CS110 Introduction to Computing

Laboratory Exercise 1

Date:

The Scribbler

Today, you will get your Scribbler Robot Kit. Each kit contains the following items:

1. The Scribbler Robot
2. The Fluke Dongle
3. The Bluetooth Dongle (This is the USB key stuck on top of your robot)
4. A GamePad Controller
5. 6 AA batteries (already inserted in your robot)
6. 4 color permanent marker pens
7. A flashlight
8. A carrying case for your kit

Make sure that all of these parts are present in your kit. If anything is missing, or you are having trouble identifying something, please call your instructor to help you.

Step 1. Note the number on the Fluke: You Fluke dongle has a barcode with a number on it (a 6-digit number). You will need this number to create the connection to the computer. Write this number on your notebook. Also, using a Sharpie, write it down on the inside cover of your carry case, as well as on the underside of the robot itself, and on the Bluetooth dongle. This will also ensure that all your parts are accountable. In case they get misplaced, we will be able to trace them back to you. We will also note this number in our records. As an example, we will use the number: **17626**.

Step 2. Configure Bluetooth dongle: If your computer is already equipped with a built-in Bluetooth device (as in this example), locate the Bluetooth icon on the task bar (see below).

Figure 1: Locating the Bluetooth icon (second from left) on the task bar.

Next, click on it to get the following window:

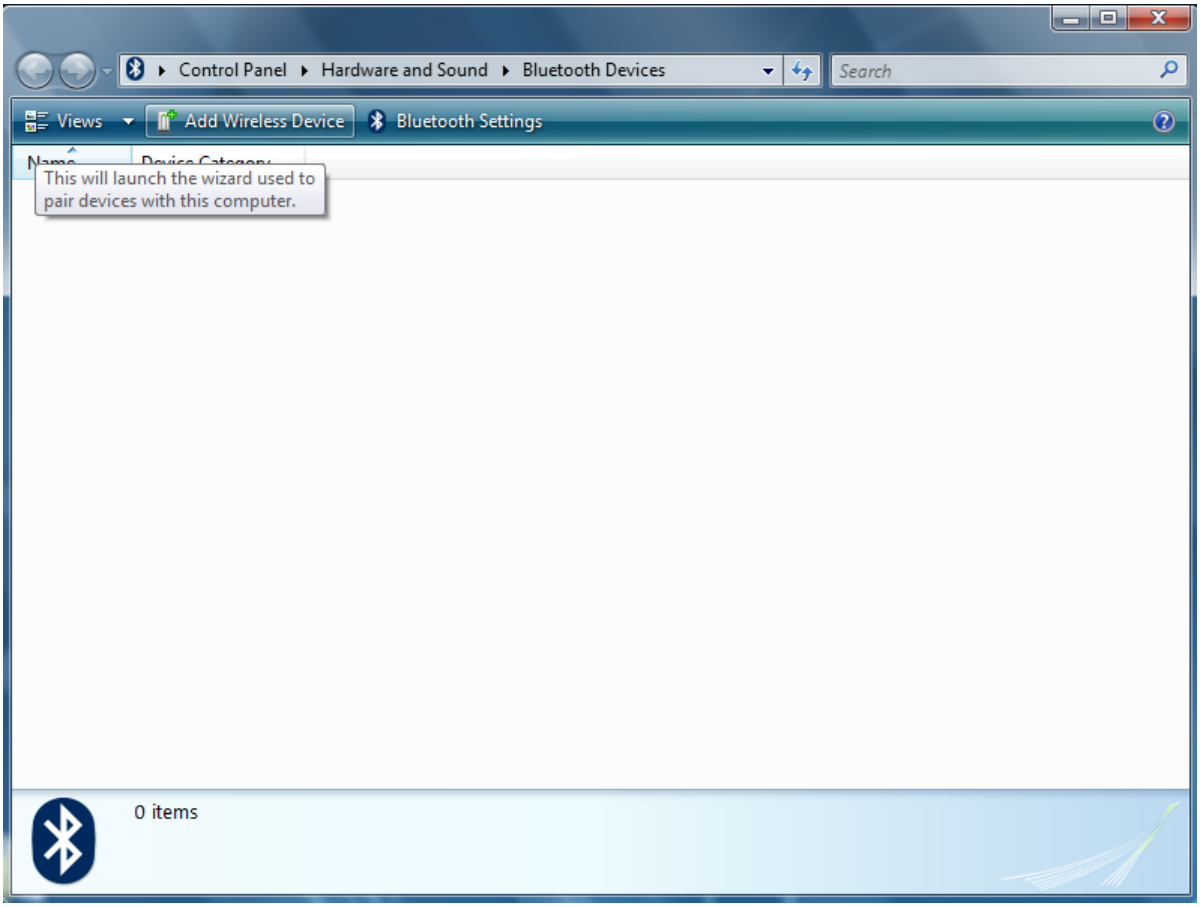

Figure 2: The Bluetooth Devices Control Panel.

