Temperature/Humidity Sensor

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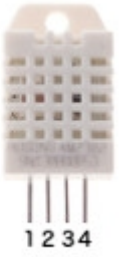
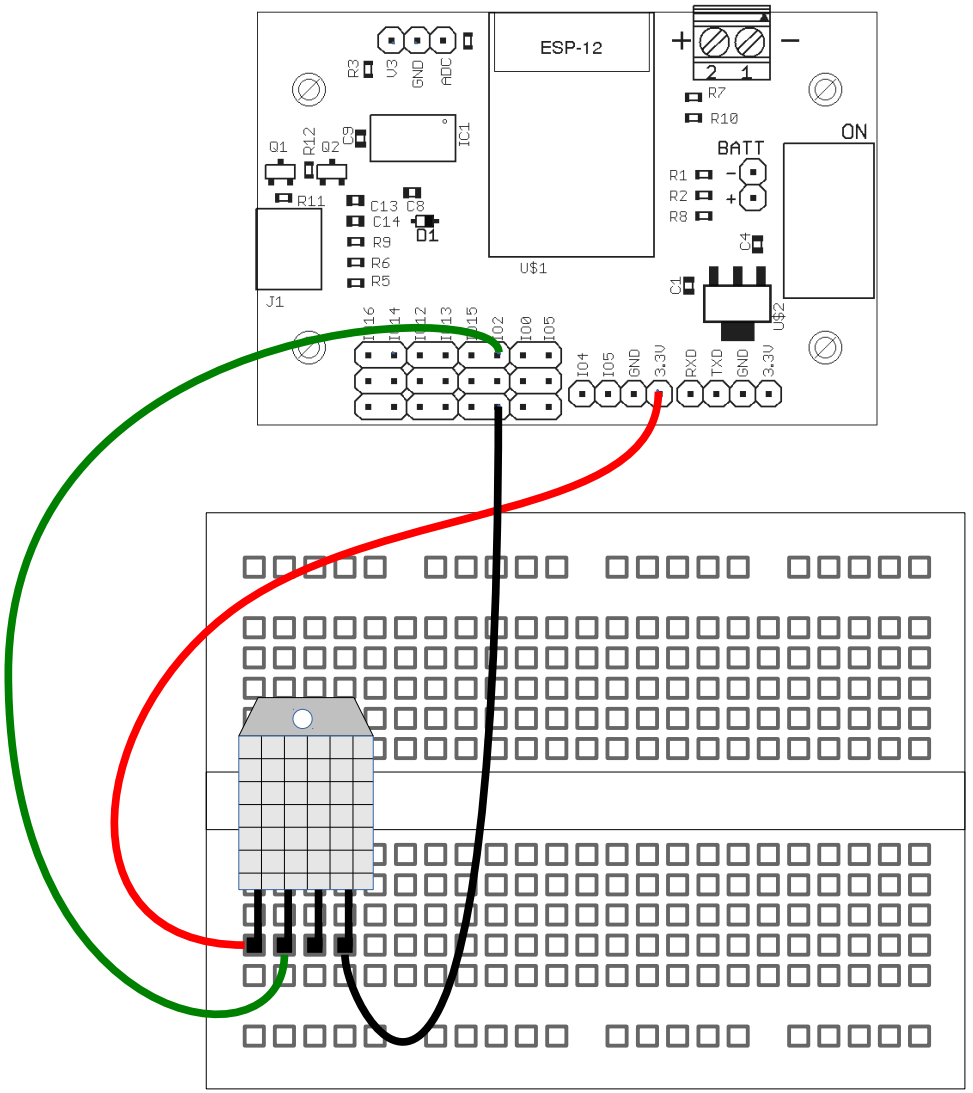
- The Mars rovers include weather stations.
- The next sensor is called the DHT22 and is a combination temperature and humidity sensor. It has a temperature range of -40 to +125C. It can measure humidity from 0 to 100% RH or relative humidity. It can generate the data once every two seconds.
- This sensor uses a digital interface instead of an analog interface. It has a custom serial interface which means it sends data one bit at a time.

Pin	Function
1	VDD 3.3 - 6V DC
2	DATA
3	Not Used
4	GND



Temperature/Humidity Sensor

- Connect the sensor as shown.
- Connect pin 1 to 3.3V
- Connect pin 2 to Digital pin D2.
- Connect pin 4 to GND.
- Pin 3 is not used.



Temperature/Humidity Sensor

- First, a library supporting the sensor needs to be installed.
- In the Arduino IDE, select the **Sketch** menu and **Include Library**.
- Select **Manage Libraries**.
- Enter into the spot that has *Filter your search..* **DHT.**
- Locate the library **DHT sensor library for ESPx** and select it.
- Click on the Install button.
- Once installation is complete, close the library manager.

Temperature/Humidity Sensor

- This program gets the humidity and temperature from the sensor.
- First, the sensor object is created with **DHTesp dht;**
- In **setup()**, the sensor is configured by specifying the digital pin it is connected to.
- In the loop, the humidty is read using the function **dht.getHumidity()**.
- The temperature is read using **dht.getTemperature()**.
- The resulting temperature is in Celsius.
- The program repeats every 2 seconds.

```
#include “DHTesp.h”

DHTesp dht;

void setup() {
  Serial.begin(9600);
  dht.setup(2);
}

void loop() {
  delay(2000);
  float humidity = dht.getHumidity();
  float temp = dht.getTemperature();
  Serial.print(humidity,1);
  Serial.print(“ “);
  Serial.println(temperature,1);
}
```