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Robotics add on boards for use with your Raspberry Pi

How to connect a PS3 remote to the new Raspberry Pi Zero W

Submitted by Arron Churchill on Tue, 02/28/2017 - 09:03.

What you will need

You do not need much to get a PS3 controller connected to the Pi Zero W:

1. A micro SD card with the latest Raspbian (or noobs) installed
2. WiFi connectivity to the internet
3. A USB adapter and hub to connect devices
4. A USB keyboard and mouse (or a VNC connection)
5. An HDMI monitor and adapter (or a VNC connection)
6. A USB mini cable, the same style used for charging the PS3 controller

Before starting get your Raspberry Pi Zero W up and running with Raspbian and a working WiFi connection to the internet. You can do all of the steps below via VNC instead of using the keyboard and mouse if you want.

If you have not already check out our Getting started with the Pi Zero WiFi and Bluetooth guide to setup the WiFi and find out how the Raspberry Pi Zero WiFi is different.

Setting up the PS3 controller

The first thing we need to do is tell the PS3 controller what device (our Pi Zero W) it should connect to. We do this using a USB cable and a program called SixPair.

Step 1 - attach the PS3 controller

Start by attaching the PS3 controller along with your keyboard and mouse (if needed) to the USB port on the Pi Zero. You will need to use both the SB adapter and hub to get all three connected at once. After that attach your monitor via the HDMI adapter and then connect the power.

Step 2 - download software

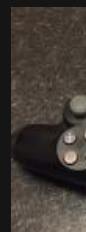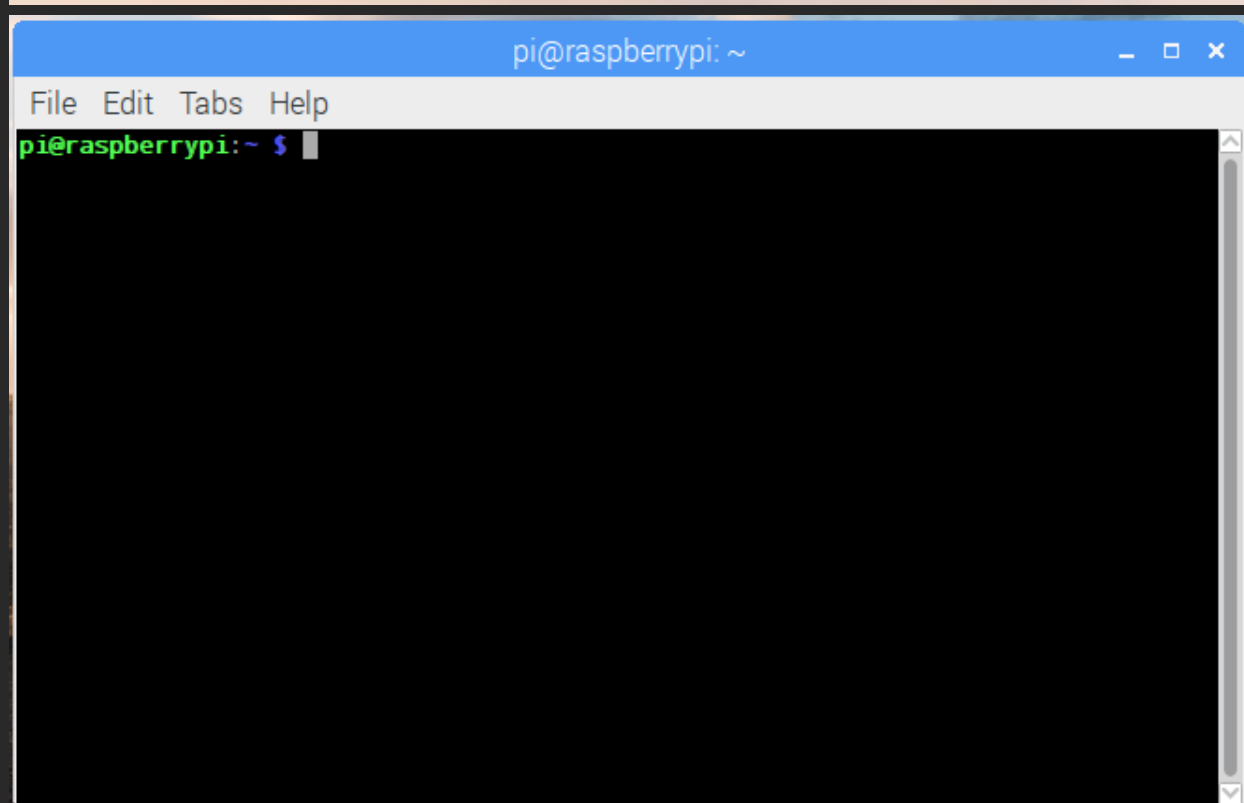To get what we need we need to use the Terminal program. This can be found on the top taskbar:
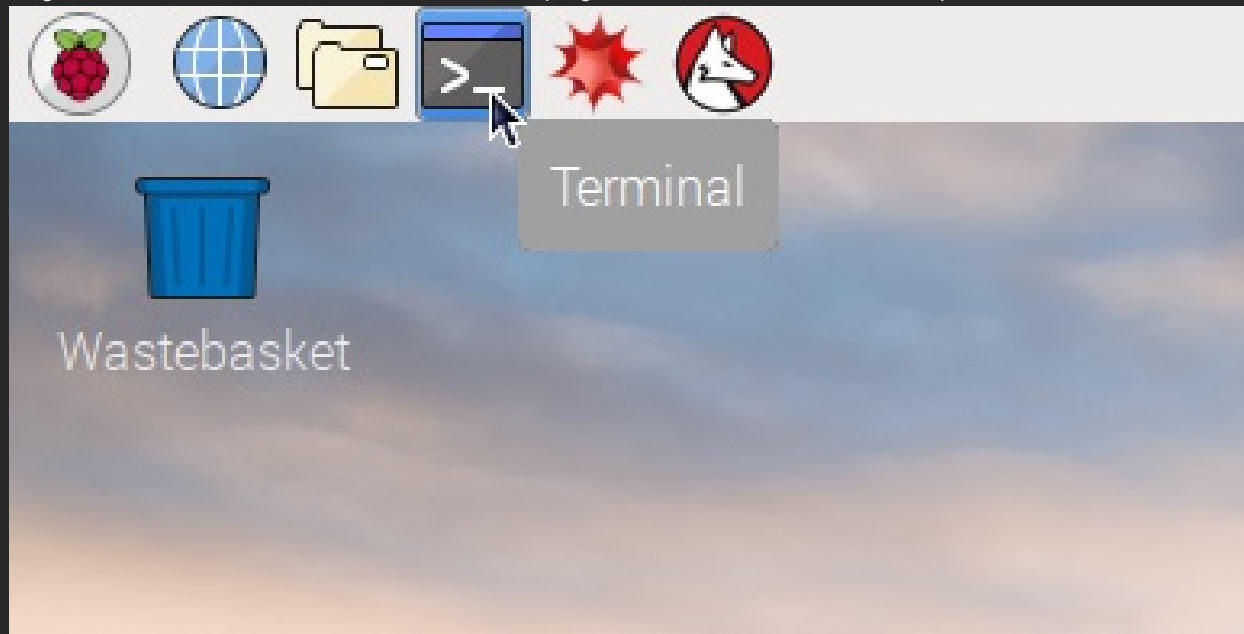
We need to make sure the Raspberry Pi Zero W is ready to get new software, we do this with an update command:

```
sudo apt-get update
```

