Instruction on building control units for portable 3D scanner

Parts:

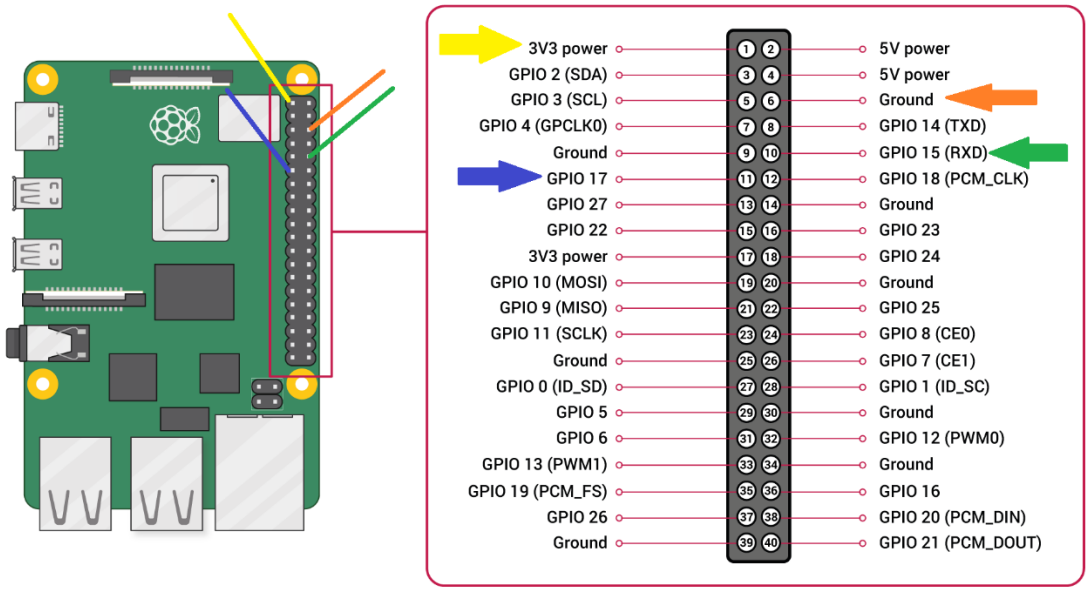
2 Raspberry Pi 4 Model B

1 crossover ethernet cable

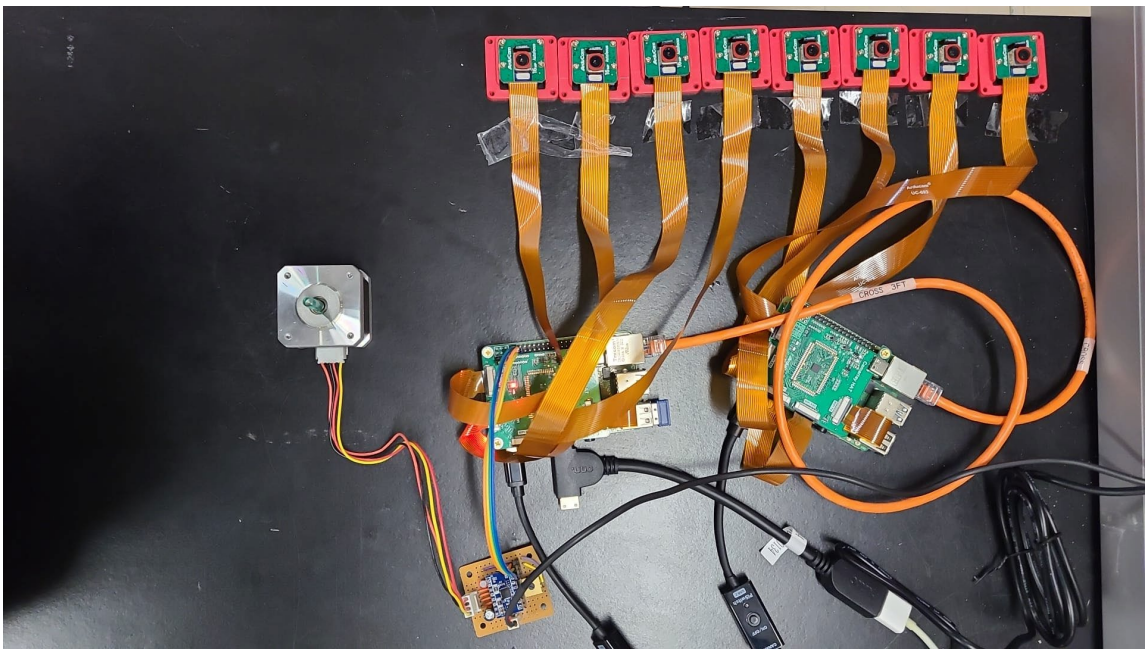
[Arducam 16MP Autofocus Quad-Camera Kit for Raspberry Pi, 16MP IMX519 Autofocus Synchronized Pi Camera]

