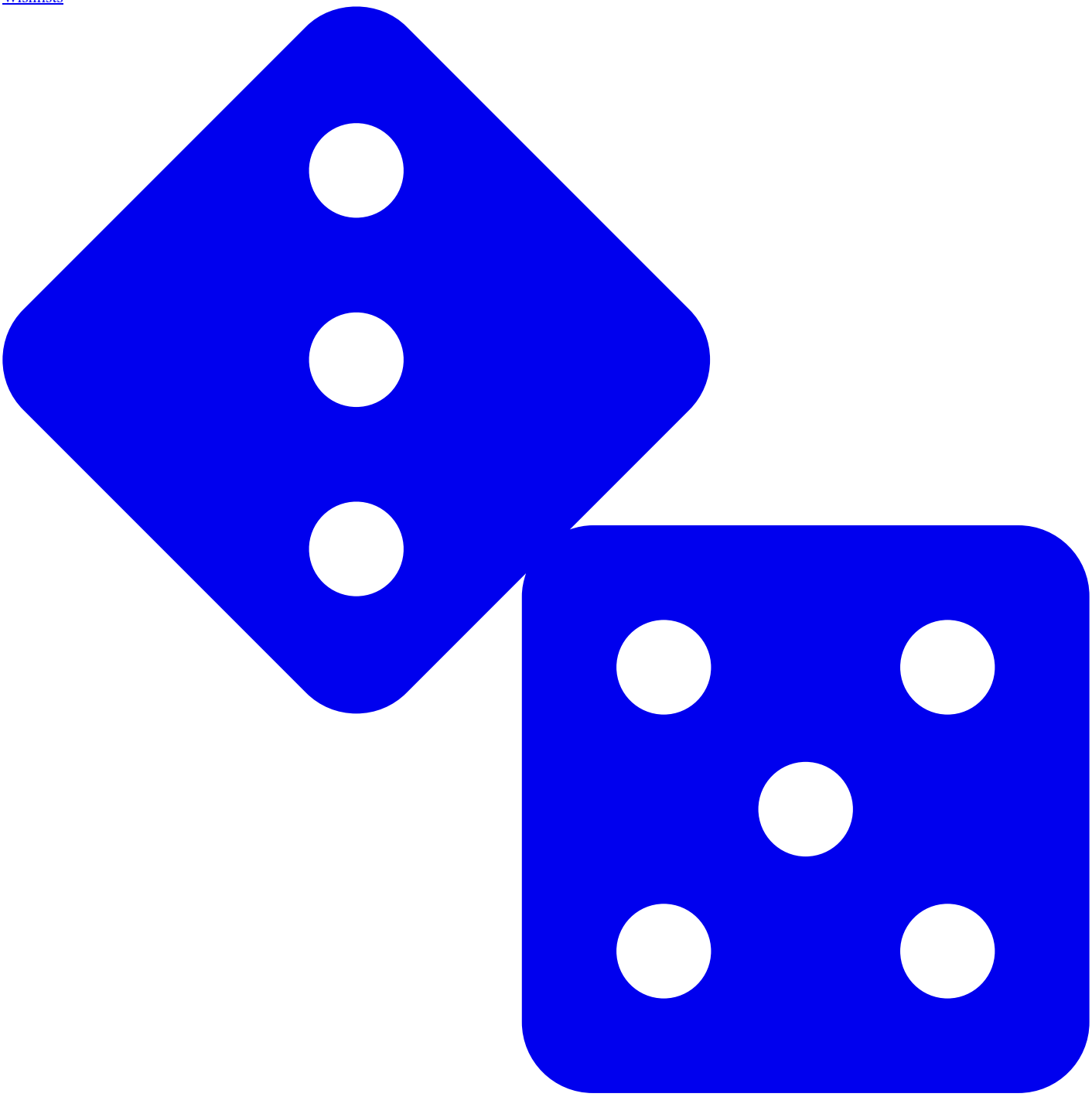
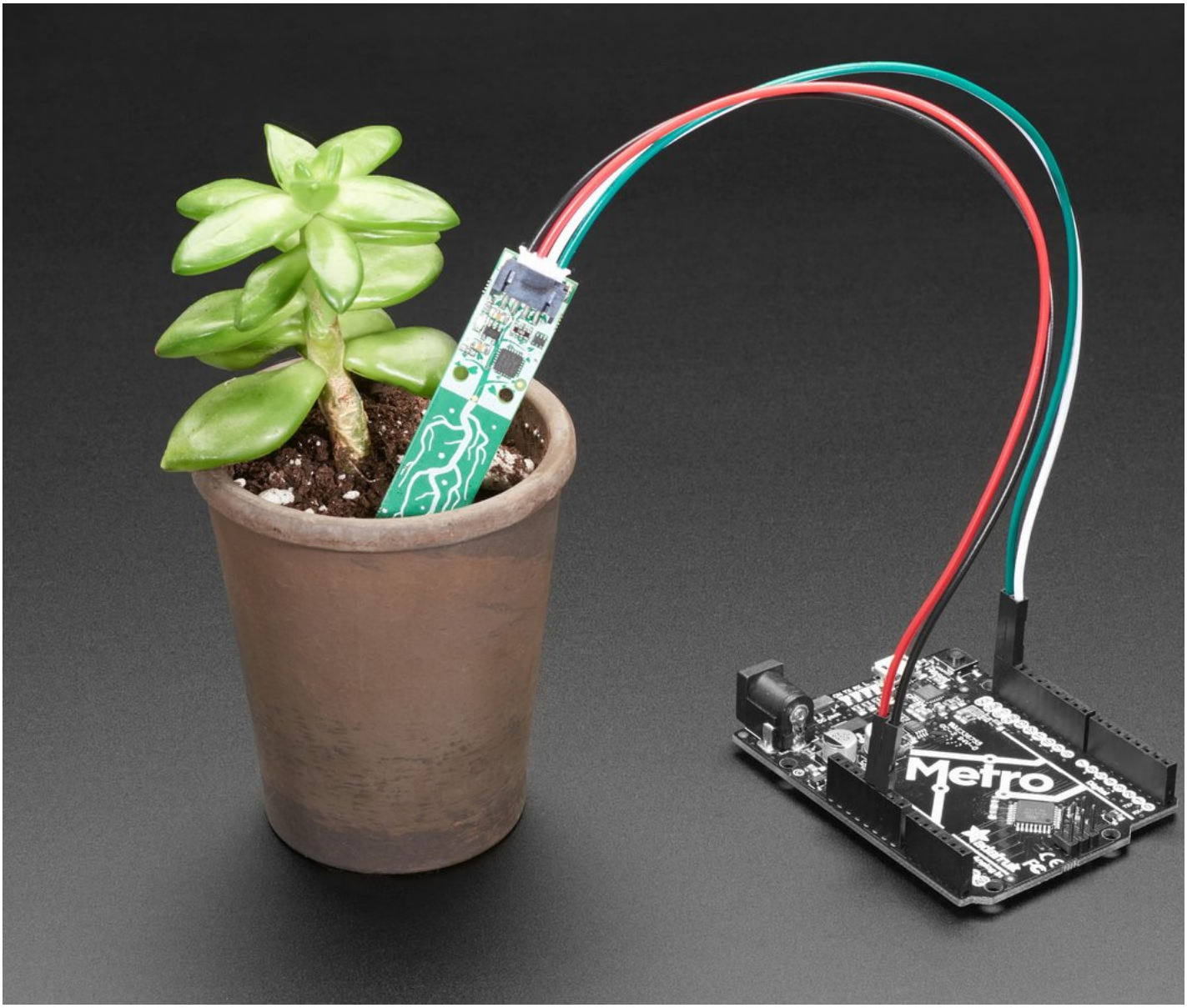