This may take a minute or two to run.

```
pi@raspberrypi:~ $ sudo apt-get update
Get:1 http://archive.raspberrypi.org jessie InRelease [22.9 kB]
Get:2 http://mirrordirector.raspbian.org jessie InRelease [14.9 kB]
Get:3 http://mirrordirector.raspbian.org jessie/main armhf Packages [8,981 kB]
Get:4 http://archive.raspberrypi.org jessie/main armhf Packages [145 kB]
Get:5 http://archive.raspberrypi.org jessie/ui armhf Packages [57.6 kB]
Ign http://archive.raspberrypi.org jessie/main Translation-en_GB
Ign http://archive.raspberrypi.org jessie/main Translation-en
Ign http://archive.raspberrypi.org jessie/ui Translation-en_GB
Ign http://archive.raspberrypi.org jessie/ui Translation-en
Get:6 http://mirrordirector.raspbian.org jessie/contrib armhf Packages [37.5 kB]
Get:7 http://mirrordirector.raspbian.org jessie/non-free armhf Packages [70.3 kB
]
Get:8 http://mirrordirector.raspbian.org jessie/rpi armhf Packages [1,356 B]
Ign http://mirrordirector.raspbian.org jessie/contrib Translation-en_GB
Ign http://mirrordirector.raspbian.org jessie/contrib Translation-en
Ign http://mirrordirector.raspbian.org jessie/main Translation-en_GB
Ign http://mirrordirector.raspbian.org jessie/main Translation-en
Ign http://mirrordirector.raspbian.org jessie/non-free Translation-en_GB
Ign http://mirrordirector.raspbian.org jessie/non-free Translation-en
Ign http://mirrordirector.raspbian.org jessie/rpi Translation-en_GB
Ign http://mirrordirector.raspbian.org jessie/rpi Translation-en
100% [3 Packages xz 0 B]
```

Now type in this command to install the utilities needed for joysticks and USB control.

```
sudo apt-get -y install libusb-dev joystick python-pygame
```

This will take care of the downloading and setup for you.

```
Ign http://mirrordirector.raspbian.org jessie/contrib Translation-en
Ign http://mirrordirector.raspbian.org jessie/main Translation-en_GB
Ign http://mirrordirector.raspbian.org jessie/main Translation-en
Ign http://mirrordirector.raspbian.org jessie/non-free Translation-en_GB
Ign http://mirrordirector.raspbian.org jessie/non-free Translation-en
Ign http://mirrordirector.raspbian.org jessie/rpi Translation-en_GB
Ign http://mirrordirector.raspbian.org jessie/rpi Translation-en
Fetched 9,330 kB in 49s (188 kB/s)
Reading package lists... Done
pi@raspberrypi:~ $ sudo apt-get -y install libusb-dev joystick python-pygame
Reading package lists... Done
Building dependency tree
Reading state information... Done
python-pygame is already the newest version.
The following extra packages will be installed:
  evemu-tools evtest inputattach libevemu1
The following NEW packages will be installed:
  evemu-tools evtest inputattach joystick libevemu1 libusb-dev
0 upgraded, 6 newly installed, 0 to remove and 21 not upgraded.
Need to get 164 kB of archives.
After this operation, 453 kB of additional disk space will be used.
Get:1 http://mirrordirector.raspbian.org/raspbian/ jessie/main libevemu1 armhf 1
.2.0-2 [28.4 kB]
0% [1 libevemu1 0 B/28.4 kB 0%] [Waiting for headers]
```

