“PISKYTRACKER” SET UP
AND
INSTALLATION GUIDE

Version 1.1

Sept 2013
1. Identify Components

Identify the components as follows:

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>(A)</strong> Raspberry Pi (RasPi) and Camera</td>
<td><strong>(B)</strong> USB 4-Port Hub</td>
</tr>
<tr>
<td><img src="image1.png" alt="Raspberry Pi" /></td>
<td><img src="image2.png" alt="USB 4-Port Hub" /></td>
</tr>
<tr>
<td><strong>(C)</strong> Receiver Dongle</td>
<td><strong>(D)</strong> Wireless LAN USB Dongle</td>
</tr>
<tr>
<td><img src="image3.png" alt="Receiver Dongle" /></td>
<td><img src="image4.png" alt="Wireless LAN USB Dongle" /></td>
</tr>
<tr>
<td><strong>(E)</strong> Antenna / Aerial</td>
<td><strong>(F)</strong> USB Hub Cable</td>
</tr>
<tr>
<td><img src="image5.png" alt="Antenna" /></td>
<td><img src="image6.png" alt="USB Hub Cable" /></td>
</tr>
<tr>
<td><strong>(H)</strong> USB HUB Power Supply</td>
<td><strong>(J)</strong> Memory Card</td>
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<tr>
<td><img src="image8.png" alt="Power Supply" /></td>
<td><img src="image9.png" alt="Memory Card" /></td>
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</table>
Camera Installation / Attachment

Disregard this section if your PiCamera is already attached.

If your tracker came with the camera separated from the RasPi, please follow this short guide. You may need to remove the RasPi from its case.

http://www.youtube.com/watch?feature=player_embedded&v=GImeVqHQzsE

The dedicated camera bus is the ribbon connector closest to the USB and Ethernet port. It’s a zero insertion force (ZIF) design; pull up the two side clips to release the retaining bracket.

You need to place the ribbon with the conducting edge-connection pointing away from the USB port – the blue tape at the end is on the same side as the USB port. Hold the ribbon square in place and push the clips down to fix the ribbon in position.
Using PiTracker with a Wired Network Connection

It is somewhat easier to get things going with a Wired Network connection – and in any case, some people do not like having Wireless Networks in their house. If you have a Model B Pi, you can therefore connect the RasPi to your router or switch with an RJ45 cable.

Connect the RasPi to a free port on your Router or Switch.
2. Using PiTracker with a Wireless Connection - Prepare The Memory Card

If you are NOT using a wireless connection, but are using a direct connection to your router, using a cable, please skip to Section 3 - Assembling the Kit.

NOTE: If your computer was made before about 2006 or 2007, then it may not be able to read the Memory Card Used in RasPi and you will need to obtain a USB Memory Card Reader compatible with SDHC Memory Cards.

1) Take the Memory Card (J) and insert it into your PC’s card reader slot, or external card reader.

2) Open Windows Explorer or the Macintosh Equivalent and locate the icon/disk for the card – which should be denoted by a letter in the range D: - Z:
3) Double-click on the icon for the memory card drive/reader (which should show the name “PISKYTRACK”) next to it.

4) Look for a file on the card called “network” or “network.txt”.

5) Double-click on this to open it (it is a text file with some settings in it)

6) You should see a display similar to the one shown below.

7) To allow the RasPi to connect to your Wireless LAN, you must tell it
   (a) Your **Wireless LAN Name**
   (b) your **Wireless LAN Password**
Enter your **WLAN name** after “wpa-ssid” and replace the text shown there. Enter your **WLAN Password** after “wpa-psk” and replace the text shown there. Example: If your wireless LAN is called **HomeNetwork123** and your WLAN password is **ABC123**, the lines should appear as follows.

**PLEASE NOTE WIRELESS NETWORK NAMES AND PASSWORD ARE CASE-SENSITIVE**

![Network Configuration Example](image-url)

8) Select “File / Save” from the menu and then reload the file to check the changes have been saved (repeat step 7 if necessary).
3. Assembling the Kit

9) Remove the memory card from your computer and turn it upside down. Insert it into the RasPi as shown.

10) Turn the RasPi the right way up and insert the USB Hub Cable (F) into the RasPi’s USB Port.