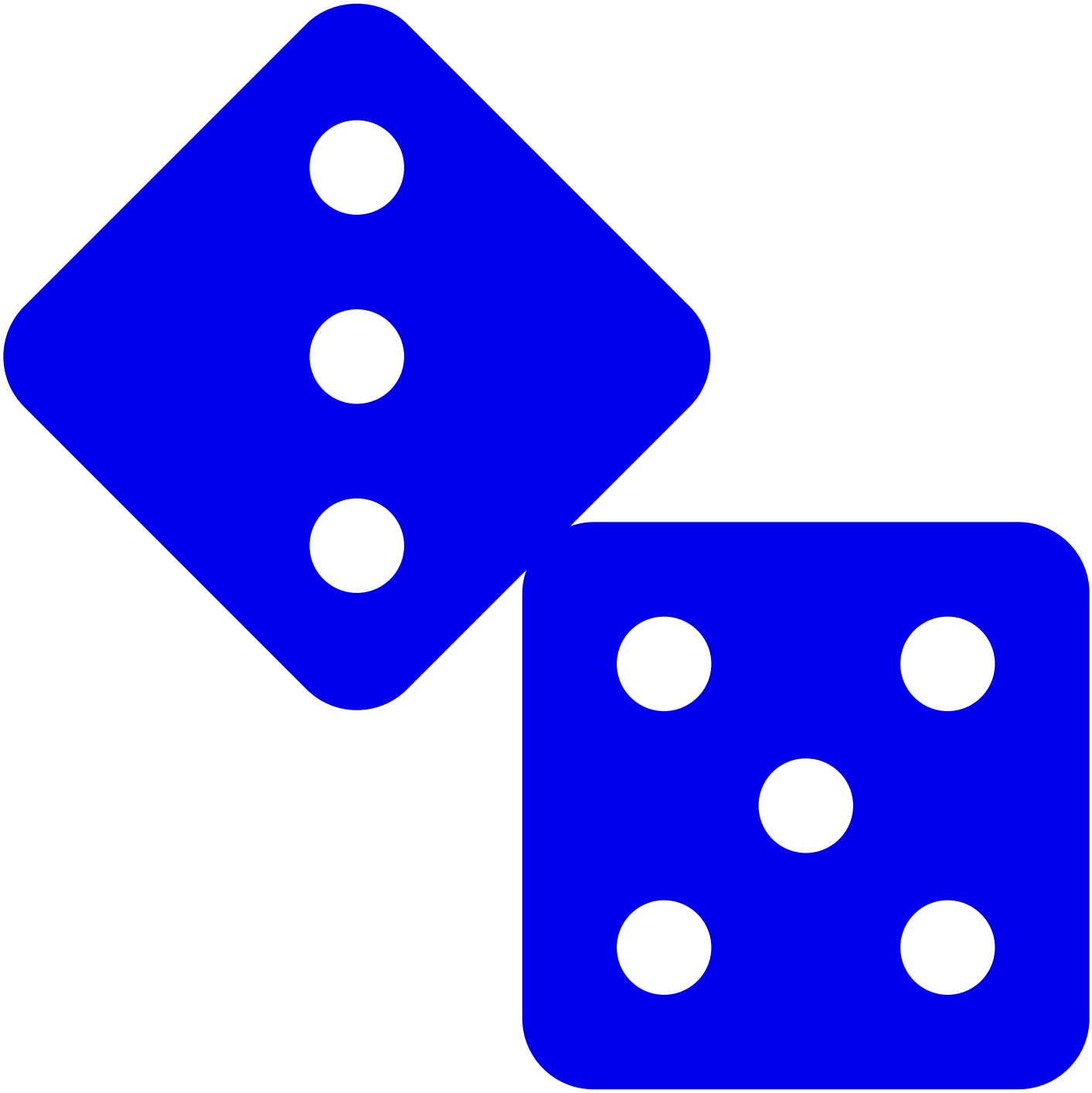




