Lesson 13 Dot Matrix Module

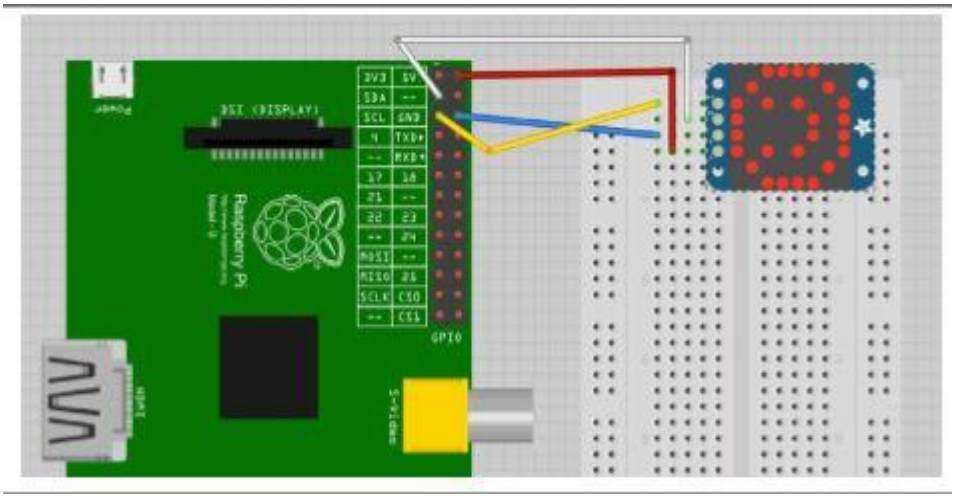
Introduction

This project will show you how to turn RGB LED matrices into a display for the Raspberry Pi! You can play games, watch movies, display a dashboard of data, and much more on a big and beautiful LED display. Anything the Pi outputs to a monitor can be shrunk down and displayed on LED matrices!
The code for this project uses the excellent rpi-rgb-led-matrix library. This library allows the Pi to light up and display graphics on LED matrices.

Hardware Required

- Raspberry Pi
- Breadboard
- RGB LED Matrix Panels
- Jumper wires

Hardware Setup



Discussion

The program cycles through all the colors for each pixel in turn. The code is listed here, with some of the comments and an unnecessary import removed:
After the import, an instance of ColorEightByEight is created. The address supplied as an argument to the next line is the I2C address:

grid = ColorEightByEight(address=0x70)

```
import time

from Adafruit_8x8 import ColorEightByEight

grid = ColorEightByEight(address=0x70)

iter = 0

# Continually update the 8x8 display one pixel at a time

while(True):

        iter += 1

        for x in range(0, 8):

                for y in range(0, 8):

                        grid.setPixel(x, y, iter % 4 )

                         time.sleep(0.02)
```

Every I2C slave device has an address number. The LED board has three pairs of solder pads on the back that can be bridged with solder if you want to change the address. This is essential if you need to operate more than one of the displays from a single Raspberry Pi. The variable iter gets 1 added to it each time through the loop. The command grid.setPixel takes x and y coordinates as its first two parameters. The final parameter is the color to which the pixel will be set. This is a number between 0 and 3 (0 is off, 1 is green, 2 is red, and 3 is orange). The variable iter is used to generate the number between 0 and 3 using the % operator, which is the modulo remainder (i.e., what is left over when you divide iter by 4).

Output

After complete connection, programming and running you will see an emoji made of red color on LED matrix.

Application

- Home Automation
- Health Monitoring System