As shown above, move your mouse over to the “Add Wireless Device” button and click on it. Now you are starting the process of adding your robot as a Bluetooth device to establish a wireless link (or pairing) with the computer. Another window will pop up as shown below:

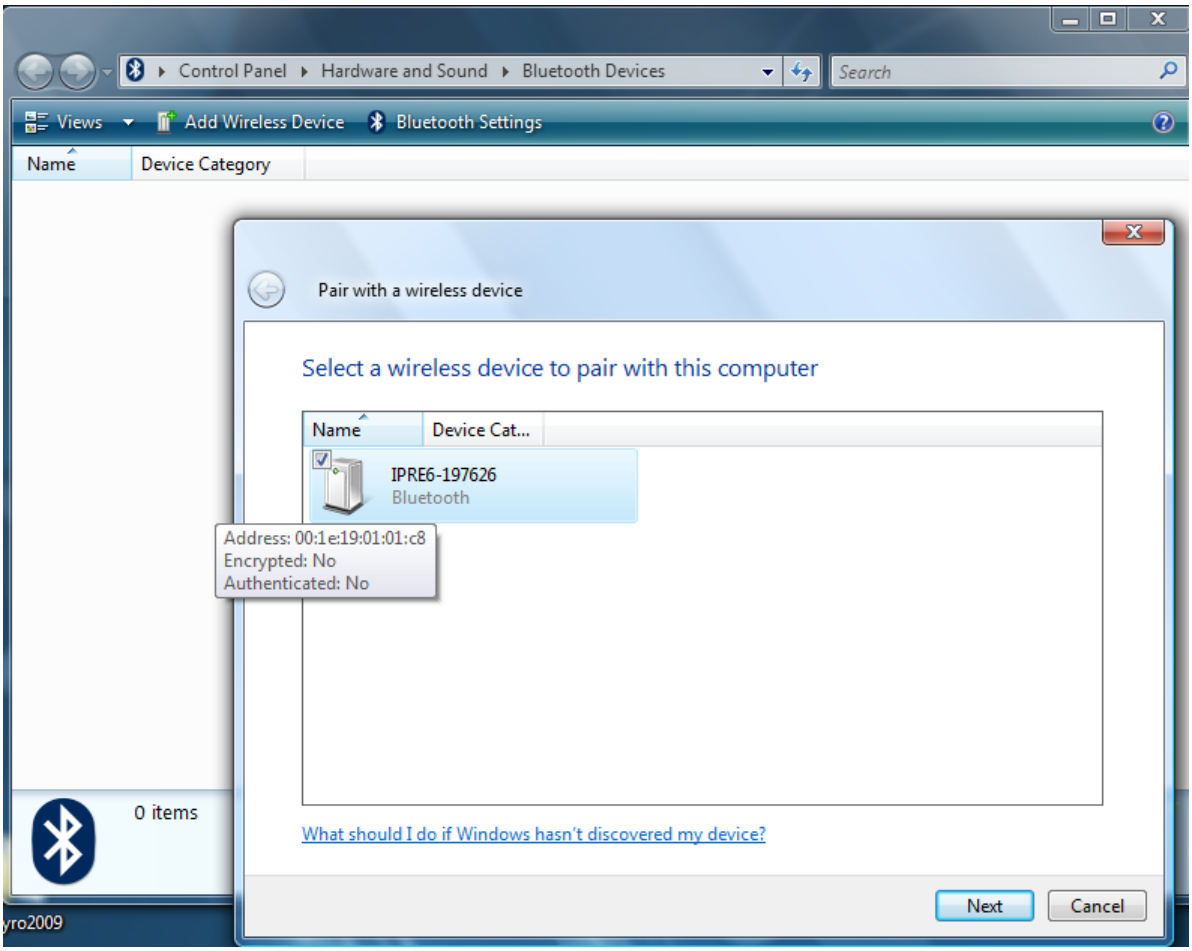

Figure 3: Select your robot (identifies as IPRE6-197626) for pairing.

Any other Bluetooth devices available will also be displayed above. For example, if you are in the lab with other students, you will also see their robots as well as other Bluetooth devices present (like cell phones and computers). Locate the Scribbler by the number of your robot (in this case IPRE6-197626) and select it in the window above. Then press the **Next** button.