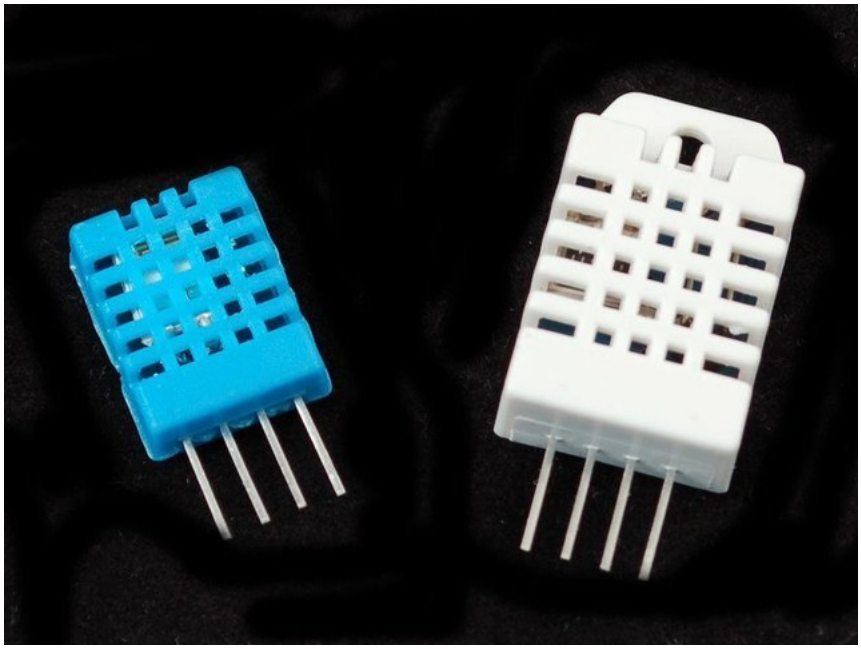
STEMMA
Plug-n-play components
Get connected

