**Connecting DHT11 using RPi**

**Temperature Sensor – DHT11**

The DHT11 temperature and humidity sensor is a nice little module that provides digital temperature and humidity readings. It’s really easy to set up, and only requires one wire for the data signal.

These sensors are frequently used in remote weather stations, soil monitors, and home environment control systems. The programming is simple too, and many libraries and example code in both Python and C already exist.

The DHT11 contains a surface mounted NTC thermistor and a resistive humidity sensor. An IC on the back of the module converts the resistance measurements from the thermistor and humidity sensor into digital outputs of degrees Celsius and Relative Humidity.

**Circuit Diagram – DHT11**

VCC of DHT11 -> 5v Pin of Raspberry Pi 3

GND of DHT11 -> GND Pin of Raspberry Pi 3

Signal pin of DHT11 -> GPIO 4 Pin of Raspberry Pi3

**Assignment**

Create a circuit using Raspberry Pi, DHT11 and Buzzer. When the temperature goes beyond 35 degrees, the buzzer will start ringing.

**Program**

import time #import time for creating delay   
import Adafruit\_CharLCD as LCD #Import LCD library   
import Adafruit\_DHT #Import DHT Library for sensor

sensor\_name = Adafruit\_DHT.DHT11 #we are using the DHT11 sensor  
sensor\_pin = 17 #The sensor is connected to GPIO17 on Pi

lcd\_rs        = 7  #RS of LCD is connected to GPIO 7 on PI  
lcd\_en        = 8  #EN of LCD is connected to GPIO 8 on PI   
lcd\_d4        = 25 #D4 of LCD is connected to GPIO 25 on PI  
lcd\_d5        = 24 #D5 of LCD is connected to GPIO 24 on PI  
lcd\_d6        = 23 #D6 of LCD is connected to GPIO 23 on PI  
lcd\_d7        = 18 #D7 of LCD is connected to GPIO 18 on PI  
lcd\_backlight =  0  #LED is not connected so we assign to 0

lcd\_columns = 16 #for 16\*2 LCD  
lcd\_rows    = 2 #for 16\*2 LCD

lcd = LCD.Adafruit\_CharLCD(lcd\_rs, lcd\_en, lcd\_d4, lcd\_d5, lcd\_d6, lcd\_d7,   
                           lcd\_columns, lcd\_rows, lcd\_backlight)   #Send all the pin details to library

lcd.message('DHT11 with Pi \n -CircuitDigest') #Give a intro message

time.sleep(2) #wait for 2 secs

while 1: #Infinite Loop  
      
    humidity, temperature = Adafruit\_DHT.read\_retry(sensor\_name, sensor\_pin) #read from sensor and save respective values in temperature and humidity varibale    
    lcd.clear() #Clear the LCD screen  
    lcd.message ('Temp = %.1f C' % temperature) # Display the value of temperature  
    lcd.message ('\nHum = %.1f %%' % humidity)  #Display the value of Humidity

    time.sleep(2) #Wait for 2 sec then update the values