Raspberry Pi
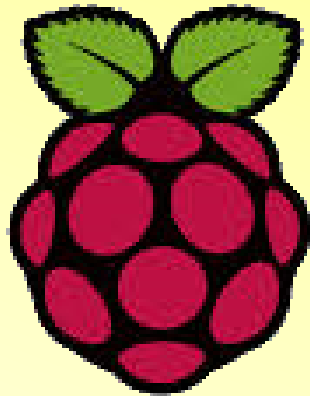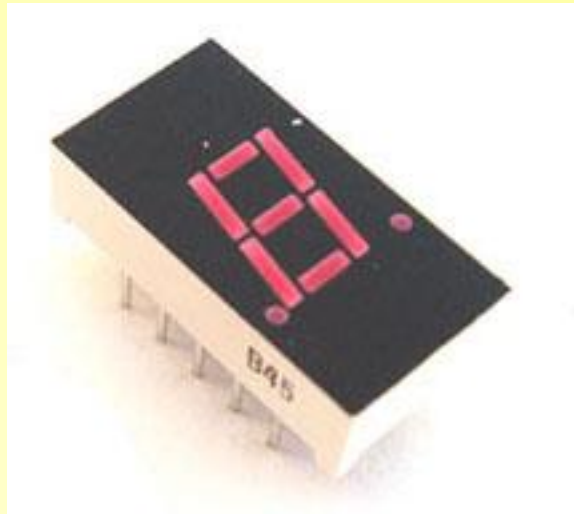

By Declan Fox

7-Segment display

A seven-segment display is a form of electronic display device for displaying decimal numerals.
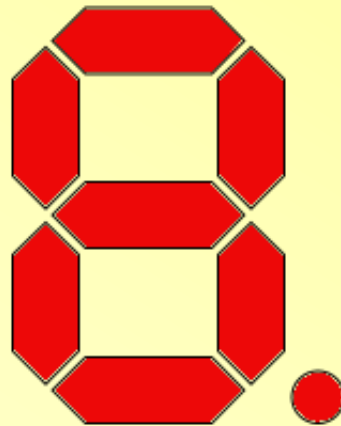
Raspberry Pi

Seven-segment displays are widely used in digital clocks, electronic meters, basic calculators, and other electronic devices that display numerical information.
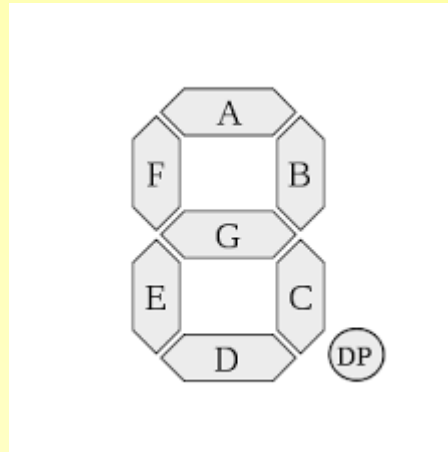
The seven segments are arranged as a rectangle of two vertical segments on each side with one horizontal segment on the top, middle and bottom.
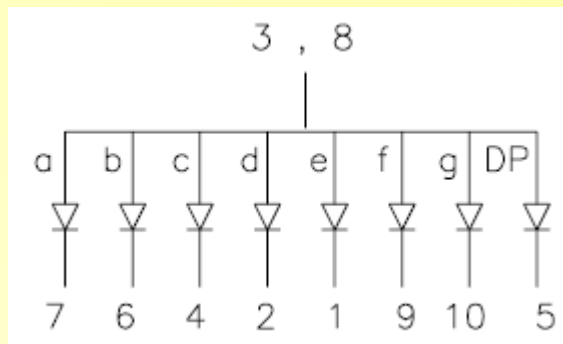
Raspberry Pi