- New Guides



-

DHT11, DHT22 and AM2302 Sensors Overview



DHT11, DHT22 and AM2302 Sensors

By lady ada
Basic temperature & humidity sensors

Feedback? Corrections?

Overview

Save Subscribe
×

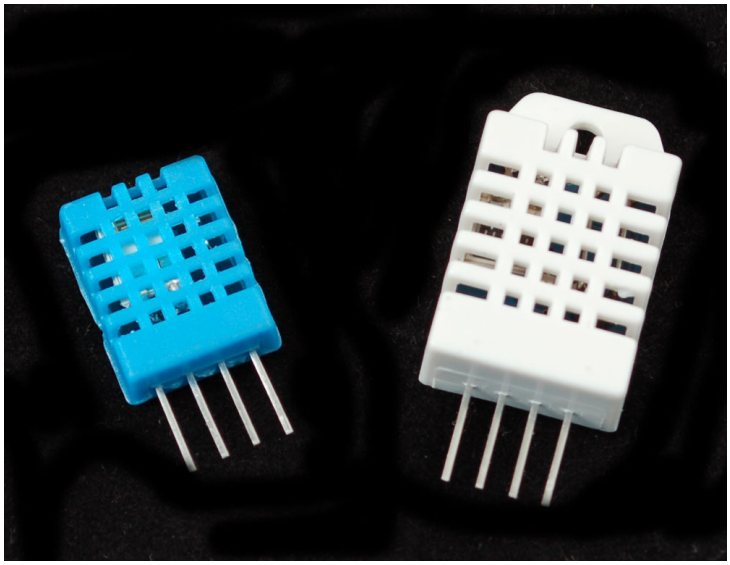
New Subscription

Please sign in to subscribe to this guide.

You will be redirected back to this guide once you sign in, and can then subscribe to this guide.

Close

This tutorial covers the low cost DHT temperature & humidity sensors. These sensors are very basic and slow, but are great for hobbyists who want to do some basic data logging. The DHT sensors are made of two parts, a capacitive humidity sensor and a thermistor. There is also a very basic chip inside that does some analog to digital conversion and spits out a digital signal with the temperature and humidity. The digital signal is fairly easy to read using any microcontroller.



DHT11 vs DHT22

We have two versions of the DHT sensor, they look a bit similar and have the same pinout, but have different characteristics. Here are the specs:

DHT11

- Ultra low cost
- 3 to 5V power and I/O
- 2.5mA max current use during conversion (while requesting data)
- Good for 20-80% humidity readings with 5% accuracy
- Good for 0-50°C temperature readings ±2°C accuracy
- No more than 1 Hz sampling rate (once every second)
- Body size 15.5mm x 12mm x 5.5mm
- 4 pins with 0.1" spacing

DHT22 / AM2302 (Wired version)

- Low cost
- 3 to 5V power and I/O
- 2.5mA max current use during conversion (while requesting data)
- Good for 0-100% humidity readings with 2-5% accuracy
- Good for -40 to 80°C temperature readings ±0.5°C accuracy
- No more than 0.5 Hz sampling rate (once every 2 seconds)
- Body size 15.1mm x 25mm x 7.7mm
- 4 pins with 0.1" spacing

As you can see, the DHT22 / AM2302 is a little more accurate and good over a slightly larger range. Both use a single digital pin and are 'sluggish' in that you can't query them more than once every second or two.

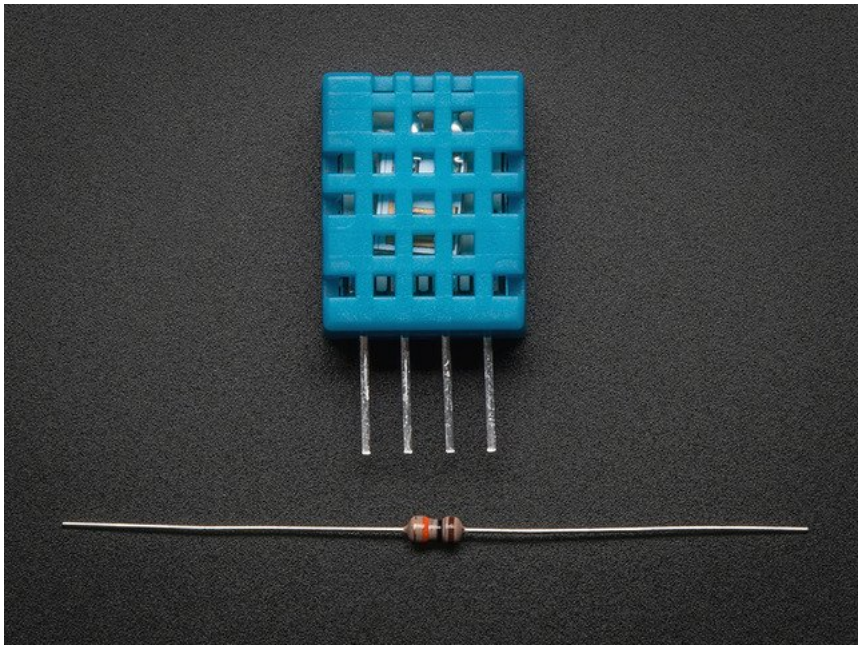
You can pick up both the DHT11 and DHT22 or AM2302 from the adafruit shop!