11) Plug the other end of the USB Hub Cable (F) into the USB Hub itself.
12) Take the Wireless LAN dongle (D) and plug it into the USB Hub

13) Take the Receiver Dongle (C) and plug the Antenna (E) into it

14) Take the Receiver USB Dongle (C) and plug it into the USB Hub
15) Take the Antenna (E) and put some blu-tack on the base (this base cover may come off, but don’t worry if it does, you can still stick blu-tack onto it.

16) For best reception of the signal, it’s best to have the antenna high on shelf or bookcase – ideally in an upstairs room if possible. You will need to set this up carefully, due to the other dangling cables that connect the kit together.
17) Insert the thin, small end of the USB power cable (G) into the power connector of the RasPi, near the memory card slot. (Connector’s appearance may differ slightly from that shown in the photo.

18) Insert the other end of the USB Power Cable (G) into an empty port on the USB Hub.

19) Insert the round plug connector of the USB Hub Power Supply (H) into the USB Hub

**DO NOT PLUG IN THE POWER SUPPLY JUST YET**

*Assembled Kit*
The speakers are optional, as is the white connector cable coming out of the RasPi (this is an HDMI connector which you can connect to an HDMI TV).

**Camera Mount**

You can attach the "leg" to the camera mount, if one was supplied, so that the camera points at the required angle. The top slots may work best. Don’t be afraid to blu-tack the camera in an appropriate position. You can use your web browser to look at photos taken (see below).
Starting the Kit Up

You could move the kit to where you want to use it, or you can try it out first, wherever you have set it up.

1) Insert speakers or earphones/headphones into the 3.5mm plug on the RasPi

2) Plug the USB Power Supply into the mains.

3) LEDs inside the RasPi should now light up. You should see a steady RED LED and a flashing YELLOW LED. You will see a green LED and possibly another LED

4) Listen for “announcements” from the RasPi. If all is well, you should hear “**Wireless LAN is Connected**” or “**Wired Network is Connected**” and then “**My I-P Address is....**” and then some numbers. These numbers should be repeated several times and if possible, make a note of these numbers. They should be something like **192.168.1.7**. If it announces Zero, make sure you use the digit 0 and not the letter ‘o’ or ‘O’. (You may see additional LEDs flash either in the RasPi or on the Wireless LAN Dongle.)
5) Note, the RasPi will read these numbers out as “one hundred ninety two dot one hundred, sixty-eight dot 1 dot 7”, so you may have to listen 2 or 3 times to write or note them down correctly.

If no numbers are heard

6) If you do not hear any numbers read out, wait about 1 or 2 minutes until the yellow light stops flashing, then unplug the power supply.

7) Take out the memory card from your RasPi and go back through Section 2, “Preparing the memory card”, checking each step carefully.

8) Re-insert the card and try powering up the RasPi again.

4. Checking the PiSkytracker is Running

If numbers were heard being read out, then congratulations, your RasPi is running – now we need to check that it is, indeed tracking!

1) Go back to your computer and open a browser window.
2) In the browser address bar simply enter piskytracker (yes, simply this!) Google chrome will let you do this, but FireFox and Internet Explorer will try and turn it into a full .com URL etc

3) If all is well, you should see the following display – the PiSkytracker Home Page:
If you don’t see the PiSkytracker Home Page

If you do not see the home page, then

1) Get your note of the “192” numbers (the RasPi’s IP address) that you wrote down.
2) Go back to your browser address bar and enter these numbers as the browser address. E.g. on my network, I wrote down **192.168.0.12** so I entered these thus:

![Image of PiSkytracker Home Page]

If the page does not appear, or the browser gets “stuck” please go back through this guide and check again. Also check that the TV receiver dongle is correctly inserted.

If you get the page, but no current plane tracking information is shown, check that you have the antenna/aerial suitably placed. (It’s just possible there are no planes currently in range, in which case leave things running for a couple of hours.)

**Spoken Flight Announcements**

Another feature is that you can leave your speakers or earphones plugged in and listen for flight announcements – every 30 seconds or so, RasPi will announce any new flights that have come into range (a range which can be configured – as described later in these instructions.)
5. Configuration

It is possible that your Raspberry Pi may have come with all the configuration set, in which case, you can ignore this section. However, it may be useful to make yourself aware of some of the available options.