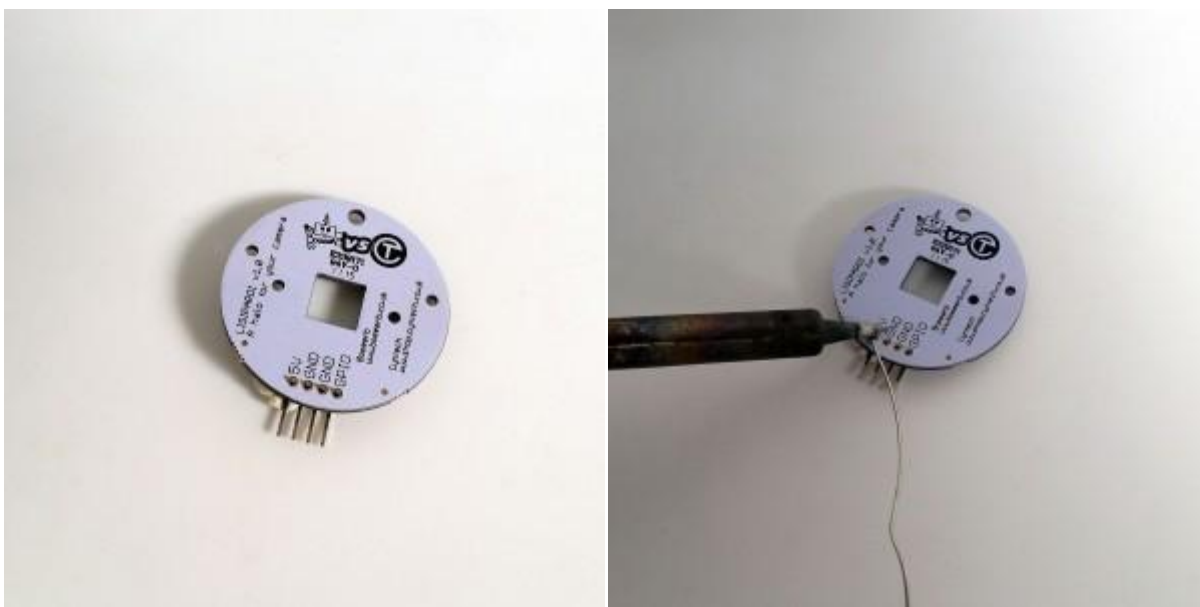


## How to use

### Soldering the header on to the LISIPAROI

A small amount of soldering is needed to add the LISIPAROI header to the board. A selection of different positions is possible depending on your project and placement.

Choose your desired header that you require and using a small amount of BluTac to hold the header in place, add the soldering iron to the first pin, followed by the solder wire.



Repeat this until all the headers have been soldered in place.

