# Getting started with the Raspberry Pi and GrovePi

## Introduction

The Raspberry Pi 3 has built in WiFi, Bluetooth, Ethernet and is capable of running a number of different operating systems. Your micro SD card has been pre-loaded with Dexter Industries "Raspbian for Robots". The advantage of this is in addition to already having the software for the GrovePi board and sample code for working with various sensors is you can connect to your RPi out of the box without needing to ever connect a monitor or keyboard.

These instructions provide the basics for getting you started with discovering the RPi and GrovePi. Specifically the GrovePi enables you to connect any of the huge number of Grove sensors (http://wiki.seeedstudio.com/wiki/Grove_System). In the class I will be assigning patterns which will have you build projects that make use of these sensors, but a big part is going to be letting your creativity loose and exploring on your own. Have fun!

## Step 1 Assemble the RPi

Follow the instructions in the Vilros package for instructions for mounting the 2 heat sinks on the RPi. Please note the RPi with the GrovePi board on it will not fit with the top of the case on so you may want to leave the top of the case off for now.

## Step 2 Connect GrovePi board to RPi (http://www.dexterindustries.com/GrovePi/get-started-with-the-grovepi/)

First, mount your GrovePi (blue board) on the Raspberry Pi (green board). The GrovePi has a black plastic piece on the bottom, which fits perfectly with the metal pins sticking out of the Raspberry Pi. Slide the GrovePi board onto the pins on the Raspberry Pi as shown in the pictures below. The GrovePi fits both the Raspberry Pi A, B, B+, Raspberry Pi 2, Pi 3.

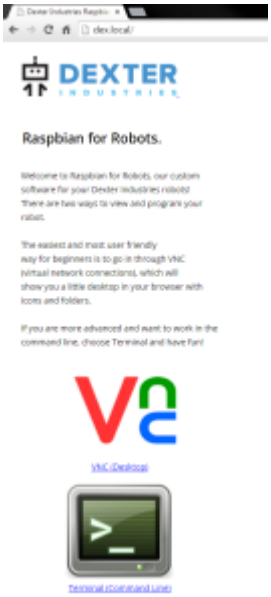
Ensure that the pins are properly aligned when stacking the GrovePi, and push down until they go in all the way.

## Step 3 Connect to your computer

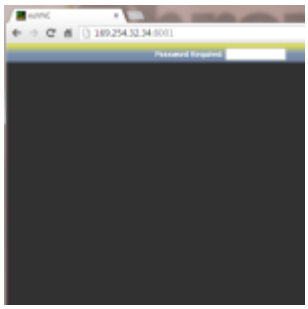
*(If you aren't using the image I distributed on the SD card refer to [http://www.dexterindustries.com/GrovePi/get-started-with-the-grovepi/](http://www.dexterindustries.com/GrovePi/get-started-with-the-grovepi/) "Setup the software" for adding the necessary software)*

1. The Raspian for Robots SD card comes configured with Bonjour, software which allows you to get the networking up and running with zero configuration.
   - If you are using Windows and don't have iTunes installed, download Bonjour from here (http://support.apple.com/kb/dl999) and install it.
   - If you are on a Mac or already have iTunes installed then you have everything you need, and just move on down to the Mac section below.

2. Insert the microSD card in the Raspberry Pi (green board) and make sure it is securely in place.
3. Make sure the GrovePi is connected securely to the Raspberry Pi.
4. Plug one end of the ethernet cable into the Raspberry Pi, and the other end into your computer. (note: if you don't have an ethernet port on your computer, use an ethernet to USB adapter) Turn your computer on and connect to your local wifi network so you are connected to the internet.
5. Plug the micro USB power adapter into the Raspberry Pi. Plug the other end into the wall, and that will turn on the GrovePi. You should see lights come on the Raspberry Pi and GrovePi.
6. Open a web browser on your computer and in the address bar, type "http://dex.local", and hit enter. Note: If you are using a touchscreen laptop, please use Firefox, as certain vital features will not work in other browsers.
7. It may take a minute for your computer to see the RPi that is connected, so just try for a few minutes until you see a welcome note.




8. Double click on the "VNC" icon.

9. Enter the password “robots1234” 
10. You should see the Dexter Industries desktop, where you will set up the wifi so you can program and control your GrovePi remotely.

Note you can also SSH to the RPi directly using the “pi” user and robots1234 password:

- `ssh pi@dex.local`
- `ssh pi@192.168.1.100` (or whatever your IP address is)

## Step 4 Update and test the GrovePi (http://www.dexterindustries.com/GrovePi/get-started-with-the-grovepi/)

Go to step 4 on the above link and test getting one of the LEDs to light