Connecting to a DHTxx Sensor

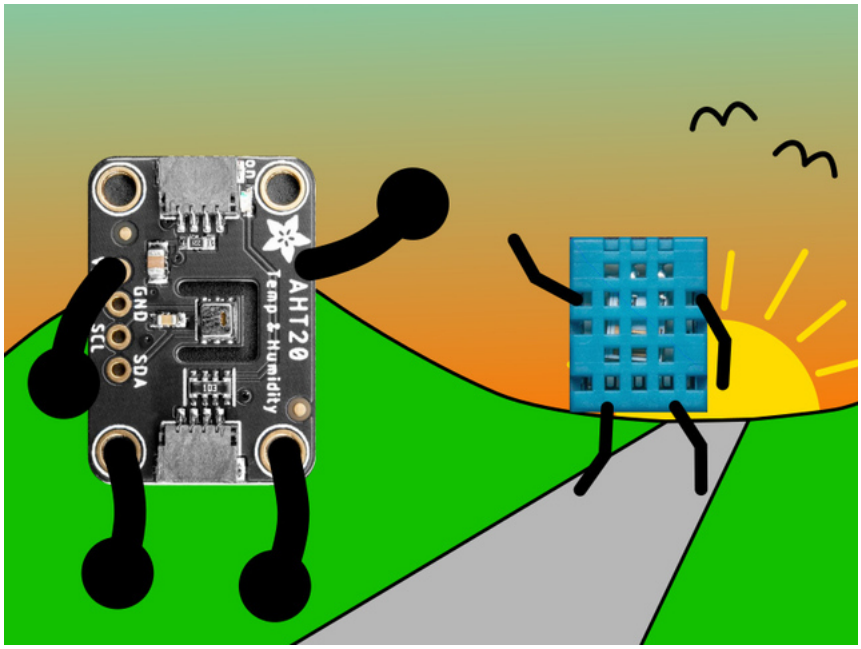
This guide was first published on Jul 29, 2012. It was last updated on Jul 29, 2012.

This page (Overview) was last updated on Aug 02, 2022.

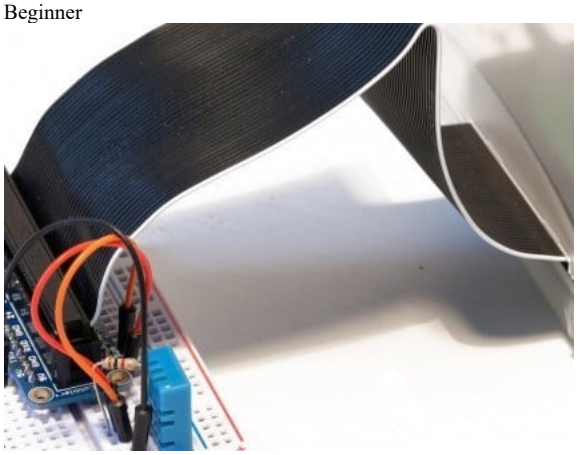
Difficulty: Beginner
Guide Type: Tutorial
Contributors: lady ada, Tony DiCola, Kattni Rembor
Categories: Sensors/Weather
131 Saves
Featured Products



DHT11 basic temperature-humidity sensor + extras
$5.00
Add to Cart
Related Guides