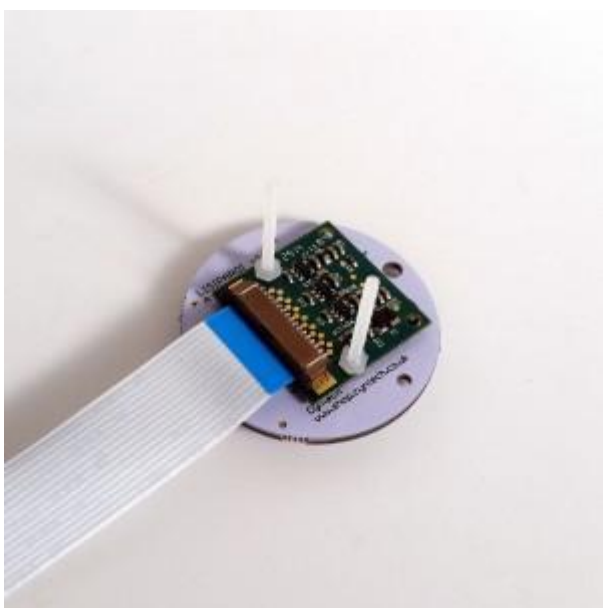


# Attaching to the camera module

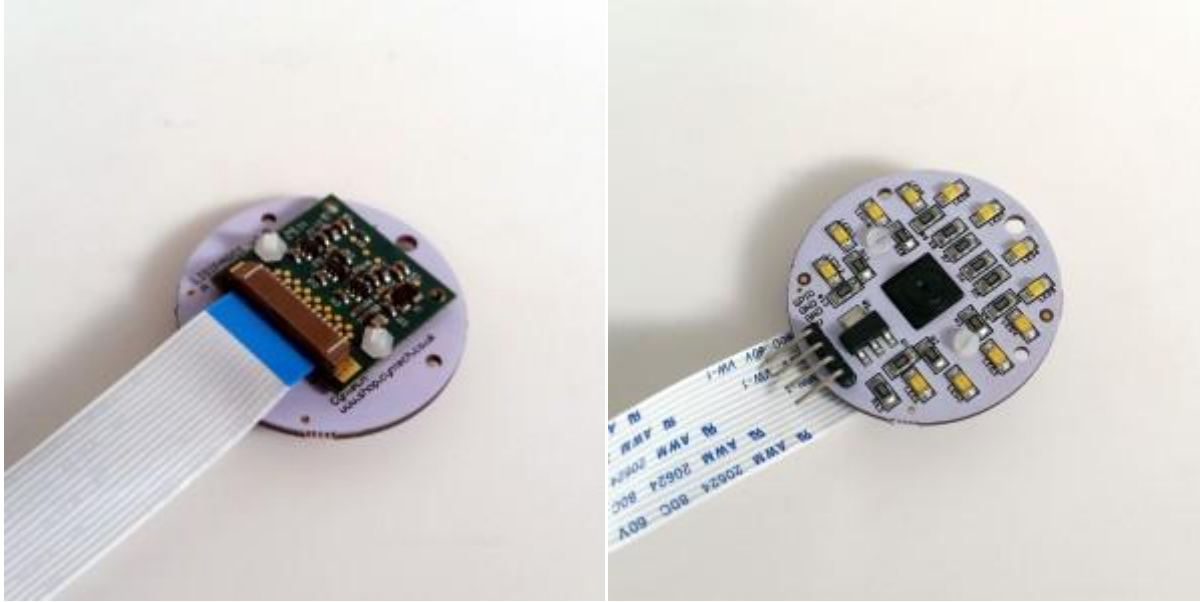
Push the bolts through the LISIPAROI and screw the nut on to the back.



Add the camera module, and screw the remaining 2 nuts to hold it all in place.



Trim the bolts to the desired length. Don't cut yet if you are planning to add any bracket/support.

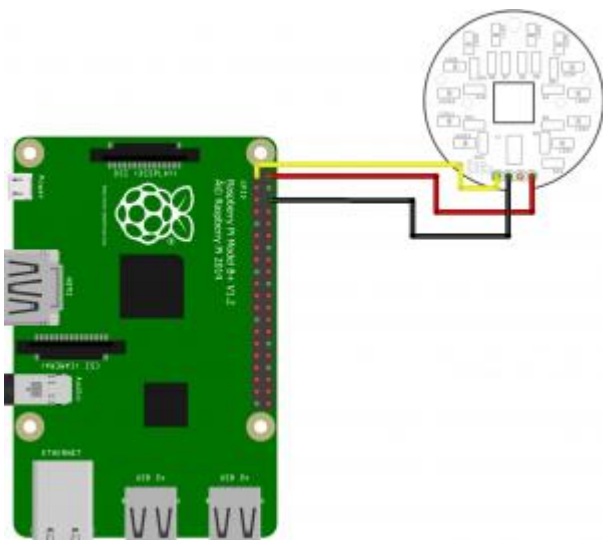


## Wiring up the LISIPAROI

The LISIPAROI has been designed to be powered from the Raspberry Pi providing enough power is available, if not a separate power supply of 5 volts can be used.

### Wiring up to the Raspberry Pi

If you are using a power supply rated 2A or more, you can power your LISIPAROI directly from the Raspberry Pi.