Next run these three commands to download and build the SixPair program.

```
cd ~
wget http://www.pabr.org/sixlinux/sixpair.c
gcc -o sixpair sixpair.c -lusb
```

This will be nice and quick.

```
Unpacking joystick (1:1.4.7-2) ...
Processing triggers for man-db (2.7.0.2-5) ...
Setting up libevemu1:armhf (1.2.0-2) ...
Setting up evemu-tools (1.2.0-2) ...
Setting up libusb-dev (2:0.1.12-25) ...
Setting up evtest (1:1.32-1) ...
Setting up inputattach (1:1.4.7-2) ...
Setting up joystick (1:1.4.7-2) ...
Processing triggers for libc-bin (2.19-18+deb8u7) ...
pi@raspberrypi:~ $ cd ~
pi@raspberrypi:~ $ wget http://www.pabr.org/sixlinux/sixpair.c
--2017-02-27 12:37:06--  http://www.pabr.org/sixlinux/sixpair.c
Resolving www.pabr.org (www.pabr.org)... 62.210.16.61
Connecting to www.pabr.org (www.pabr.org)|62.210.16.61|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 4022 (3.9K) [text/x-csrc]
Saving to: 'sixpair.c'

sixpair.c           100%[=====================>]   3.93K   --.-KB/s    in 0s

2017-02-27 12:37:06 (22.7 MB/s) - 'sixpair.c' saved [4022/4022]

pi@raspberrypi:~ $ gcc -o sixpair sixpair.c -lusb
pi@raspberrypi:~ $
```

Step 3 - Setup the PS3 controller

Restart you Raspberry Pi Zero WiFi to make sure everything is ready.
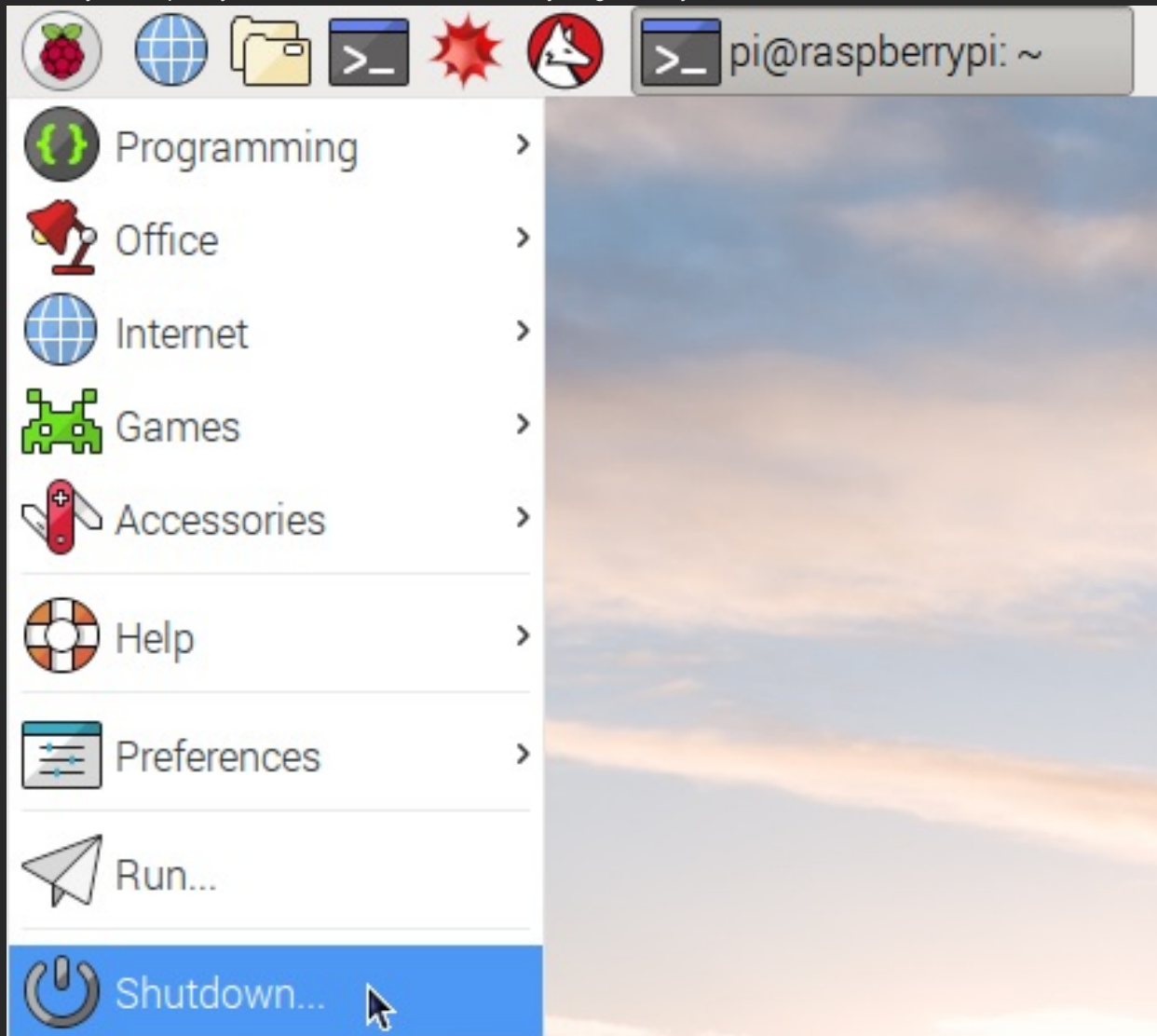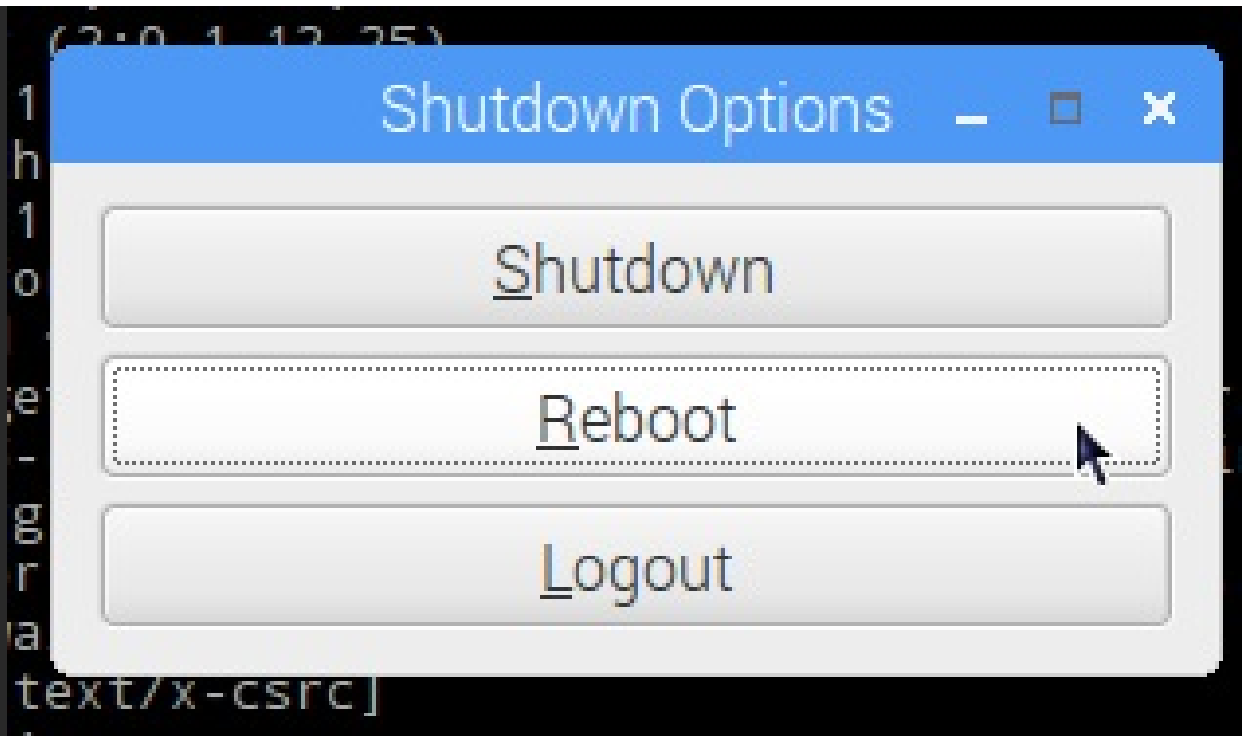
Once the Pi Zero W has restarted open the terminal again and run the command:

```
sudo ~/sixpair
```

