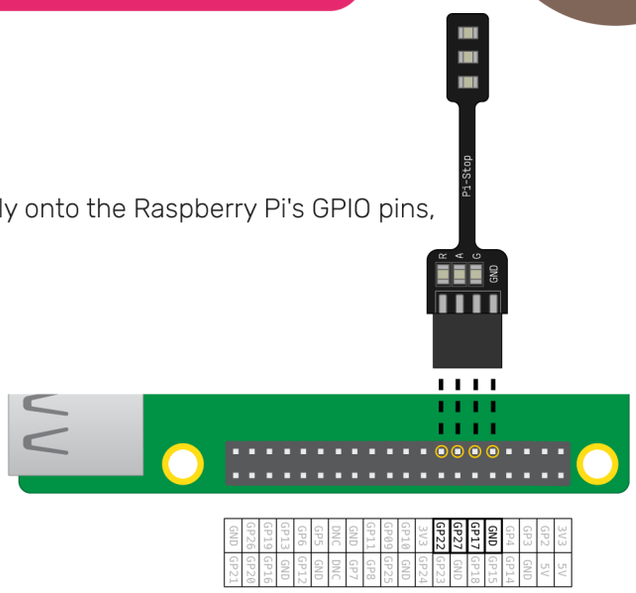
CONTROLLING A TRAFFIC LIGHT SEQUENCE WITH GPIO ZERO

Connect the pi-stop

1. Take the pi-stop and place it directly onto the Raspberry Pi's GPIO pins, connecting it as follows:

pi-stop	GPIO pin
Red	22
Amber	27
Green	17
Ground	GND



Control the LEDs

1. Open Python 3 from the main menu, and open a new file.
2. Enter the following code:

```
from gpiozero import LED

red = LED(22)

red.blink()
```

3. Now save your program and press F5 to run your code. You should see the red light flash on and off continuously.
4. Now modify your code to introduce the other two lights, and make them blink at different speeds:

```
from gpiozero import LED

red = LED(22)
amber = LED(27)
green = LED(17)

red.blink(1, 1)
amber.blink(2, 2)
green.blink(3, 3)
```

5. Run your code again and you should see the three lights flashing at different rates.
6. If a larger number makes a light blink more slowly, what number would make it run more quickly? Try to make your lights blink more quickly.

Traffic light sequence

1 The **on** function allows you to turn a light on. You can use **sleep** to pause between commands. Try this example to turn the lights on in sequence:

```
from gpiozero import LED
from time import sleep

red = LED(22)
amber = LED(27)
green = LED(17)

red.on()
sleep(1)
amber.on()
sleep(1)
green.on()
sleep(1)
```

The main controls for LEDs are **on**, **off**, **toggle** and **blink**.

2 Try turning the lights on and off in sequence:

```
red.on()
sleep(1)
amber.on()
sleep(1)
green.on()
sleep(1)
red.off()
sleep(1)
amber.off()
sleep(1)
green.off()
```

3 Try repeating this by putting the code inside a **while** loop:

```
while True:
    red.on()
    sleep(1)
    amber.on()
    sleep(1)
    green.on()
    sleep(1)
    red.off()
    sleep(1)
    amber.off()
    sleep(1)
    green.off()
```

4 Now you know how to control the lights individually, and time the pauses between commands, can you create a traffic light sequence? The sequence goes:

- Green on
- Amber on
- Red on
- Red and amber on
- Green on

It's important to think about timing. How long should the lights stay on at each stage?

Once you have completed the traffic light sequence, you might want to try adding in a button and a buzzer to make an interactive traffic light for a pedestrian crossing.