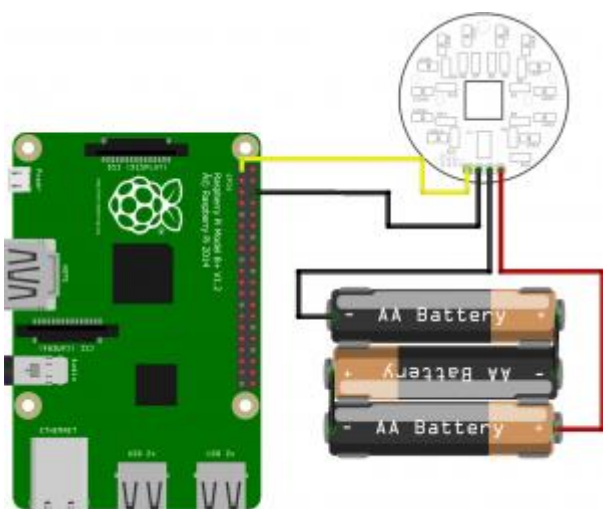
Connect the 5v on the LISIPAROI to the 5v (pin 2) on the Raspberry Pi

Connect GND (only 1 is needed) to the Ground (pin 6) on the Raspberry Pi

Connect GPIO to the 3v3 (pin 1) on the Raspberry Pi

## Wiring up the LISIPAROI with additional batteries

If you are using a low powered battery pack or a power supply not capable of supplying 2Amp an external battery pack can be used to power the LISIPAROI. Adding 3 AA alkaline batteries capable of 4.5v is sufficient to use without a regulator. Just add the wires as shown, paying close attention to the placement of the **GPIO** and **5v** pins.



When using an external power supply, both GND (grounds) will be needed, so double check their placements before adding any power to save the risk of damaging the Raspberry Pi or shorting the batteries.

## Powering it all up

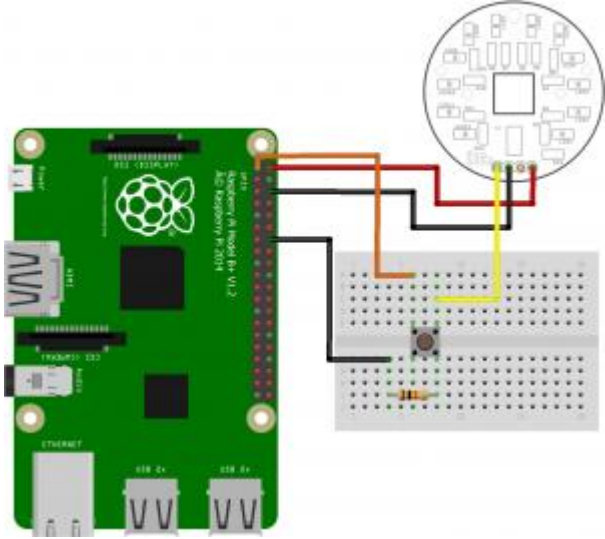
When power is added to the Raspberry Pi the LISIPAROI will be turned on. If you have the Infrared version you won't see any difference visually, but viewing with your smartphone camera you will notice faint purple glows on the LEDs.

If you wish to control the LISIPAROI via Python/Scratch/Any other programming language skip down to **Controlling from the Raspberry Pi**.

## Using it with a switch

You will need a tactile switch, a breadboard and a 10k resistor.

Place the tactile button on the breadboard, and add the resistor as shown. Pay close attention to the orientation and placement of the wires to take care not to short circuit the power circuitry on the Raspberry Pi.