If everything worked you should see something like this:

Step 4 - Enable discovery

To connect our PS3 controller we need to make the Pi Zero WiFi visible. Click on the Bluetooth icon on the right of the taskbar and select "Make Discoverable".
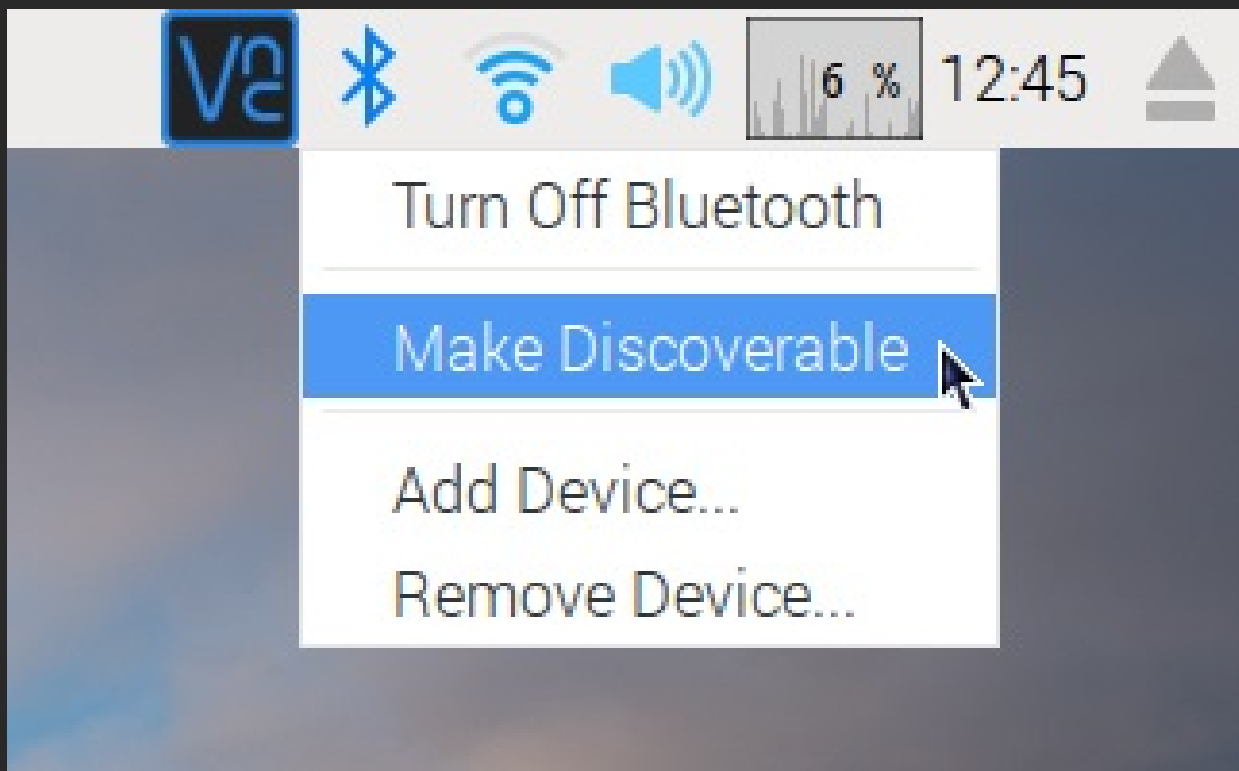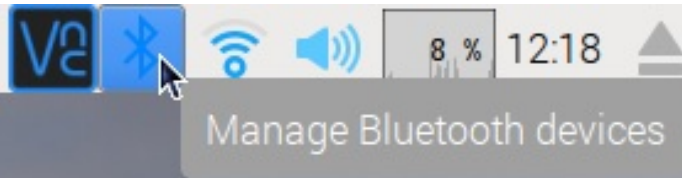
Now the Pi Zero is ready press the PS button on the PS3 controller. The LEDs on the controller should start flashing.

Step 5 - Pairing the controller

This is the tricky part and might take a few attempts.

