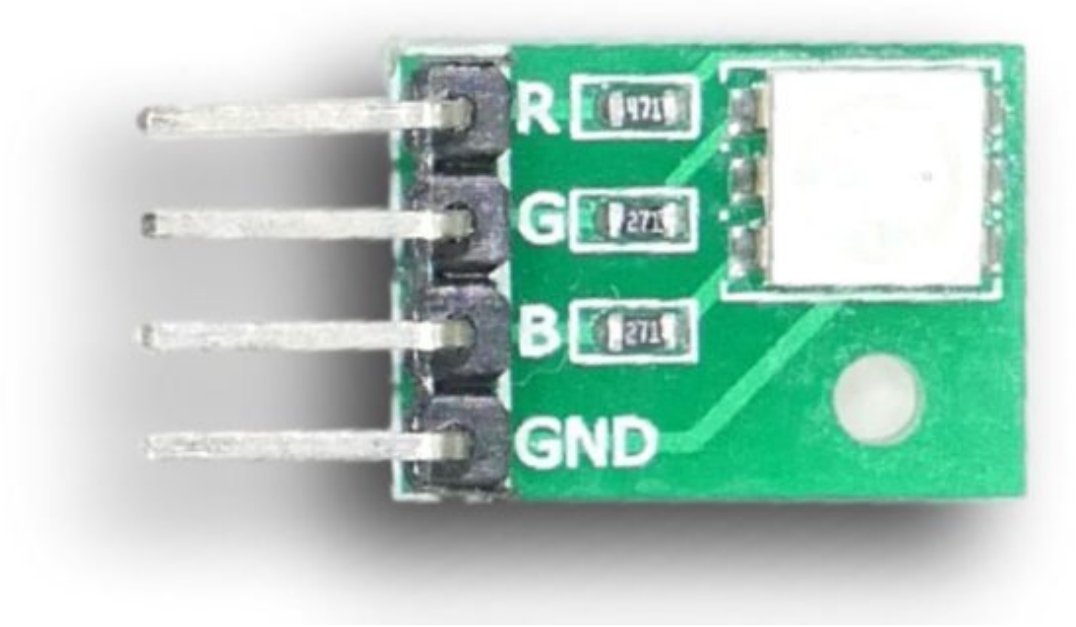
RPi Node-Red: PIR + RGB LED or Buzzer

Parts List:



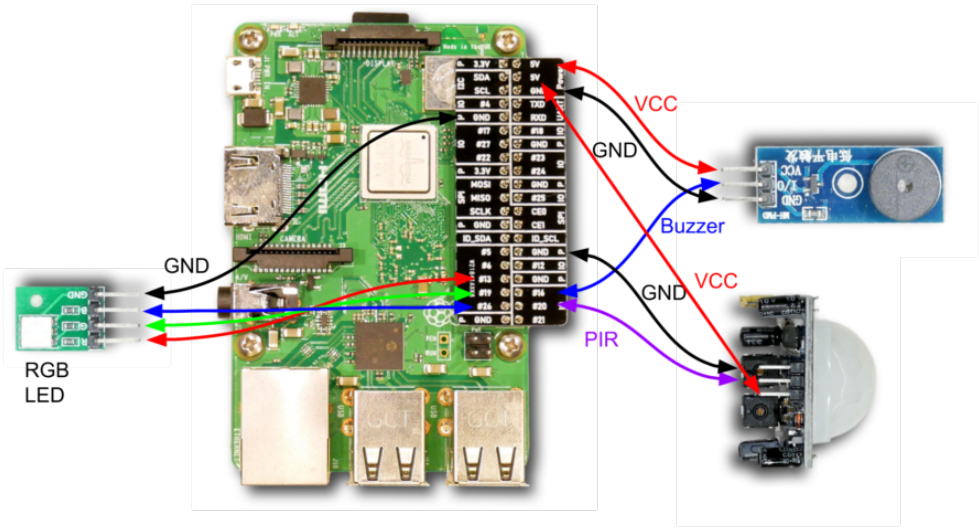
1x RGB LED

1x PIR

1x Piezoelectric Buzzer

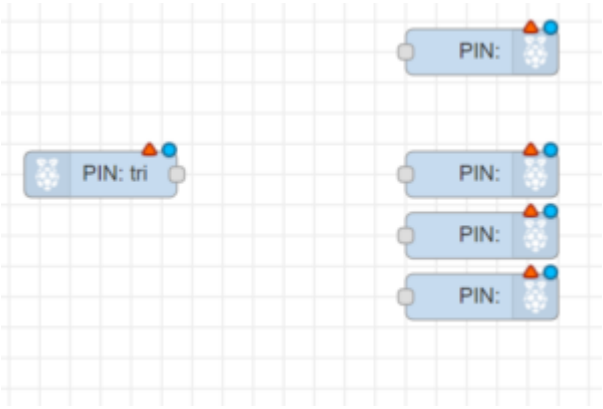
Getting Started:

Setting up the Hardware

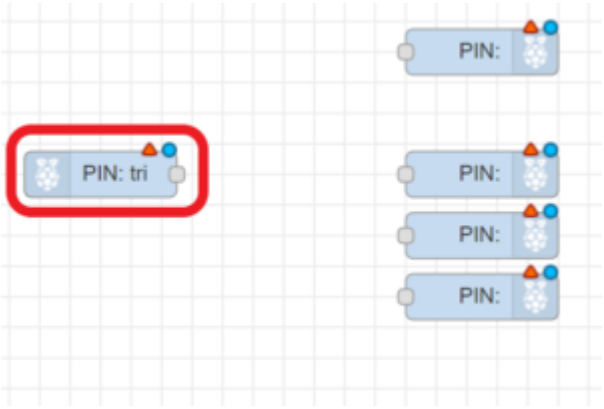


Setting up Node-Red

Start Node-Red and navigate to 127.0.0.1:1880. Drag one Raspberry Pi input node and five Raspberry Pi output nodes into the flow area.

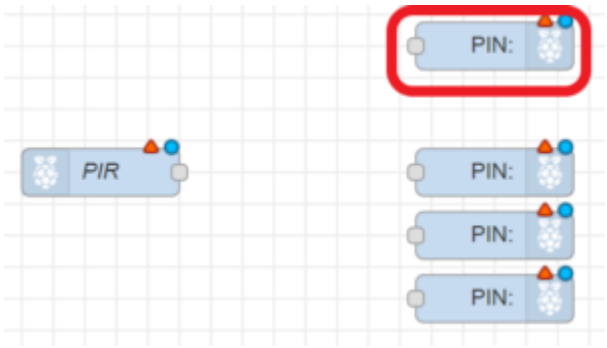


Double click on the Raspberry Pi input node to open its configuration menu. Set the **Pin** to **GPIO20**. **Name** the node "PIR".



Double click on the unmodified Raspberry Pi output node. Set

Pin to **GPIO16**. Set **Type** to **PWM output**. Set **Frequency** to **100**. **Name** the node “buzzer”.



Edit rpi-gpio out node

Delete | Cancel | Done

node properties

Pin

3.3V Power - 1	2 - 5V Power
SDA1 - GPIO02 - 3	4 - 5V Power
SCL1 - GPIO03 - 5	6 - Ground
GPIO04 - 7	8 - GPIO14 - TxD
Ground - 9	10 - GPIO15 - RxD
GPIO17 - 11	12 - GPIO18
GPIO27 - 13	14 - Ground
GPIO22 - 15	16 - GPIO23
3.3V Power - 17	18 - GPIO24
MOSI - GPIO10 - 19	20 - Ground
MISO - GPIO09 - 21	22 - GPIO25
SCLK - GPIO11 - 23	24 - GPIO8 - CE0
Ground - 25	26 - GPIO7 - CE1
SD - 27	28 - SC
GPIO05 - 29	30 - Ground
GPIO06 - 31	32 - GPIO12
GPIO13 - 33	34 - Ground
GPIO19 - 35	36 - GPIO16
GPIO26 - 37	38 - GPIO20
Ground - 39	40 - GPIO21

