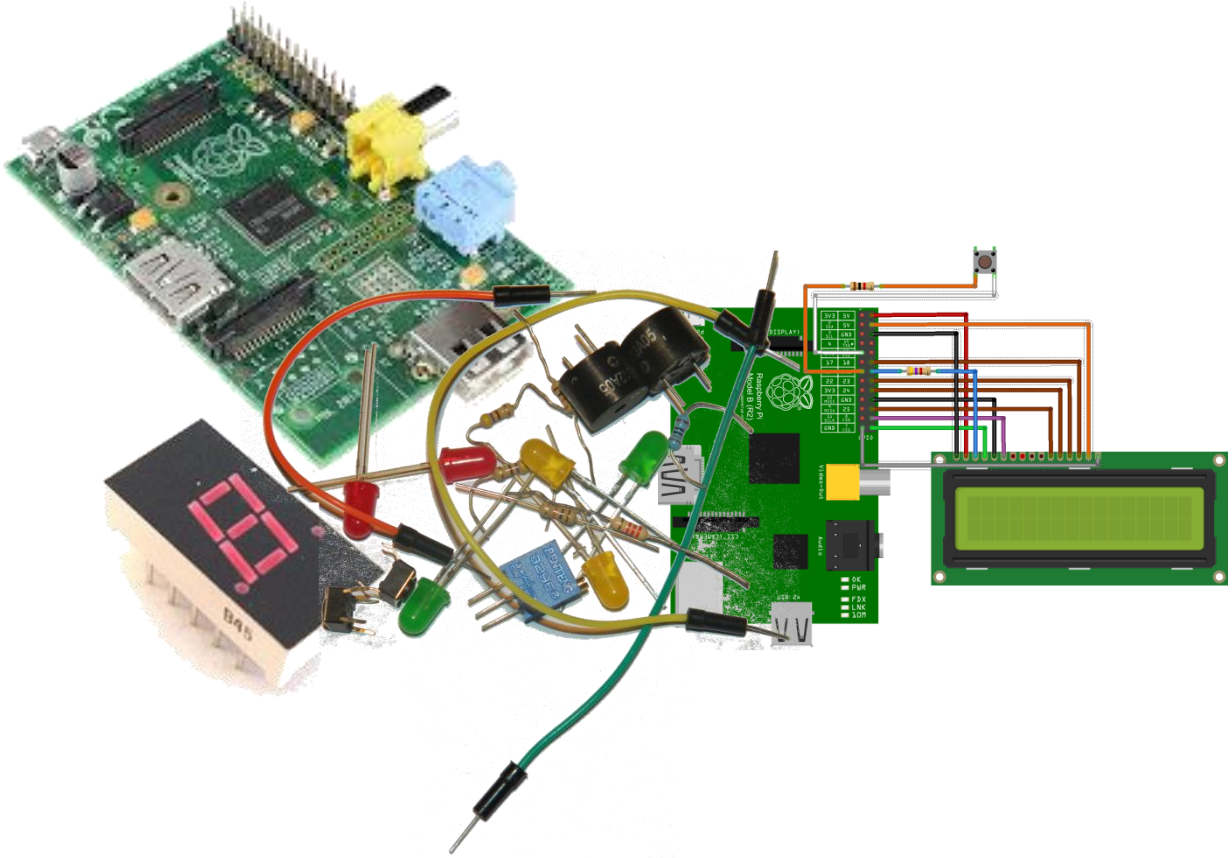
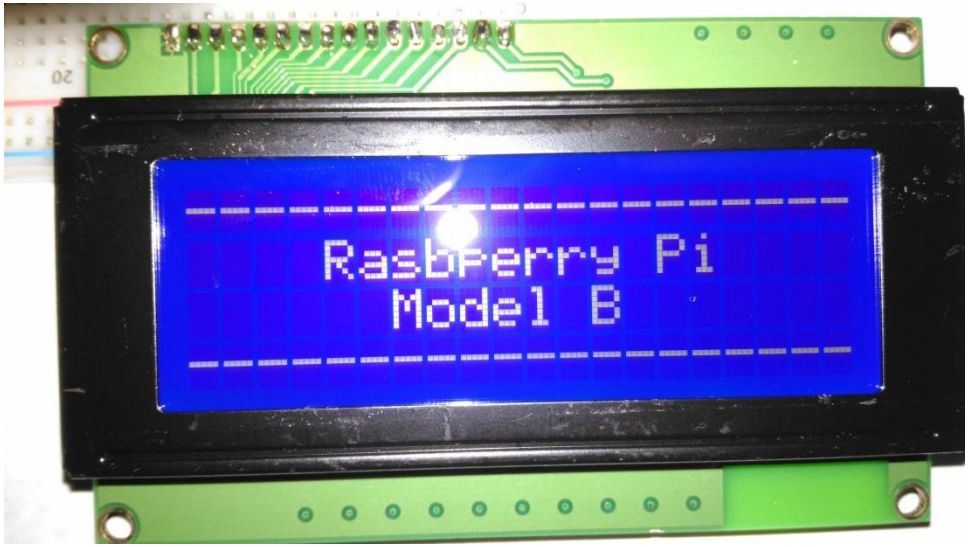
Raspberry Pi and Electronics