First click on the Bluetooth icon again and select "Add Device".
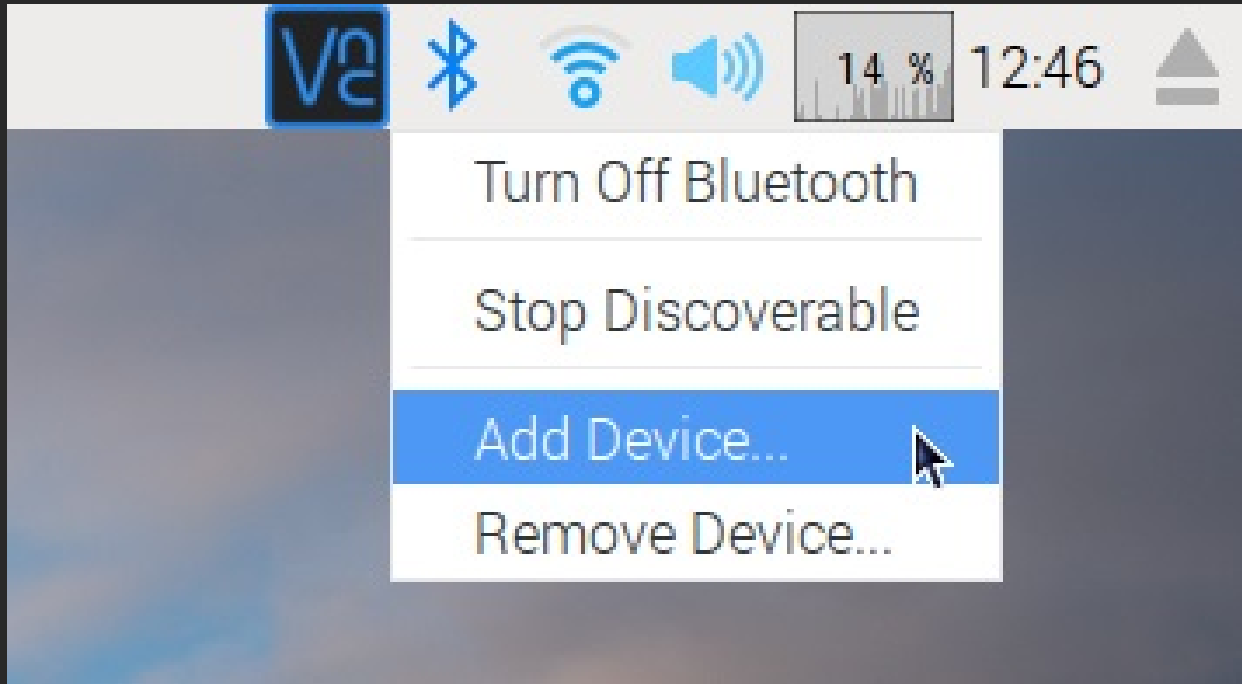
You should get a new screen up, we are looking for a line with an icon that looks like an old gamepad like this:
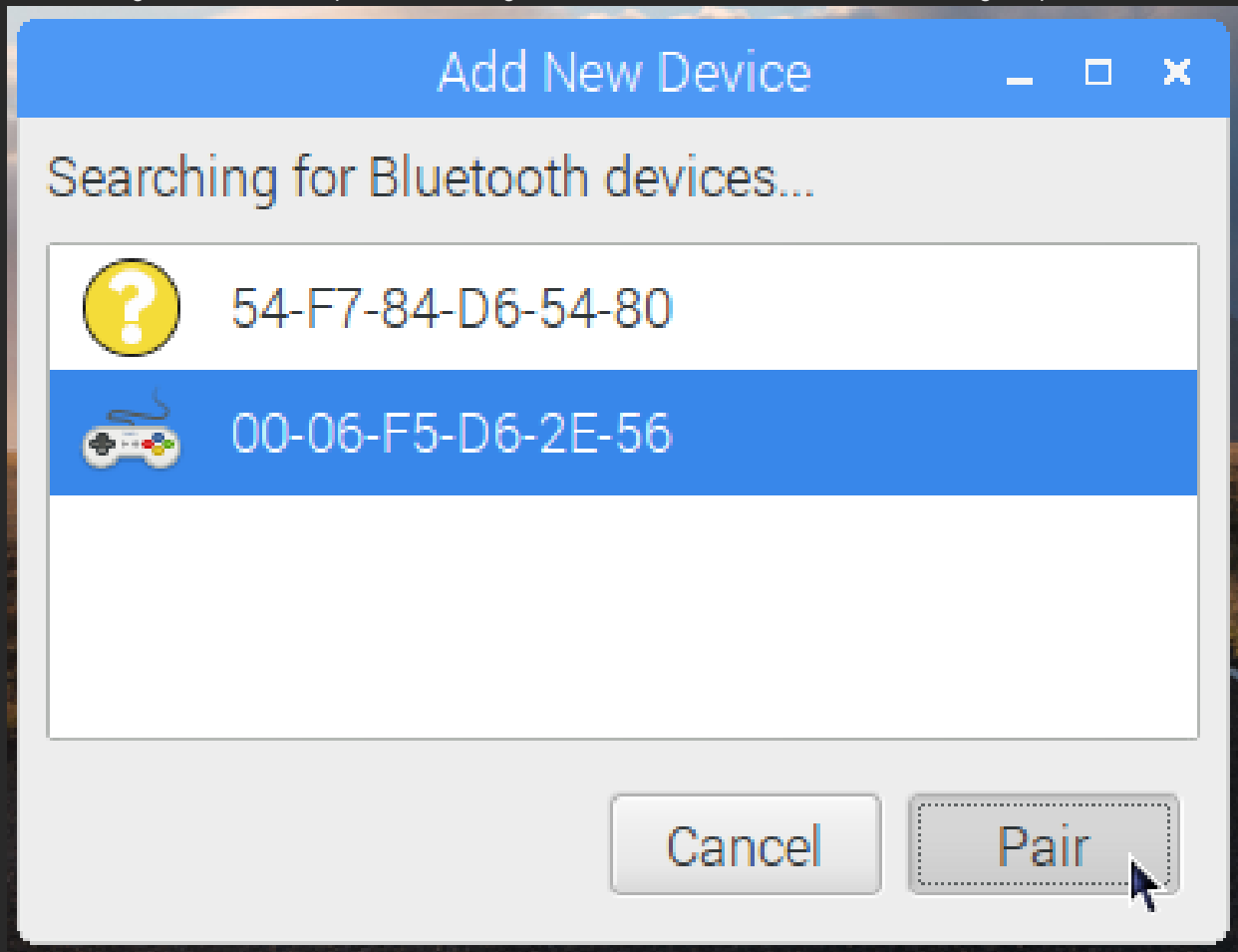
When it appears try to select it and then click the "Pair" button. This may take several attempts as the device will tend to appear and disappear on its own!