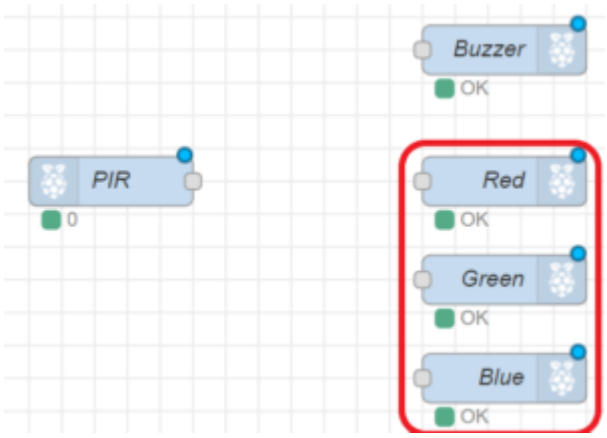
Type: PWM output

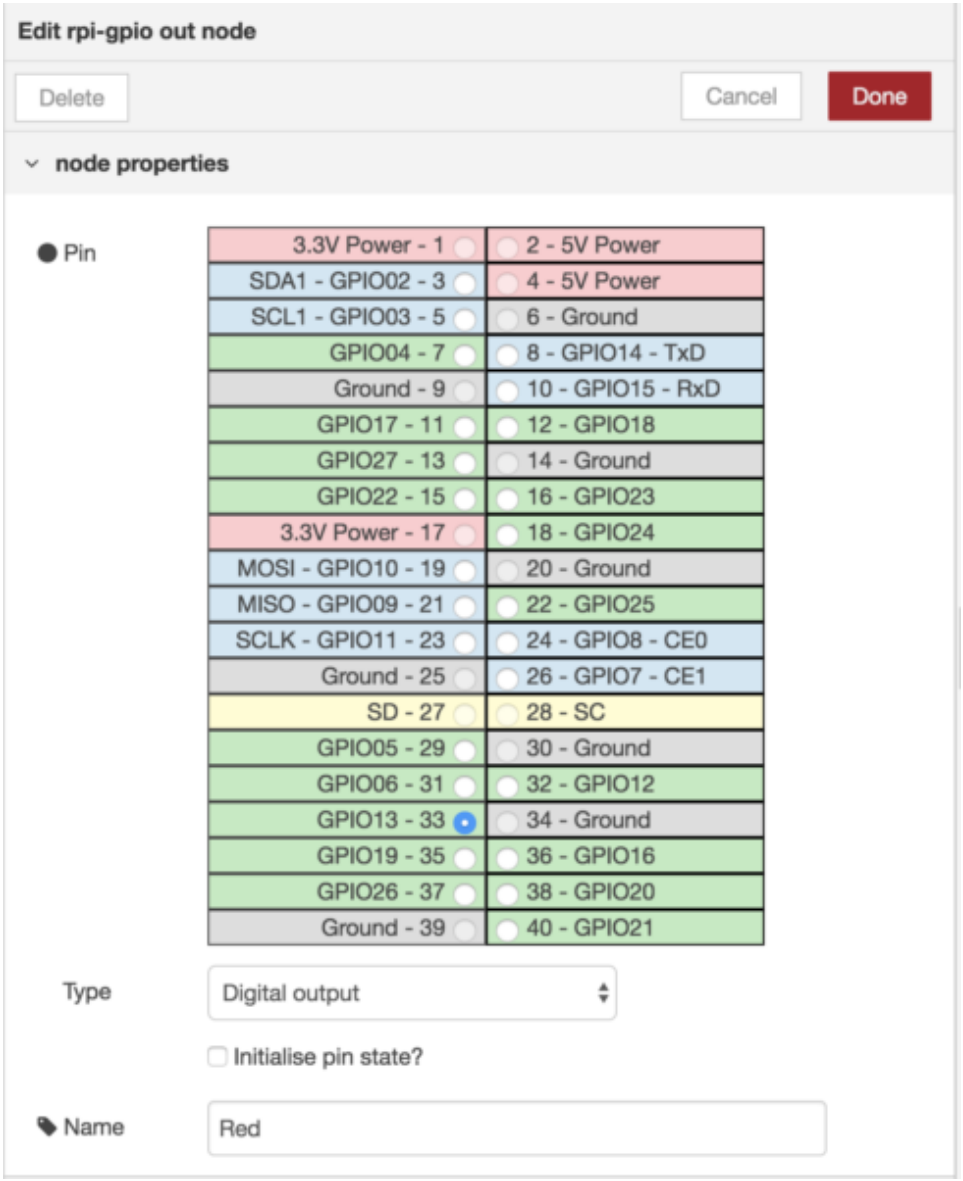
Frequency: 100 Hz

Name: buzzer

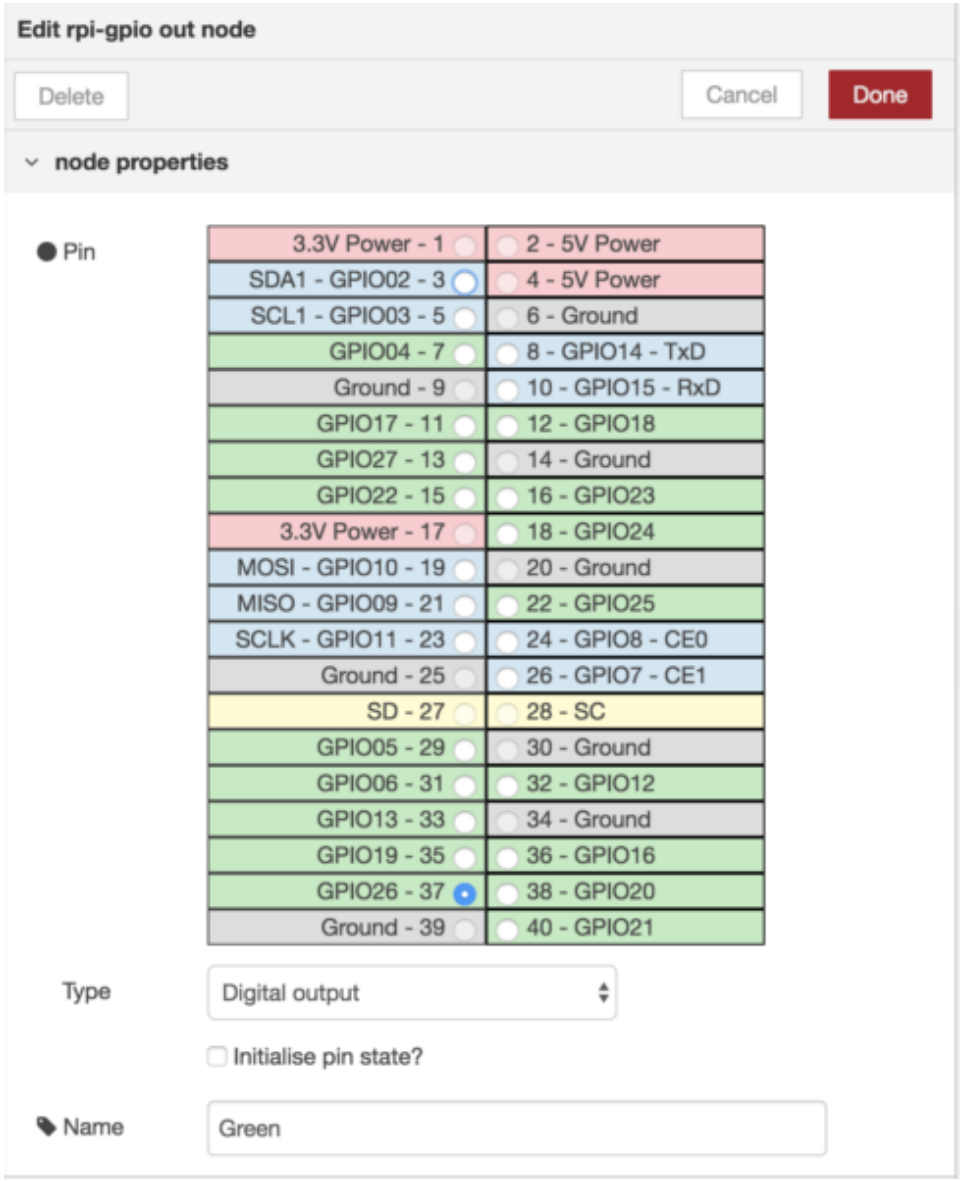
Buzzer Out Node

For this step, we are going to setup the output nodes for each RGB node. Double click on one of the Raspberry Pi output nodes. Set the **Red Pin** to **GPIO13**, **Green Pin** to **GPIO19**, and **Blue Pin** to **GPIO26**. Check the box to **Initialise pin state?** select **low (0)** from the drop down menu. **Name** each node with its respective “Red, Green, Blue”.