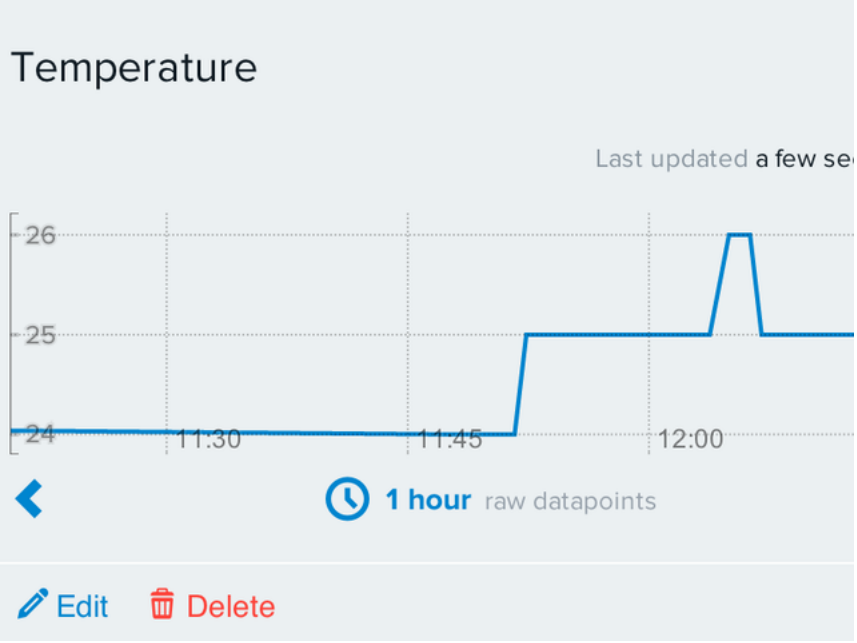


Modern Replacements for DHT11 and DHT22 Sensors
By Carter Nelson
15
Beginner

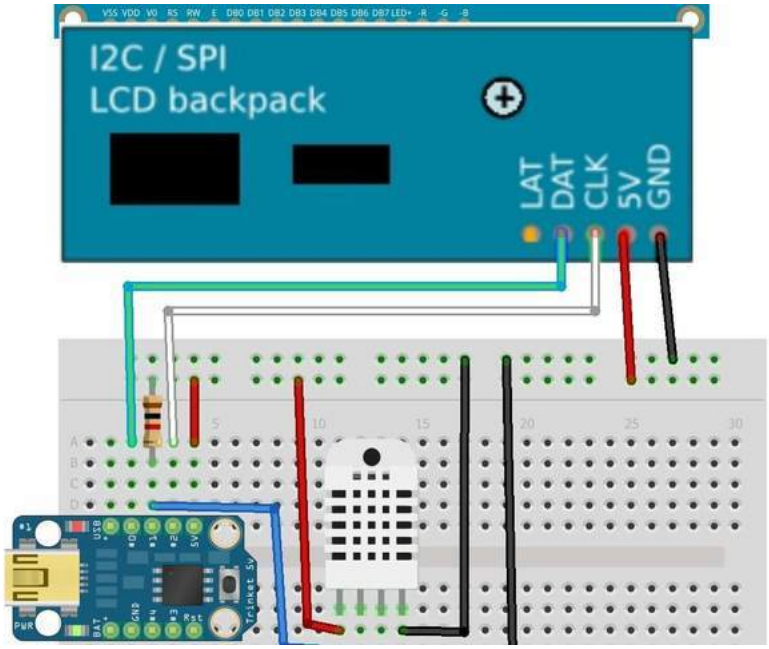


Monitor Your Home With the Raspberry Pi B+

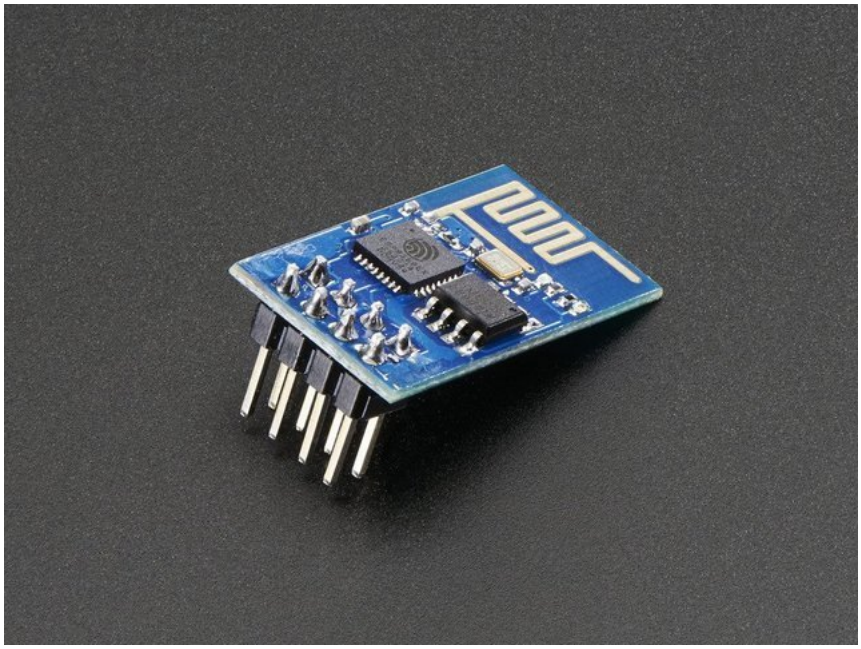
By M. Schwartz
87
Intermediate



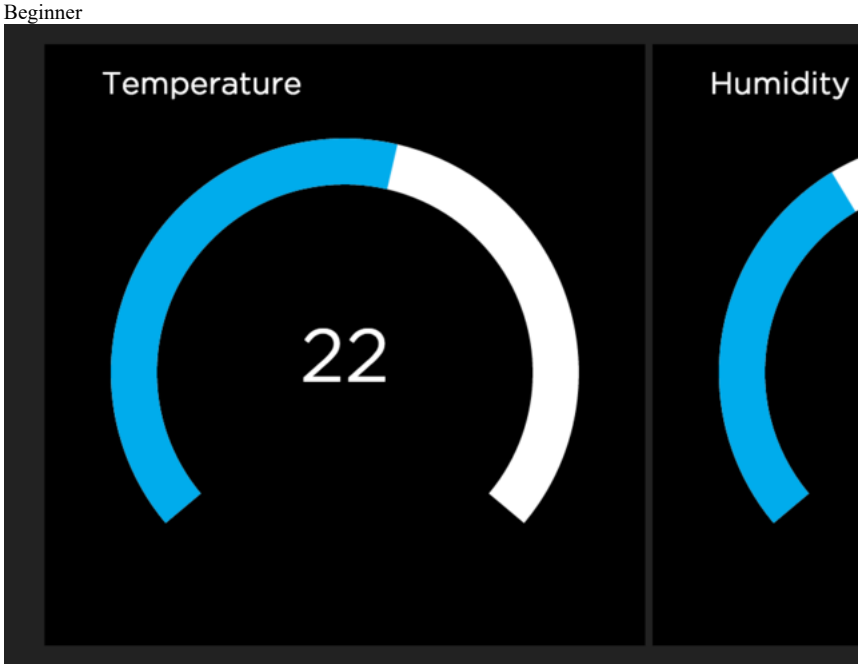
Adafruit CC3000 WiFi and Xively
By M. Schwartz
3
Beginner