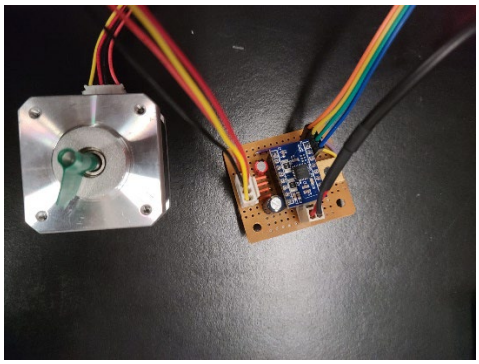
Stepper motor plus hat

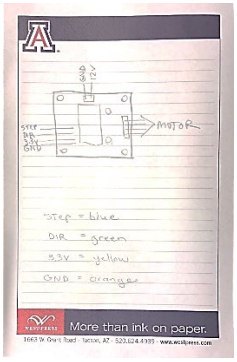
Step 1: Connect one Raspberry Pi (master/controller) to cameras and the stepper motor.

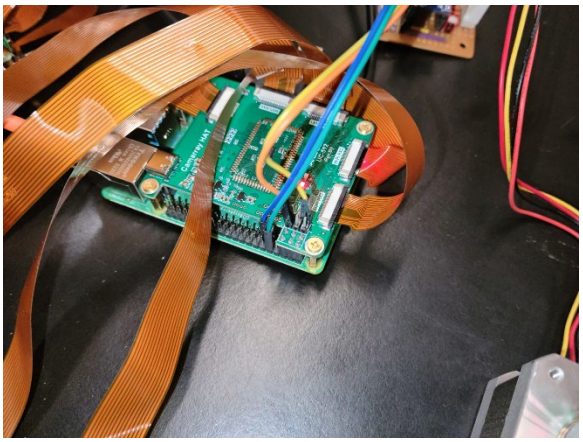


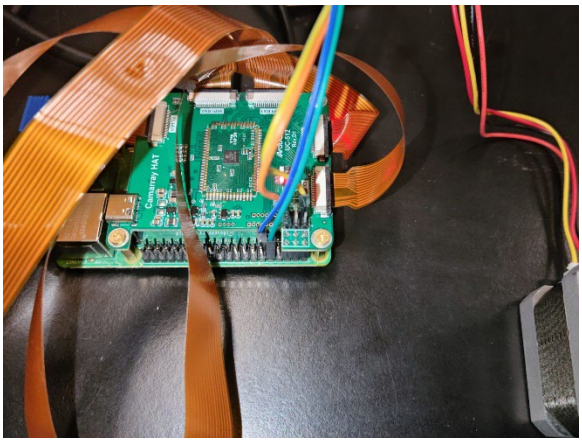
Raspberry Pi pins board connection diagram, 4 wires from the motor hat, color labeled.











Raspberry Pi camera and motor connection

Step 2: Connect the second Raspberry Pi to cameras and the first Raspberry Pi via crossover cable.

Configure each Pi to have a unique static IP within the same network.

sudo geany /etc/network/interfaces

For example, setup PiController (IP address: 192.168.1.5) (PiController)

setup Pi 01 (IP address: 192.168.1.6)

on PiController

auto eth0
iface eth0 inet static
address 192.168.1.5
netmask 255.255.255.0
gateway 192.168.1.6

on Pi 01

auto eth0
iface eth0 inet static
address 192.168.1.6
netmask 255.255.255.0
gateway 192.168.1.5

Step 3: Setup Bluetooth connection between a PC/laptop (Windows OS) and the Raspberry Pi (PiController) to enable wireless access to the Pi.

Login into PiController:

```
sudo nano /etc/systemd/system/dbus-org.bluez.service
```

Add a ' -C' compatibility flag at the end of the ExecStart= line, and add a new line to add the SP profile. The two lines should look like this:

```
ExecStart=/usr/lib/bluetooth/bluetoothd -C
ExecStartPost=/usr/bin/sdptool add SP
```

Save the file and reboot. Now enter this line in a terminal:

```
sudo rfcomm watch hci0 1 getty rfcomm0 115200 vt100 -a pi
```

(Remember to type in above command!)

Paring the Raspberry Pi to your laptop/PC.

