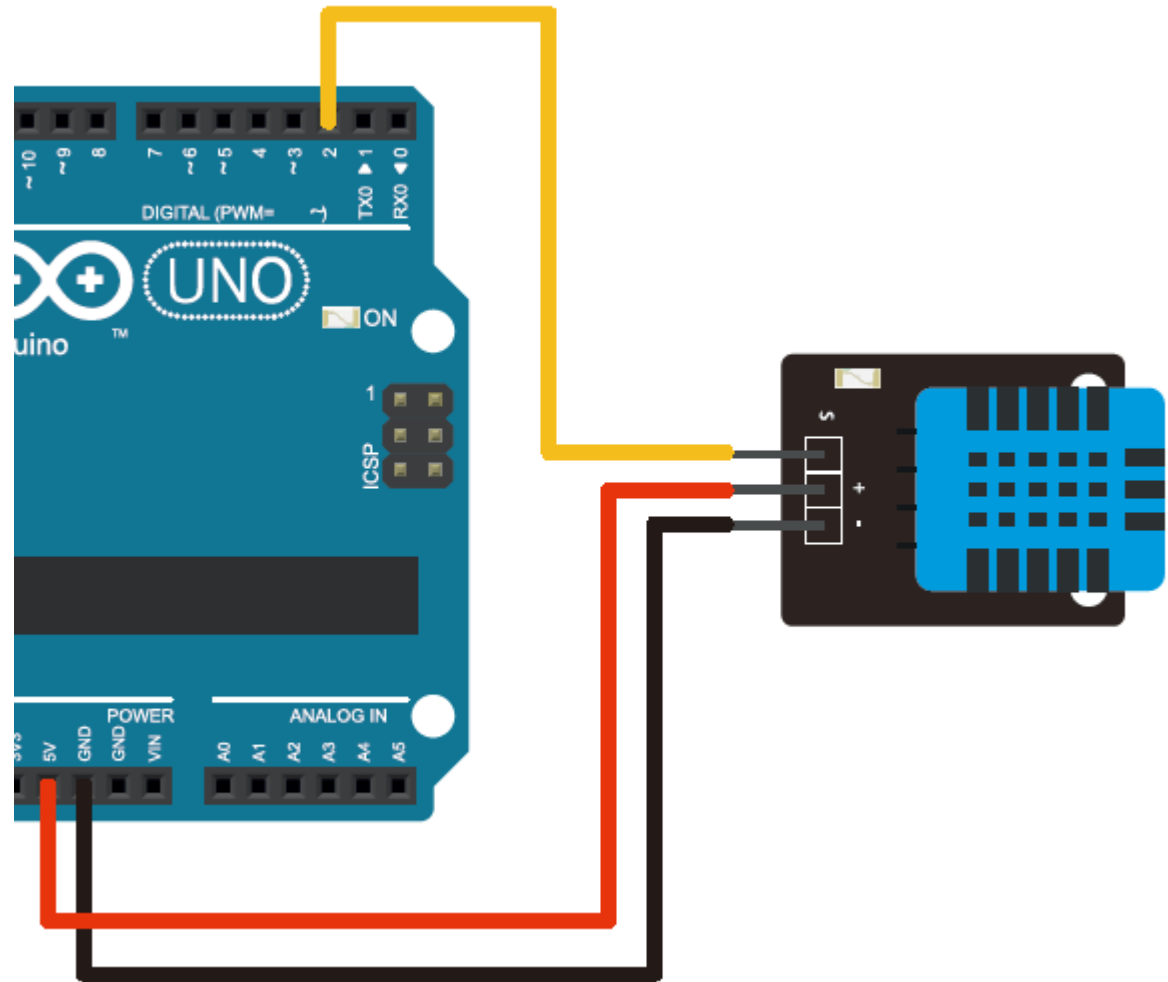
void loop() {
  delay(2000);

  // Reading temperature or humidity takes about 250 milliseconds!
  // Sensor readings may also be up to 2 seconds 'old' (its a very slow sensor)
  float h = dht.readHumidity();
  // Read temperature as Celsius (the default)
  float t = dht.readTemperature();
  // Read temperature as Fahrenheit (isFahrenheit = true)
  float f = dht.readTemperature(true);

  // Check if any reads failed and exit early (to try again).
  if (isnan(h) || isnan(t) || isnan(f)) {
    Serial.println(F("Failed to read from DHT sensor!"));
    return;
  }

  // Compute heat index in Fahrenheit (the default)
  float hif = dht.computeHeatIndex(f, h);
  // Compute heat index in Celsius (isFahreheit = false)
  float hic = dht.computeHeatIndex(t, h, false);

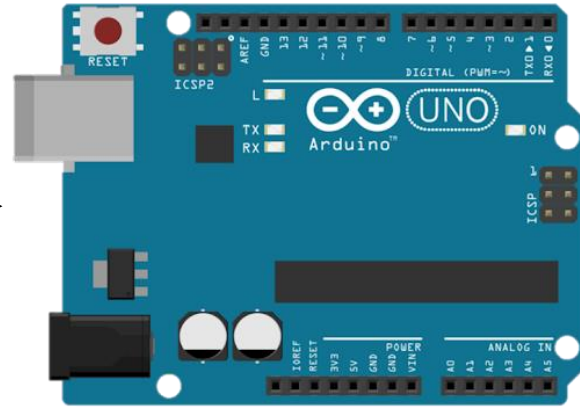
  Serial.print(F("Humidity: "));
  Serial.print(h);
  Serial.print(F("% Temperature: "));
  Serial.print(t);
  Serial.print(F("°C "));
  Serial.print(f);
  Serial.print(F("°F Heat index: "));
  Serial.print(hic);
  Serial.print(F("°C "));
  Serial.print(hif);
  Serial.println(F("°F"));
}
```



센서 응용(거리값 Visualization)_



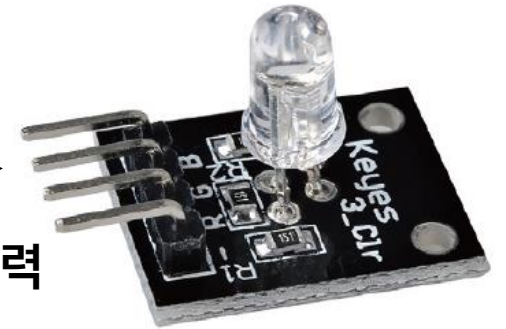
초음파 거리 측정



정보 출력(시리얼통신)



LED Level 출력



LED 레벨

255

0

0 cm

100 cm

거리값