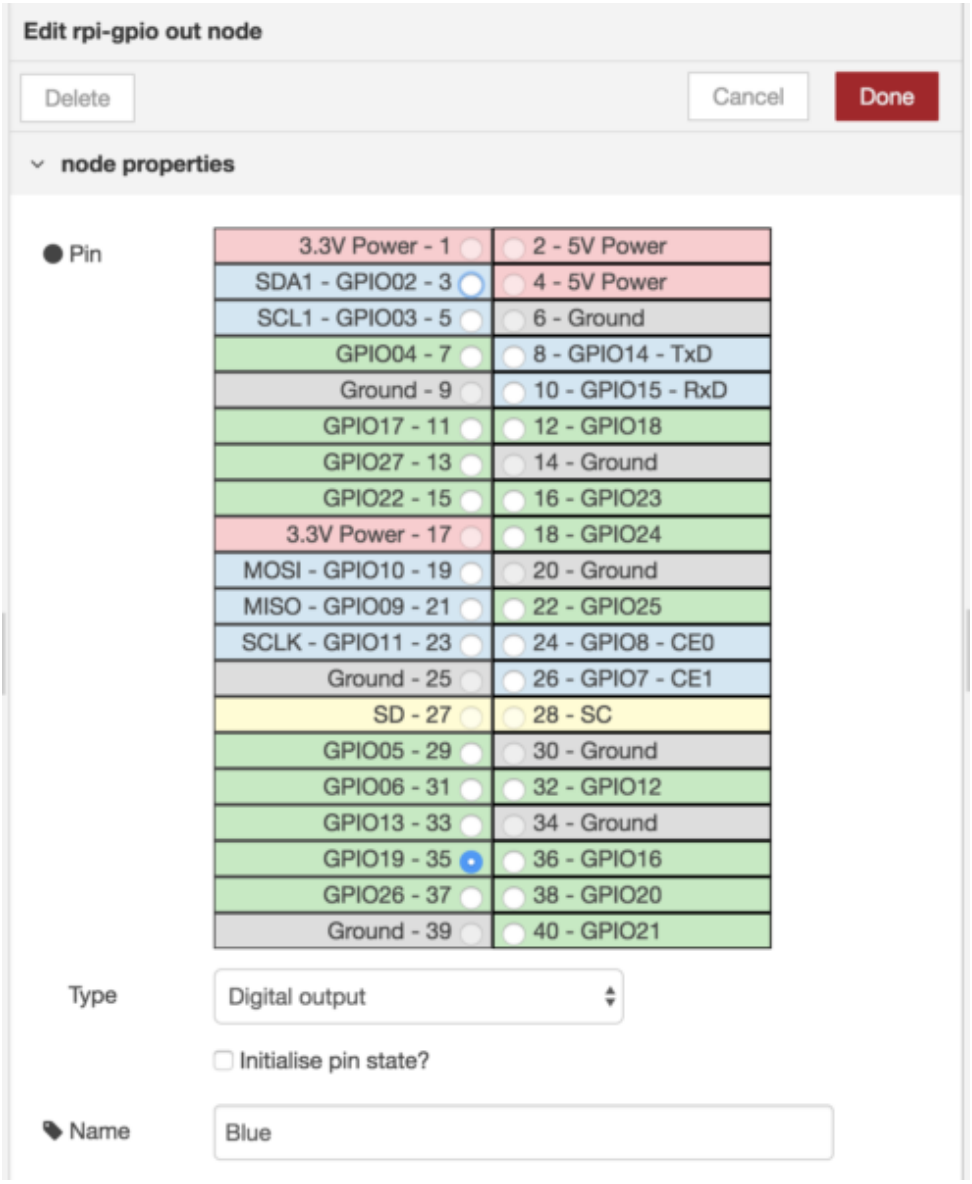



Edit rpi-gpio out node
Delete
Cancel
Done
node properties
Pin
3.3V Power - 1
2 - 5V Power
SDA1 - GPIO02 - 3
4 - 5V Power
SCL1 - GPIO03 - 5
6 - Ground
GPIO04 - 7
8 - GPIO14 - TxD
Ground - 9
10 - GPIO15 - RxD
GPIO17 - 11
12 - GPIO18
GPIO27 - 13
14 - Ground
GPIO22 - 15
16 - GPIO23
3.3V Power - 17
18 - GPIO24
MOSI - GPIO10 - 19
20 - Ground
MISO - GPIO09 - 21
22 - GPIO25
SCLK - GPIO11 - 23
24 - GPIO8 - CE0
Ground - 25
26 - GPIO7 - CE1
SD - 27
28 - SC
GPIO05 - 29
30 - Ground
GPIO06 - 31
32 - GPIO12
GPIO13 - 33
34 - Ground
GPIO19 - 35
36 - GPIO16
GPIO26 - 37