If the icon stops coming up check the PS3 remote. If the LEDs have stopped flashing you need to press the PS3 button again.

If you get an error simply ignore it and try again, it may take a few goes before things work. If you get a PIN code dialog:
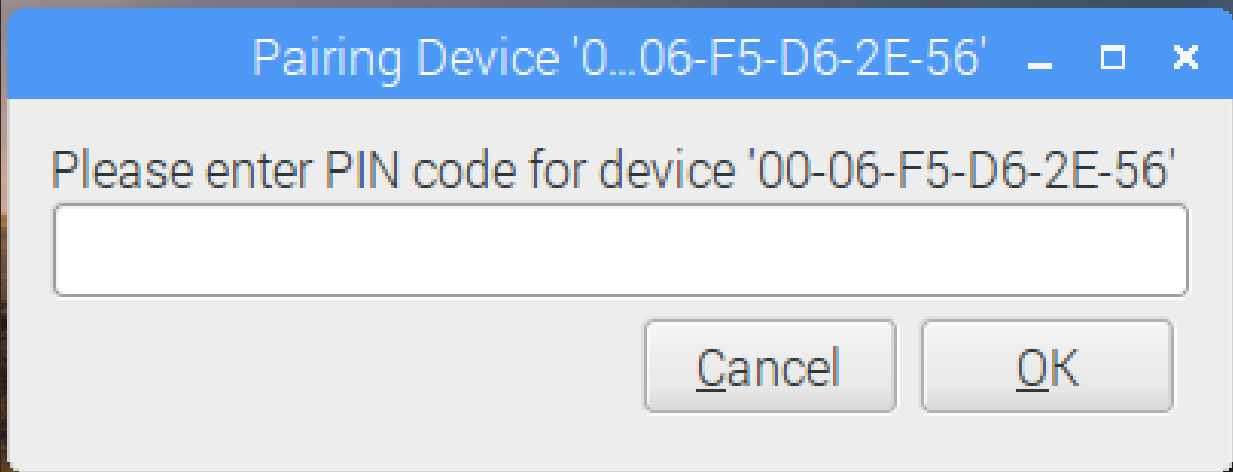
just press Ok and try again.