On your Raspberry Pi:

1. Click Bluetooth ‣ Turn On Bluetooth (if it's off)
2. Click Bluetooth ‣ Make Discoverable
3. Click Bluetooth ‣ Add Device
4. Your phone will appear in the list, select it and click Pair

Login into your PC/laptop with Windows OS:

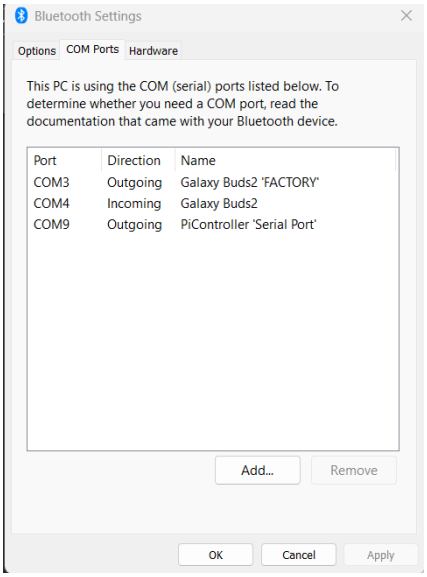
Download PuTTY terminal program and install it to your PC.

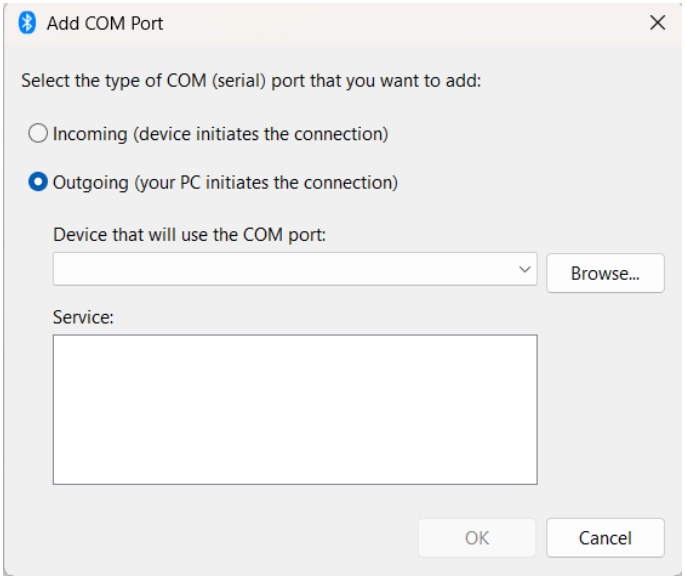
To associate a COM port with a Rasperry Pi/ Windows 10 Bluetooth pairing, we proceed as follows:

On your Windows 10 Desktop/ Laptop first enable the Bluetooth transceiver. Select **Start, Settings,** then **Devices**. At this point resist the intuitive temptation to **Add bluetooth or other device**. Instead, scroll down to 'Related settings', and select **Devices and printers**. Find your Desktop/ Laptop under 'Devices', right click it, then select **Bluetooth settings** from the pop up menu. This brings up the 'Bluetooth settings dialogue:

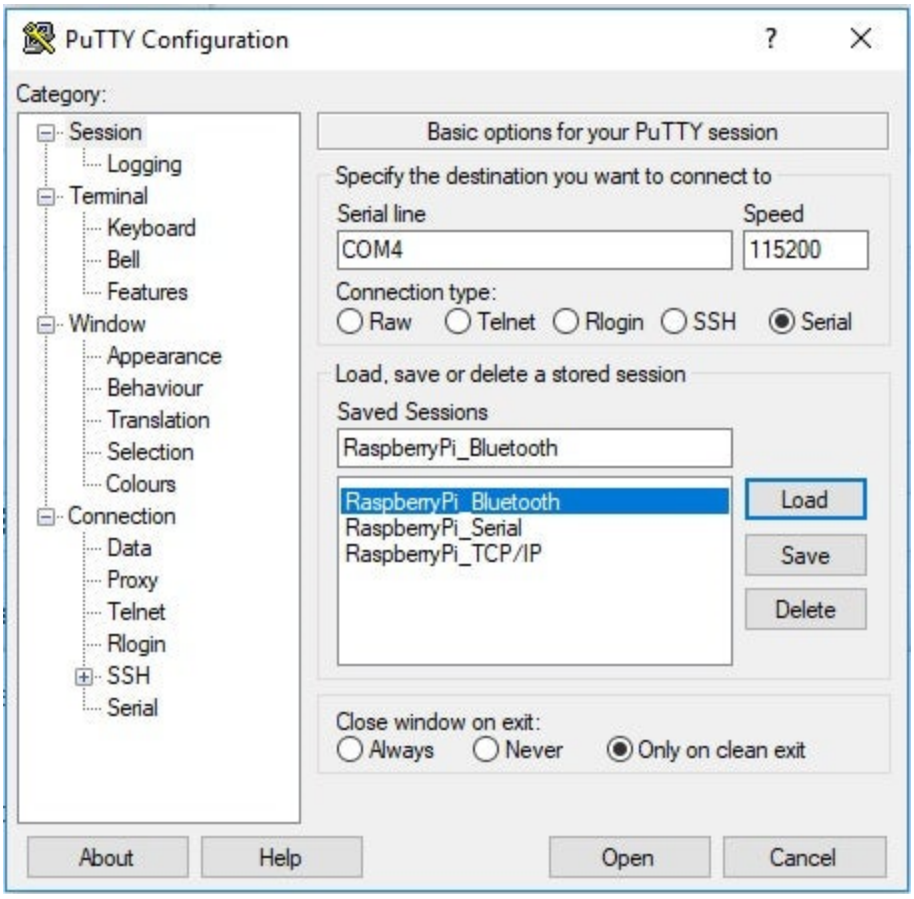
Select the **COM ports** tab, then select **Add...** to bring up the 'Add COM port' dialogue. Here we select the 'Outgoing' radio button, and then click on **Browse...** This will yield the 'Select Bluetooth Device' dialogue. All going well, you should see your Raspberry Pi listed as a discovered device. Select the Raspberry Pi device listed, and click **OK** twice. This should take