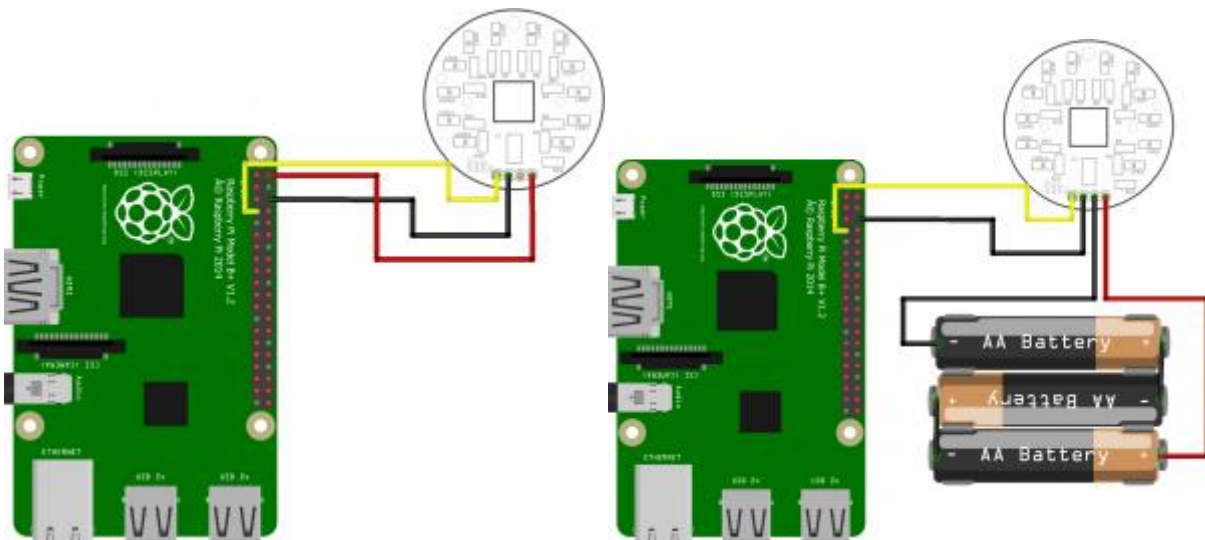


When pressing the button with the Raspberry Pi powered up will turn on the LISIPAROI.

## Controlling from the Raspberry Pi

### Hooking up to a GPIO Pin

In this example GPIO 4 will be used to turn on the LISIPAROI, although any digital GPIO pin will work. Swap the 3v3 jumper wire to a chosen GPIO (or to 4 as pictured)



Switch on the Raspberry Pi, and add the batteries (if external power is being used).

### Switching the LISIPAROI on and off

Login remotely via PuTTY or start LXTerminal on the Raspberry Pi.

Create a new file by typing **sudo nano flash.py** [Enter]

And paste the following code;

```
import RPi.GPIO as GPIO

import time

import picamera

GPIO.setmode(GPIO.BOARD)

GPIO.setup(4, GPIO.OUT)

GPIO.output(4, GPIO.HIGH)

with picamera.PiCamera() as camera:

    camera.start_preview()

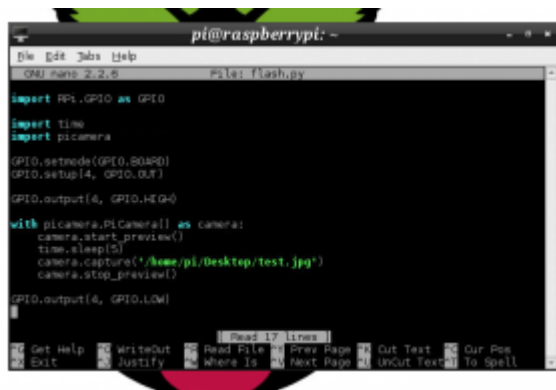
    time.sleep(5)

    camera.capture('/home/pi/Desktop/test.jpg')

    camera.stop_preview()

GPIO.output(4, GPIO.LOW)
```

It should look like this, just press **CTRL + X** to exit, press **Y** to save, and then **Enter** to confirm the filename.



```
pi@raspberrypi: ~
GNU nano 2.2.6      pi@: flash.py

import RPi.GPIO as GPIO

import time

import picamera

GPIO.setmode(GPIO.BOARD)

GPIO.setup(4, GPIO.OUT)

GPIO.output(4, GPIO.HIGH)

with picamera.PiCamera() as camera:

    camera.start_preview()

    time.sleep(5)

    camera.capture('/home/pi/Desktop/test.jpg')

    camera.stop_preview()

GPIO.output(4, GPIO.LOW)
```

To run the program, type in **sudo python flash.py** followed by enter. The LISIPAROI should switch on, a picture is taken.

After 5 seconds the LISIPAROI will then switch off.

*Python code by TeCoEd*