After a few tries you should see the pairing dialog:
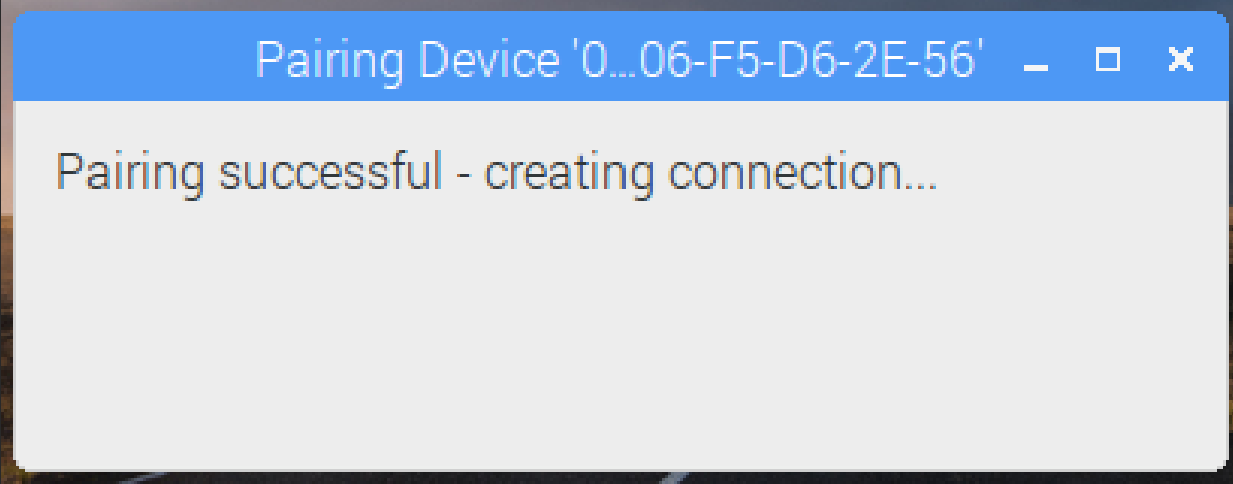
When it disappears click on the Bluetooth icon again and see if you have a new device listed with a green tick. If you do everything is ready.
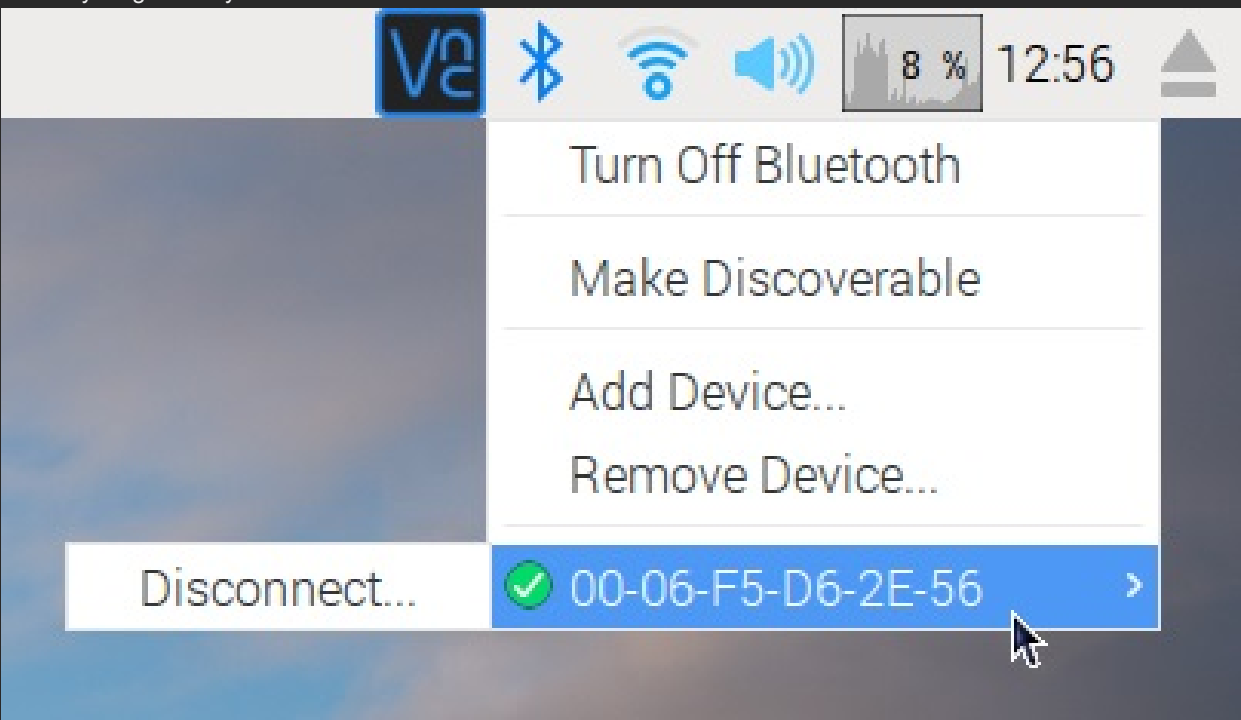
At this stage the PS3 controller should be showing a single LED constantly:

Step 6 - Check the connection

First restart your Raspberry Pi and confirm the LEDs go off on the PS3 controller.

