**Drive DHT11 Temperature Sensor experiment for RPI**

****Objective:****  
In this project, we will get temperature and humid data from DHT11 and send it to Raspberry Pi, then display the temperature and humid on 16×2 LCD screen.

If you don’t know what is GPIO layout, check our tutorial [Raspberry Pi i/o pin diagram (GPIO pin graph)](http://kumantech.com/info/how-to-read-raspberry-pi-i-o-pin-diagram-gpio-pin-graph_i0020.html)

****Parts:****

|  |  |  |
| --- | --- | --- |
| 1 pc | Raspberry Pi 2/3/zero | IMG_256 |
| 1 pc | 8GB MicroSD memory card preinstalled Raspbian OS. | IMG_257 |
| 1 pc | DHT11 Temperature/Humid Sensor | IMG_258 |
| 1 pc | 1602 LCD screen | IMG_259 |
| 1 pc | Potentiometer | IMG_256 |
| 1 pc | breadboard | IMG_261 |
| 1 pc | GPIO breakout kit(optional) | IMG_262 |

****Prerequisite:****

1)Raspbian should be upgraded to latest version in order to support RPI.GPIO module  
Please run following commands in shell:

* *sudo apt-get update*
* *sudo apt-get upgrade*

2)Enable I2C and SPI protocol  
To enable the protocol, run shell command

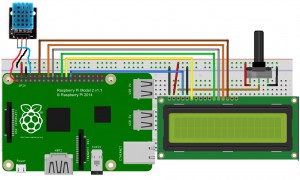
*sudo raspi-config*

Then select Advance Options and enable I2C and SPI

You need to reboot to effect the configuration

****Raspberry Pi and 1602 LCD pin connection****

|  |  |  |  |
| --- | --- | --- | --- |
| LCD Pin | Description | Pi Function | RasPi Pin |
| 01 | GND | GND | 06 |
| 02 | +5V | +5V | 02 |
| 03 | Contrast | To Potentiometer middle pin | |
| 04 | RS | GPIO7 | 26 |
| 05 | RW | GND | 06 |
| 06 | Enable | GPIO8 | 24 |
| 11 | D4 | GPIO25 | 22 |
| 12 | D5 | GPIO24 | 18 |
| 13 | D6 | GPIO23 | 16 |
| 14 | D7 | GPIO18 | 12 |
| DHT11 signal pin | | GPI14 | 08 |
| DHT11 +vcc PIN | | +3V | 01 |
| DHT11 GND(-) | | GND | 06 |

****Circuit Graph:****  
[](http://osoyoo.com/wp-content/uploads/2016/04/dht11-pi.jpg)

****Caution:**** Unlike Arduino board 5V input voltage, Raspberry GPIO pin accept only 3 Volt. Wrong voltage input might damage the Pi board. Please be very careful!

****download python code****  
Please typing following shell commands to download two python files(dht11.py and temperature.py):  
*sudo wget http://kumantech.com/u\_file/1609/file/85fd83efa6.txt*  
*sudo wget http://kumantech.com/u\_file/1609/file/3e847df3d2.txt*

****Finally, run following command in shell window:****

*sudo python temperature.py*

Adjust the Potentiometer to make LCD text displaying clearly. You will see Temperature and Humid info in LCD screen: