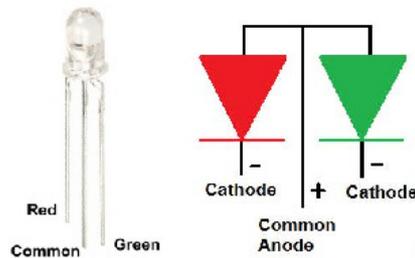


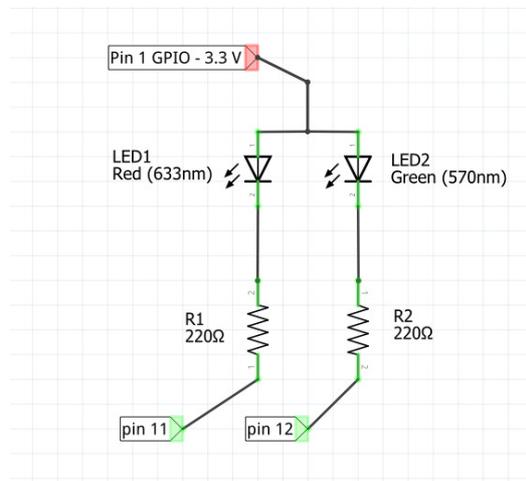
Project 1: Bi-Colour LED

In this project we are going to flash a Bi-Colour Red/Green LED using 2 of the outputs of the Raspberry Pi.

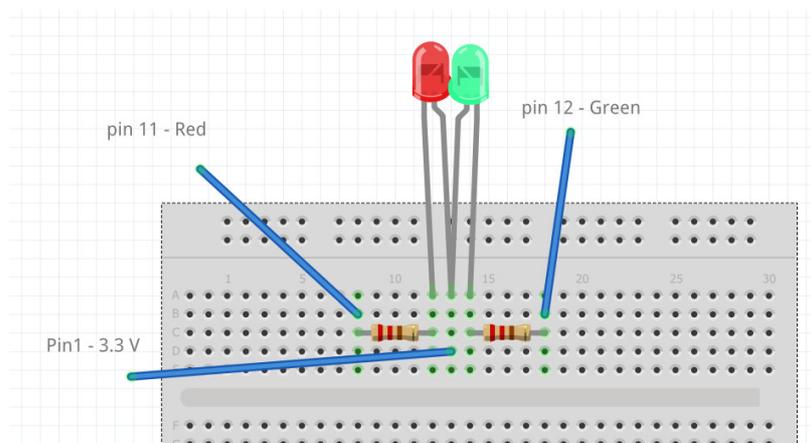
The LED package we are using here is a Common Anode device. What this means is that the anode (+ve) goes up to the supply voltage and the other two pins are taken to 0V (through a resistor) for the respective LEDs to light up.



The longest pin on the package is the anode. The next one is the green LED while the shorter one is for the RED LED. The schematic for this is shown below.



The 220 ohm resistors are important to limit the current to the LEDs. The image below shows this circuit built onto the breadboard. The pin numbers refer to the GPIO connector on the Raspberry Pi. (The bi-colour LED is shown as 2 separate LEDs below – but actually they are in one package as shown before).



Python code is listed below. When this code is run the red and green LEDs will start flashing and slowly increase in speed. To stop the program press CTRL and C keys at the same time.

```
#!/usr/bin/env python
#Python code for Bi-Colour LED
#www.sf-innovations.co.uk
import RPi.GPIO as GPIO      #import GPIO library
import time                  #import time library
GPIO.setmode(GPIO.BOARD)    #use board pin numbers
GPIO.setwarnings(False)

GPIO.setup(11, GPIO.OUT)    #setup pin 11 as output
GPIO.setup(12, GPIO.OUT)    #setup pin 12 as output
GPIO.output (11, True)      #set pin 11 high
GPIO.output (12, True)      #set pin 12 high

#Alternatively flash red and green LEDs with increasing speed
while True:
    for t in range (20 ,1, -1):
        s = 21 - t
        for z in range (1, s):

            GPIO.output (11, False)
            time.sleep (t*0.01)
            GPIO.output (11, True)
            time.sleep (t*0.01)

            GPIO.output (12, False)
            time.sleep (t*0.01)
            GPIO.output (12, True)
            time.sleep (t*0.01)

GPIO.cleanup()              #tidy up GPIO port
import sys                  #exit program
sys.exit()
```