Temperature and Humidity Sensor

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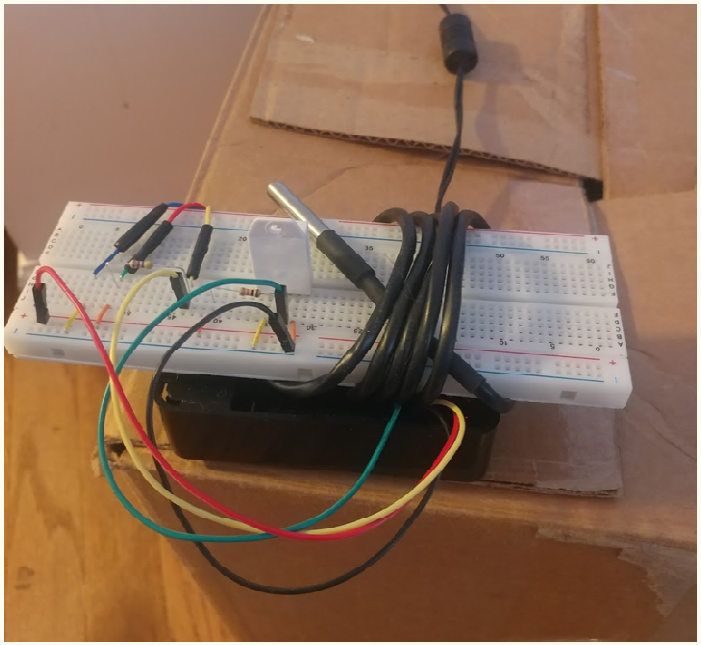
Goals

Take temperature and humidity readings every hour

Create a web application to display data

Components

- Hardware
  - Raspberry Pi 3
  - Router with VPN
  - Adafruit DHT22 humidity sensor
  - DS18B20 temperature sensor
  - Resistors and jumpers
- Software/Languages
  - Python
  - PHP
  - Javascript with JQuery Libraries
  - Apache Server
  - SQLite3



Challenges

Create a network between all of our Raspberry Pi's and Web Server

How to display the data on dashboard

Working with SQLite3

Setup(Temperature/Humidity Collecting)

Setup local SQLite3 databases with each Raspberry Pi

Wired Temperature sensor and Humidity sensor to each Pi

Created Python Script to log Temperature and Humidity in database

Crontab runs Python Script every hour

Setup(Web Server)

One Raspberry Pi runs Apache Web Server

Other Pi's send database files to this Pi through SCP command

Ports 80 and 443 on router forwarded to Pi's local IP address

Apache authentication module mod_auth_basic

SSL encryption with self-signed certificate for secure password entry

Apache .conf redirects port 80 (http) to port 443 (https)

Setup(Web Application)

Retrieve data using SQLite3 library in PHP5

Different buttons retrieve data through AJAX calls

Display data on charts with JQuery library Chart.js

DEMO!!!!!!!!!!!!!!