you back to the COM ports tabbed dialogue, and list a COM port that is now associated with the Windows 10/ Raspberry Pi pairing. Take note of which COM port has been assigned.

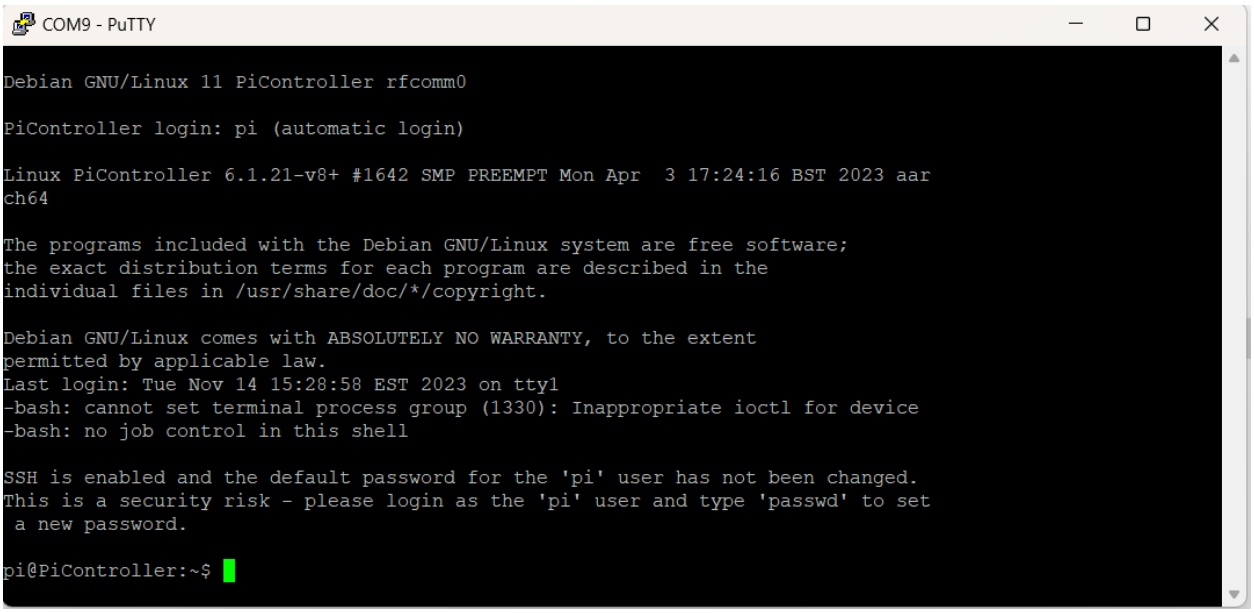




Login to Your Pi's Bluetooth Shell.



You should now be able to initiate a login session from your Windows 10 PC, using the numbered COM port previously noted, at a speed of 115200 bps.



Good Luck!

Reference: https://forums.raspberrypi.com//viewtopic.php?p=955425#p956581

https://www.instructables.com/Raspberry-Pi-Bluetooth-to-PuTTY-on-Windows-10/