38 - GPIO20
Ground - 39
40 - GPIO21
Type
Digital output
Initialise pin state?
Name
Red

Red Out Node

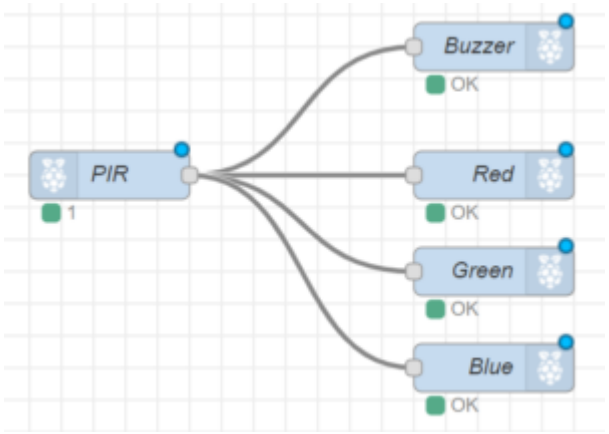


Green Out Node



Blue Out Node

Wire each output node to the single input node and deploy the flow.



If everything is working properly the LED should illuminate and the buzzer should activate for a short period of time after the PIR has detected movement. To deactivate either the buzzer or LED simply delete the wire in Node-Red connecting the associated node with the PIR node.

Whats Next?

- What other combinations can you make with items in your kit?