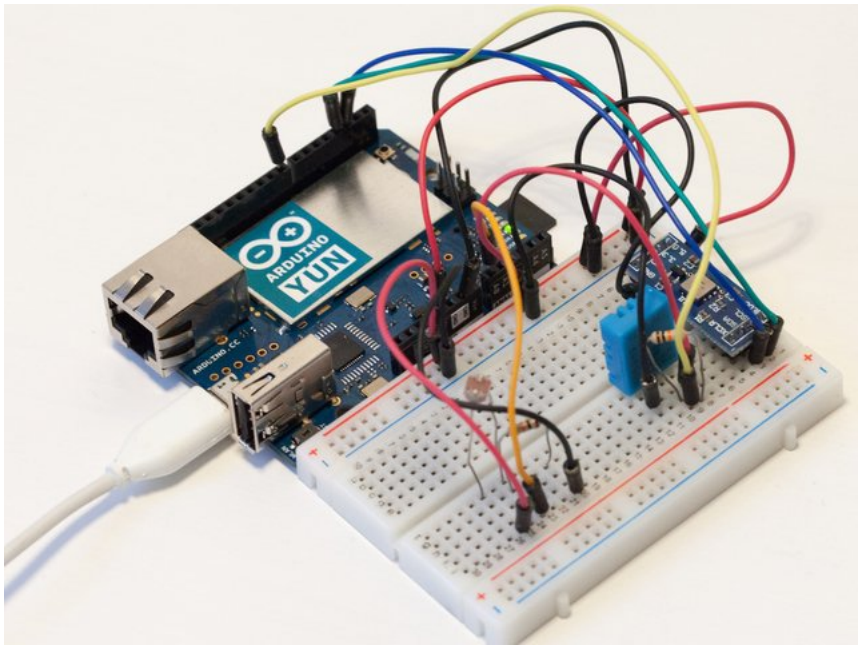
Trinket Temperature & Humidity LCD Display
By Anne Barela
42
Beginner



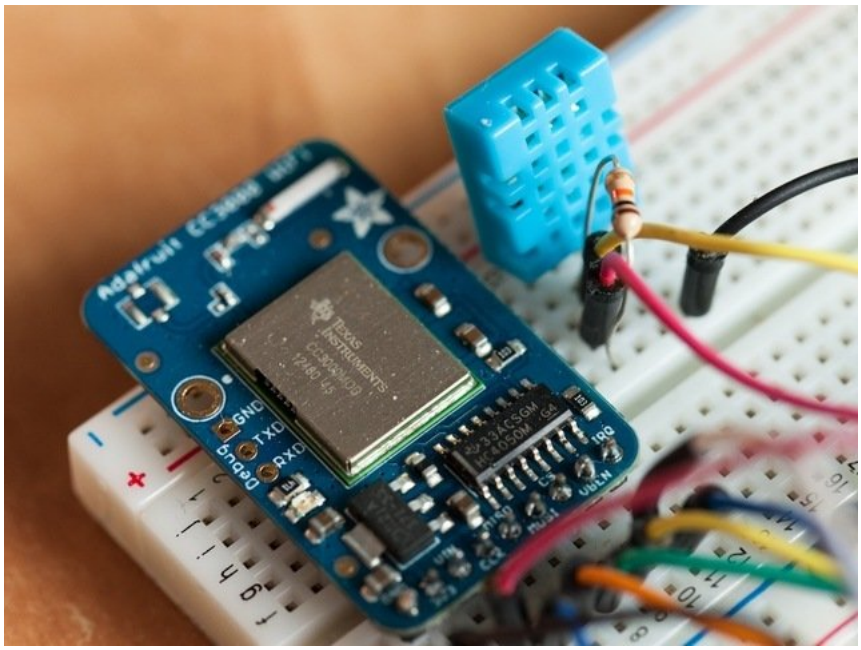
ESP8266 Temperature / Humidity Webserver
By Anne Barela
116
Beginner