The segments of a 7-segment display are referred to by the letters A to G, where the optional DP decimal point (an "eighth segment") is used for the display of non-integer numbers.
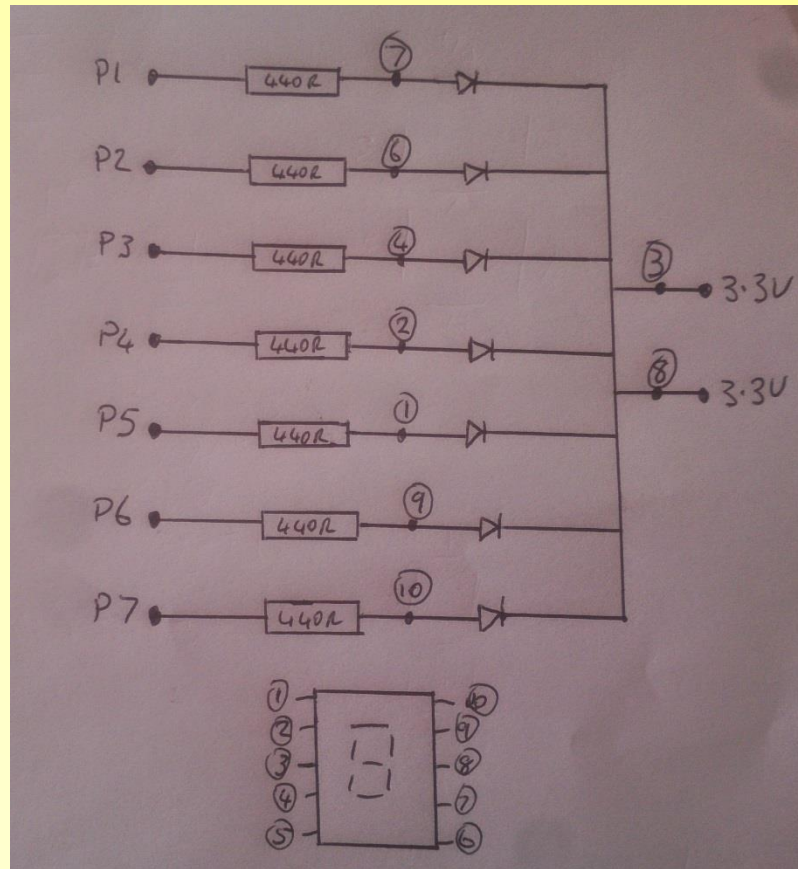
Raspberry Pi

We will be using LED 7-segment displays.

In a LED display, all of the cathodes (negative terminals) or all of the anodes (positive terminals) of the segment LEDs are connected to a common pin; this is called a "*common cathode*" or "*common anode*" device