When the Raspberry Pi has restarted press the PS button and check you get the single LED again:

Open the terminal again and make it nice and large this time. Enter this command to check the PS3 controller is working correctly:

```
jstest /dev/input/js0
```
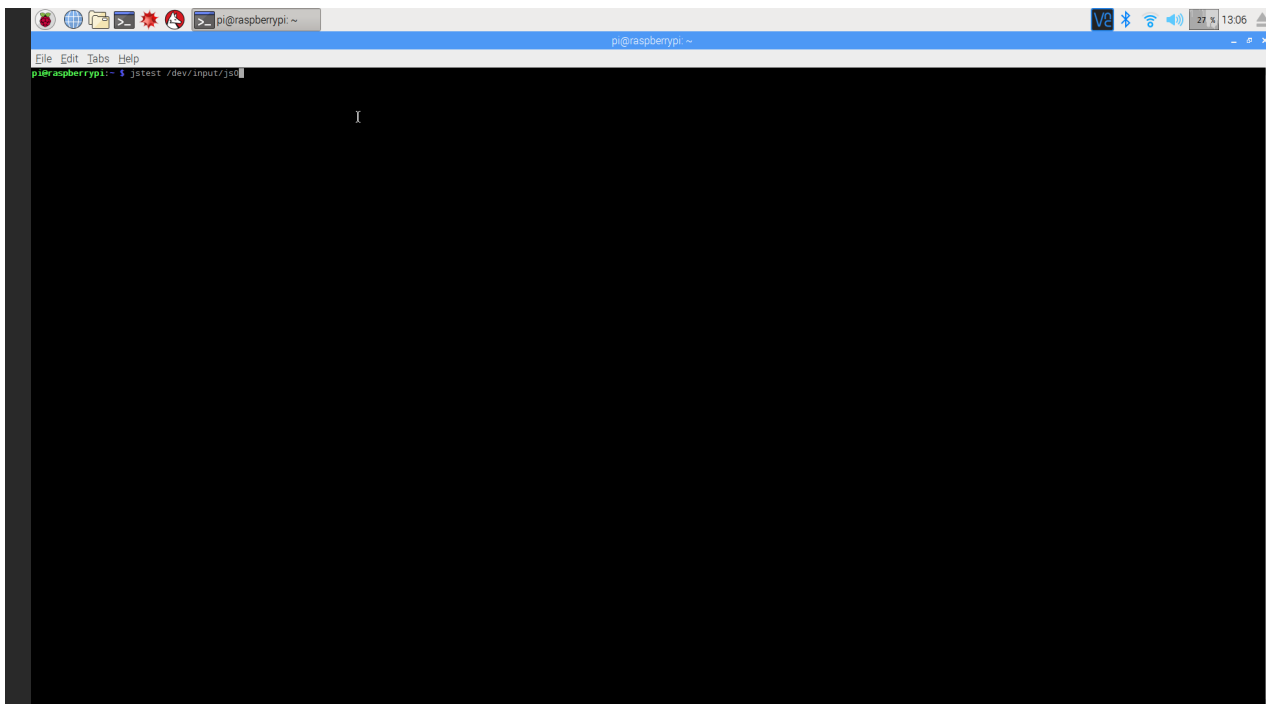
When the command starts the screen will fill up very quickly with lots of numbers. Rotate the left stick on the PS3 controller and the first two columns should change as the position of the left stick changes.

File Edit Tabs Help

```
Axes: 0:-32767  1:     0  2:     0  3:     0  4:-32767  5:-32767  6:-32767  7:-32767
Axes: 0:-32767  1:     0  2:     0  3:     0  4:-32767  5:-32767  6:-32767  7:-32767
Axes: 0:-32767  1:-23648  2:     0  3:     0  4:-32767  5:-32767  6:-32767  7:-32767
Axes: 0:-32767  1:-23648  2:     0  3:     0  4:-32767  5:-32767  6:-32767  7:-32767
Axes: 0: -2027  1:-23648  2:     0  3:     0  4:-32767  5:-32767  6:-32767  7:-32767
Axes: 0: -2027  1:-32767  2:     0  3:     0  4:-32767  5:-32767  6:-32767  7:-32767
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Axes: 0:-32767  1: 22971  2:     0  3:     0  4:-32767  5:-32767  6:-32767  7:-32767
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Axes: 0: 32767  1:     0  2:     0  3:     0  4:-32767  5:-32767  6:-32767  7:-32767
Axes: 0: 32767  1:     0  2:     0  3:     0  4:-32767  5:-32767  6:-32767  7:-32767
Axes: 0: 32767  1: 24322  2:     0  3:     0  4:-32767  5:-32767  6:-32767  7:-32767
Axes: 0: 32767  1: 24322  2:     0  3:     0  4:-32767  5:-32767  6:-32767  7:-32767
Axes: 0: 32767  1: 24322  2:     0  3:     0  4:-32767  5:-32767  6:-32767  7:-32767
Axes: 0: 27025  1: 24322  2:     0  3:     0  4:-32767  5:-32767  6:-32767  7:-32767
Axes: 0: 27025  1: 32767  2:     0  3:     0  4:-32767  5:-32767  6:-32767  7:-32767
```

Left stick values

Your PS3 controller is now ready to control you Raspberry Pi Zero WiFi based robot using the new built-in Bluetooth :D

Tags:

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