Create an Internet of Things Dashboard with Adafruit IO
By M. Schwartz
78
Beginner



Cloud-Connected Weather Station with the Arduino Yun...
By M. Schwartz
38
Advanced



WiFi Weather Station
By M. Schwartz
68
Intermediate
×

OUT OF STOCK NOTIFICATION

YOUR NAME
YOUR EMAIL
NOTIFY ME
Search

Search

Categories

No results for query

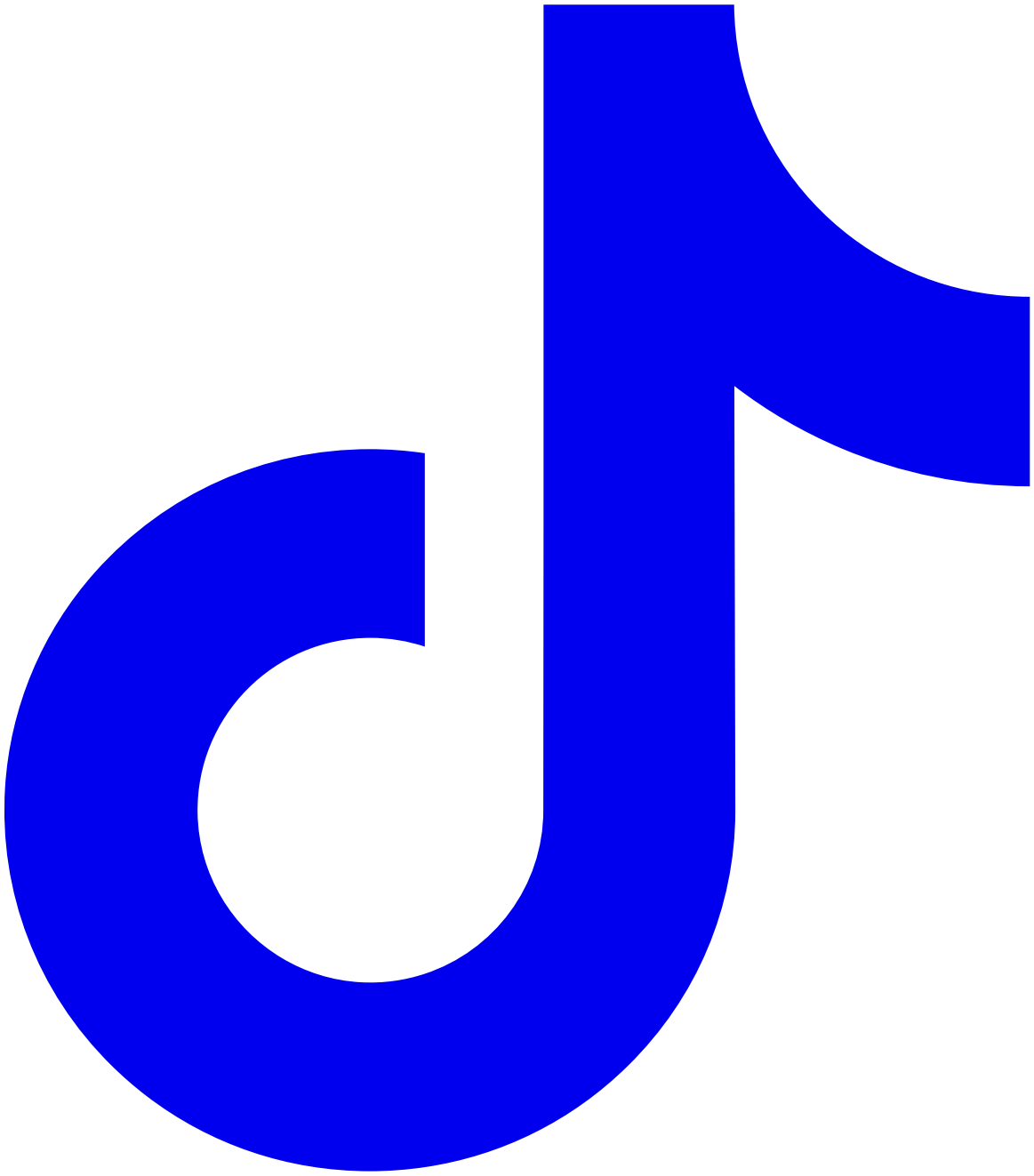
- «
- ‹

- 1
- ›
- »

- Contact Us
- Tech Support Forums
- FAQs
- Shipping & Returns
- Terms of Service
- Privacy & Legal
- Website Accessibility

- About Us
- Press
- Educators
- Distributors
- Jobs
- Gift Cards

"I don’t care that they stole my idea — I care that they don’t have any of their own"
Nikola Tesla



A Minority and Woman-owned Business Enterprise (M/WBE)