Raspberry Pi

Wiring our display

Raspberry Pi

Wiring our display
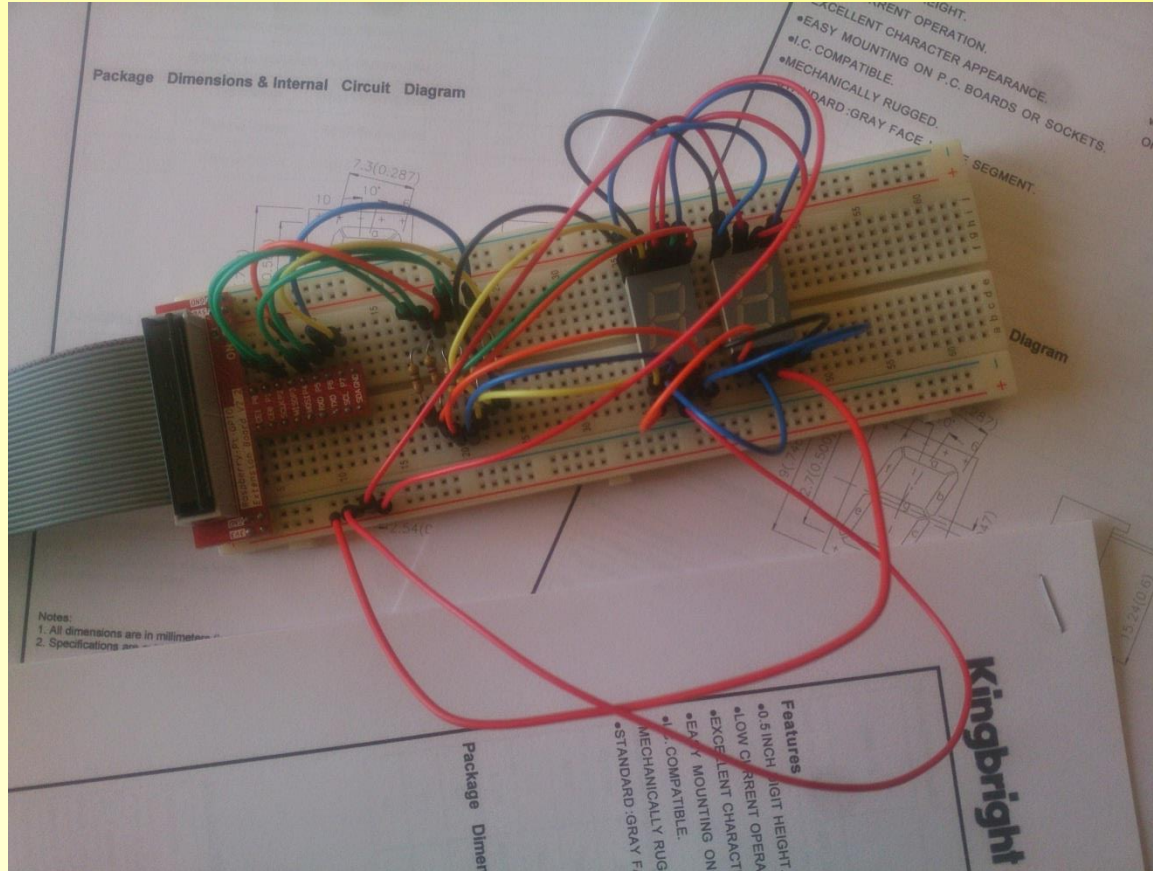
Raspberry Pi

Our code

```
import RPi.GPIO as GPIO
import time

GPIO.setmode(GPIO.BCM)

#set up  pins to correspond with our extension board e.g. use P1, P2 etc.
P1 = 18
P2 = 27
P3 = 22
P4 = 23
P5 = 24
P6 = 25
P7 = 4
```

These lines import the time and GPIO modules, sets our pin naming preference and sets the GPIO numbers to the pin names on our extension board

Raspberry Pi

Our code

```
GPIO.setup(P1,GPIO.OUT)
GPIO.setup(P2,GPIO.OUT)
GPIO.setup(P3,GPIO.OUT)
GPIO.setup(P4,GPIO.OUT)
GPIO.setup(P5,GPIO.OUT)
GPIO.setup(P6,GPIO.OUT)
GPIO.setup(P7,GPIO.OUT)
```

This sets Pin1 to Pin7 as outputs

Raspberry Pi

Our code

```
# Set pins to 0v
GPIO.output(P1,False)
GPIO.output(P2,False)
GPIO.output(P3,False)
GPIO.output(P4,False)
GPIO.output(P5,False)
GPIO.output(P6,False)
GPIO.output(P7,False)
```

This sets Pin1 to Pin7 to 0v

Raspberry Pi

Our code

```
# Keep LEDs on for 3 seconds
time.sleep(3)
```

This stops the program with the display LEDs on

Raspberry Pi

Our code

```
# Set pins to 3.3v
GPIO.output(P1,True)
GPIO.output(P2,True)
GPIO.output(P3,True)
GPIO.output(P4,True)
GPIO.output(P5,True)
GPIO.output(P6,True)
GPIO.output(P7,True)
```

This sets Pin1 to Pin7 to 3.3v

Raspberry Pi

Our code

```
#clean up (Set pins to default values)
GPIO.cleanup()
```

This frees Pin1 to Pin7 up to be used again, they are no longer set as outputs.

Belts

Belts

White: Commitment & Basic Skill

CoderDojo Athenry
www.coderdojo.com

Attend at least 5 sessions
+ Know how to get started with Python

Belts

Yellow Belt: Competent Python Coder

CoderDojo Athenry
www.coderdojo.com

1. Qualify for a White Belt
2. Show a basic understanding of Python

   Open a program and show you understand some of the following Variables, Loops, Decisions, Functions, Lists and Modules

Belts

Blue Belt: Skilled Python/Pygame/Raspberry Pi Coder

1. **Create** a program with either Python or Pygame
2. **Python** must have variables, loops and decisions, lists, functions
3. **Pygame** must have user created sprites, variables, loops and decisions and lists
4. **Must be all your own work**