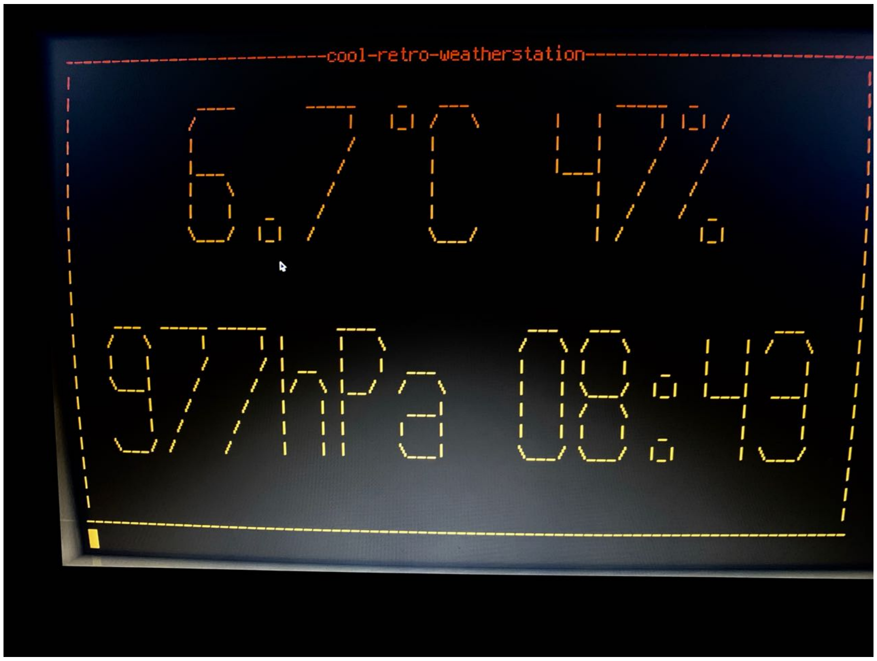
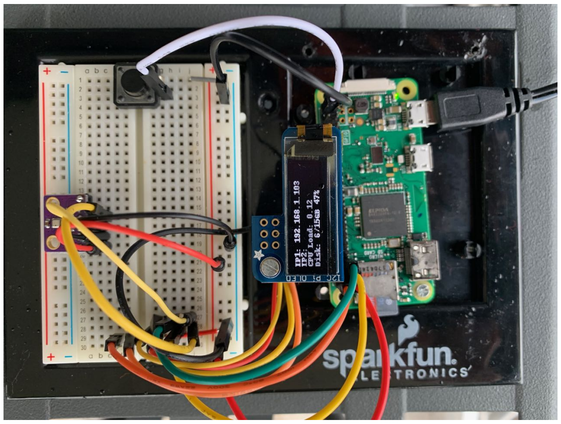
A cool-retro-weatherstation



If you want to make one yourself, proceed as follows:

Using the other tutorials in my github repo https://github.com/rricharz/pidp11-2.11bsd, do the following:

- add a user in 2.11 BSD
- set date and time automatically during bootup (to be used to save weather data)
- install cool-retro-term
- prepare a remote pizerow for the weather sensor (see "using rsh to run an command")
- install a BME280 weather sensor on the remote pizerow, see https://www.raspberrypi-spy.co.uk/2016/07/using-bme280-i2c-temperature-pressure-sensor-in-python/



Picture of my breadboard version of the remote sensor. The weather sensor is the small board at the left. Most cables are for a little diagnostic OLED display, which is not required. It uses the same I2C wires at a different address. It could also display the weather data directly on the sensor. I also added a switch to shut down the pizerow gracefully.

- A copy of the python script to read the sensor data is in this repository under weather/sensor
- Make sure that this script works properly on the remote pizerow and put a copy into /home/pi/bin on the remote pizerow
- Log into 2.11BSD using cool-retro-term as the newly created user

  ```
  mkdir weather
  cd weather
  ```
- Use any available means (such as for example FileZilla), to copy the files from weather/BSD into the new weather directory
- Execute the newly copied command weather in 2.11BSD

weather extract T,P and H from the data received from the remote sensor and displays it once:

```
rene@pdp11:weather$ weather
Contacting remote sensor...
Data received, analyzing ...
**************************************
The sensor reports the following data:
 Temperature  7.0 C
 Pressure  969.8 hPa
 Humidity     66.8 %
**************************************
rene@pdp11:weather$
```

If weather works on your system, make a directory data in ~/weather, where weather2 can store the data received:

```
cd
cd weather
mkdir data
weather2
```

weather2 will make each day a new file in ~/weather/data with the date as the name of the file, and will append every minute one line in that file with the time, T, P and H.

It will loop indefinitely and update the screen once per minute with a cool-retro display:

```
rene@pdp11:weather$ weather2
Contacting remote sensor...
Data received, analyzing ...
The sensor reports the following data:
 Temperature  6.3 C
 Pressure     970.0 hPa
 Humidity     72 %
Storing data in /home/rene/weather/data/20190308
===========================cool-retro-weatherstation===========================
|             ____        ___     _   ___        _____        _               |
|            /           /   \   |_| /   \           |   |   |_| /            |
|            |               |       |               /   |      /             |
|            |___         ___|       |              /    |     /              |
|            |   \           |       |             /     |    /               |
|            |   |           |       |            /      |   /  _             |
|            \___/   *   \___/       \___/       /       |     |_|            |
|                                                                             |
===============================================================================
Sleeping 60 seconds, type <ctrl>c to abort
```

weather3 works like weather2, but displays also pressure and time. It makes use of the library curses to handle the positioning of characters on the screen.

```
---------------------------cool-retro-weatherstation----------------------------
|                                                                              |
|                ____        ____    _   ___         ___  _____  _             |
|           |   /           /       |_| /   \       /   \     | |_| /          |
|           |   |           |           |               /     /    /           |
|           |   |___        |___        |              /     /    /            |
|           |   |   \       |   \       |             /     /    /             |
|           |   |   |   _   |   |       |            /     /    /  _           |
|           |   \___/  |_|  \___/       \___/       /____ /       |_|          |
|                                                                              |
|                                                                              |
|                                                                              |
|    ___  _____  ___        ____               ___   ___         ___   ___     |
|   /   \     | /   \ |     |   \             /   \ /   \       /   \ /   \    |
|   |   |     / |   | | __  |   |  ___        |   | |   |   _       / |   |    |
|   \___|    /  \___/ |/  \ |__/  /   \       |   | \___/  |_|     /  \___/    |
|       |   /   /   \ |   | |      ___|       |   | /   \         /   /   \    |
|       |  /    |   | |   | |     |   |       |   | |   |   _    /    |   |    |
|   \___/ /     \___/ |   | |     \___|       \___/ \___/  |_|  /____ \___/    |
|                                                                              |
|                                                                              |
|                                                                              |
--------------------------------------------------------------------------------
```

What you could do yourself:

- Analyze and display current and past weather data
- Make a simple forecast based on pressure changes

Good luck!