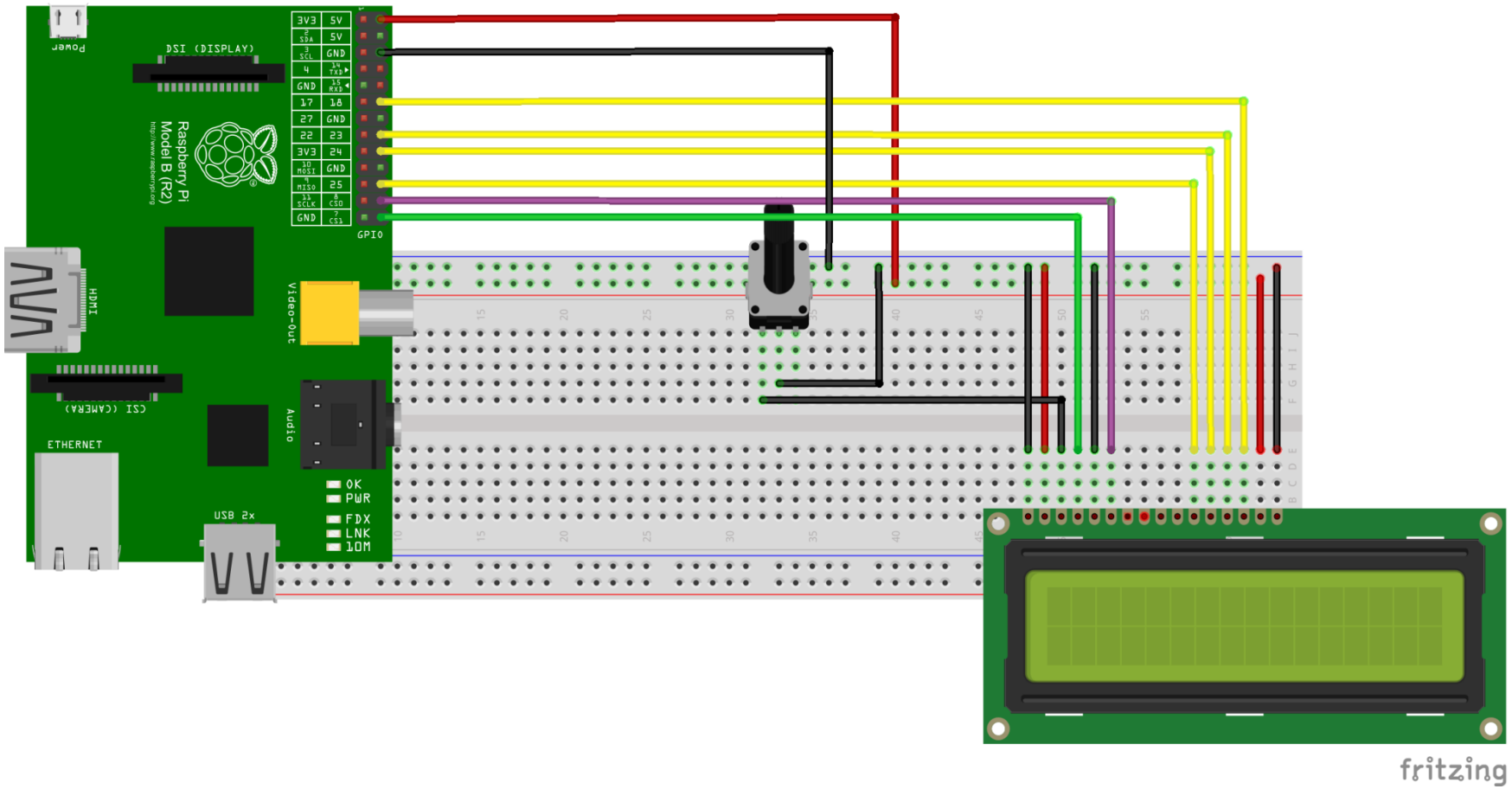


LCD Display



Today we're going to have a look at using a 20 x 4 LCD Display. It has 4 lines of 20 characters each so we have 80 characters to display our text.

Wiring Diagram



Testing our Display

Matt Hawkins has written a test script for the 20 x 4 LCD Display.

Check out his website http://www.raspberrypi-spy.co.uk/ for this and much more Raspberry Pi code

To run it type the following at the command prompt

```
pi@raspberrypi-2 ~ $ sudo python3 lcd.py
```

A quick look at the code

Type nano lcd.py to see the code

The line we're most interested in is this one

```
lcd_string("20x4 LCD Module Test",LCD_LINE_4,2)
```

We can see some of the text that appears on the display so we know this is where it comes from.
Because of the format of this code we know it's a function so the first thing we need to do is look for the function definition.

Function Definition

A function Definition looks like this

```
def lcd_string(message,line,style):
  # Send string to display
```

The code after the function definition will be executed when the function is called.

What we want to do is use this function in our own scripts without having to rewrite all the code.
We can do this by importing it as a module.

Importing Code

Add the following under the other imports

```
from lcd import *
```

This imports all the functions from lcd.py

Now all we have to do is set up our GPIO pins and we can use the lcd_string() function to write to our display

Setting up our GPIO pins

We need to set up our pins the same way as was done in lcd.py

```
GPIO.setmode(GPIO.BCM)          # Use BCM GPIO numbers
GPIO.setup(LCD_E, GPIO.OUT)     # E
GPIO.setup(LCD_RS, GPIO.OUT)    # RS
GPIO.setup(LCD_D4, GPIO.OUT)    # DB4
GPIO.setup(LCD_D5, GPIO.OUT)    # DB5
GPIO.setup(LCD_D6, GPIO.OUT)    # DB6
GPIO.setup(LCD_D7, GPIO.OUT)    # DB7
GPIO.setup(LED_ON, GPIO.OUT)    # Backlight enable
```

The Challenge

Write as many jokes as you can using 80 characters

Next Week:
We will add an Ultrasonic Distance sensor to our display