LESSON 8: DHT11 Temperature and Humidity Sensor

# Measuring temperature and humidity > Documentation

Name: Ismail Dawud Ibrahim

Registration Number: PS/CSC/15/0043

link: https://dcsit.twiki.ucc.edu.gh/do/view/UCC\_Course/TemperatureHumidity

**Goal:**

*The exercise session was aimed at introducing the DHT11 and read and understand the* [*DHT11 data sheet*](http://www.micropik.com/PDF/dht11.pdf) *and to interpret the DHT-11 protocol in order to extract the measured data..*

## Exercise 1: Using a shared library

I carefully read through the datasheet in order to know the core functions of the “DHT11”.

“C” program written to drive the data in order to initiate data transfer. The “GPIO” was then set as input to read data every 5ms.

The data was printed into an array and the output redirected into a file.

## **Exercise 2: Manual Data Analysis**

The data acquired was plotted using “gnuplot”. The graph was later analyzed and values for temperature and humidity calculated by hand and compared with the checksum. It was first observed that the data taken did not correspond with the checksum. The data was then retaken by using a pointer to direct the data into the array as it was being taken.

***The results were again calculated from the plotted graphed and compared with the checksum.***

## **Exercise 3: Analysis done by program**

The data was read in and printed on the screen. The temperature and humidity values was extracted from the data by using “shift” and “OR” instructions to build up the data values.

The data acquisition and data treatment programs were connected through a pipe.

**Remarks**

In this exercise session I learnt how the bitwise operators work in programs and I was also able to calculate correct data values from raw measured data