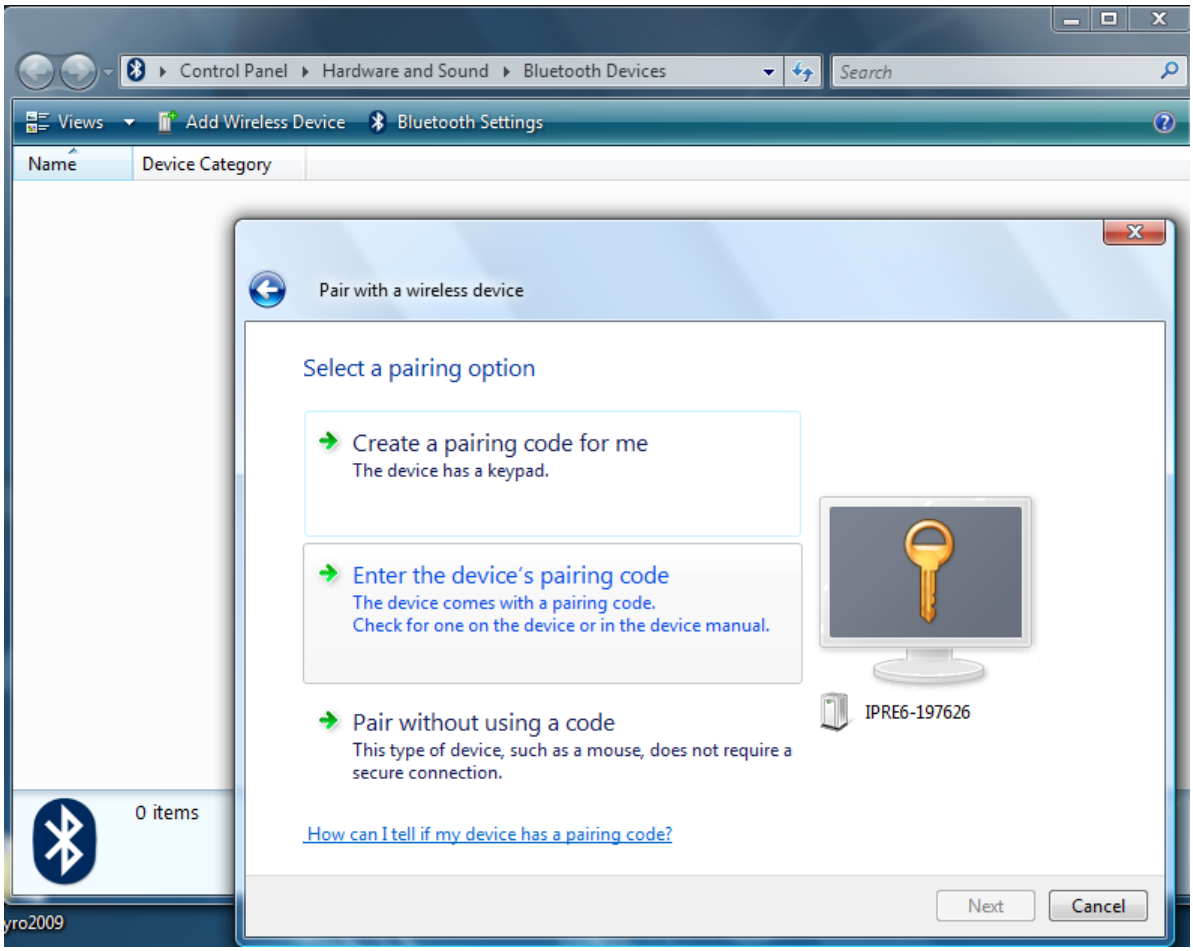

Figure 4: Select the second option as shown to enter a pairing code (1234).

We have selected a pre-assigned pairing code: 1234. Enter the pairing code in the window that pops up and hit the “Next” button. The wizard will locate your device, establish a connection, configure it appropriately for communication between the computer and the robot, and assign it a port number. Port numbers always begin with the letters: COM followed by a number. The COM port number is displayed at the bottom of the screen as shown below:

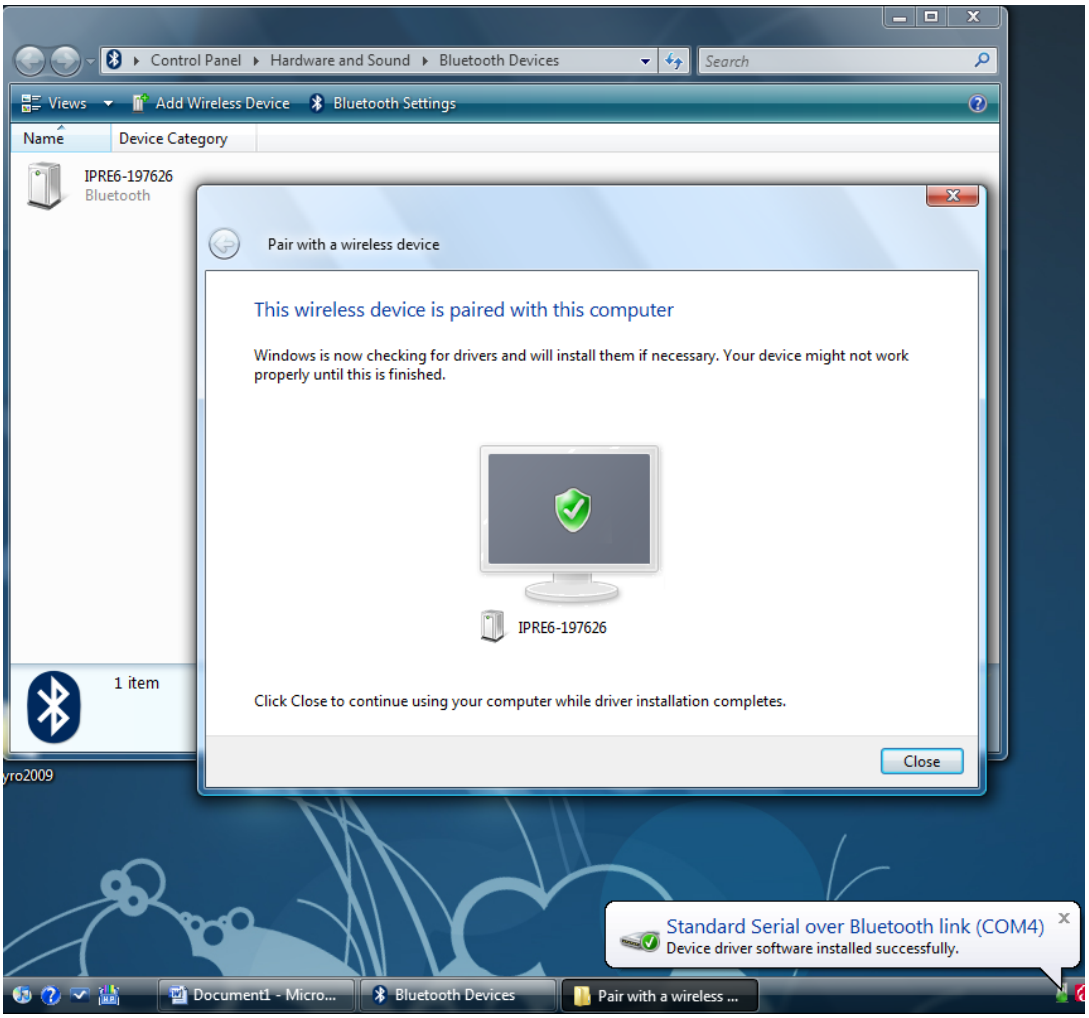

Figure 5: Displaying the COM port information (COM4) after a successful connection is established.

Now that you have established a connection between the robot and the computer, you can start Myro and establish a connection between Myro/Python and the computer. You will need the COM port number you obtained. Start Myro (by double-clicking on the Start Python icon), import the myro library, and use the init command as shown below:

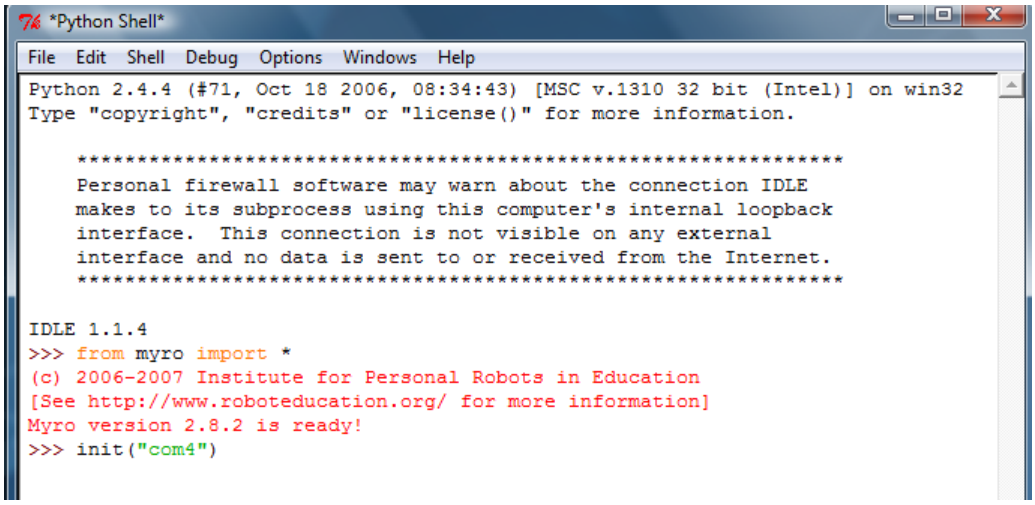

Figure 6: First import myro library and then issue the init command.

Next, you will get the following bubble pop up at the bottom of your screen:

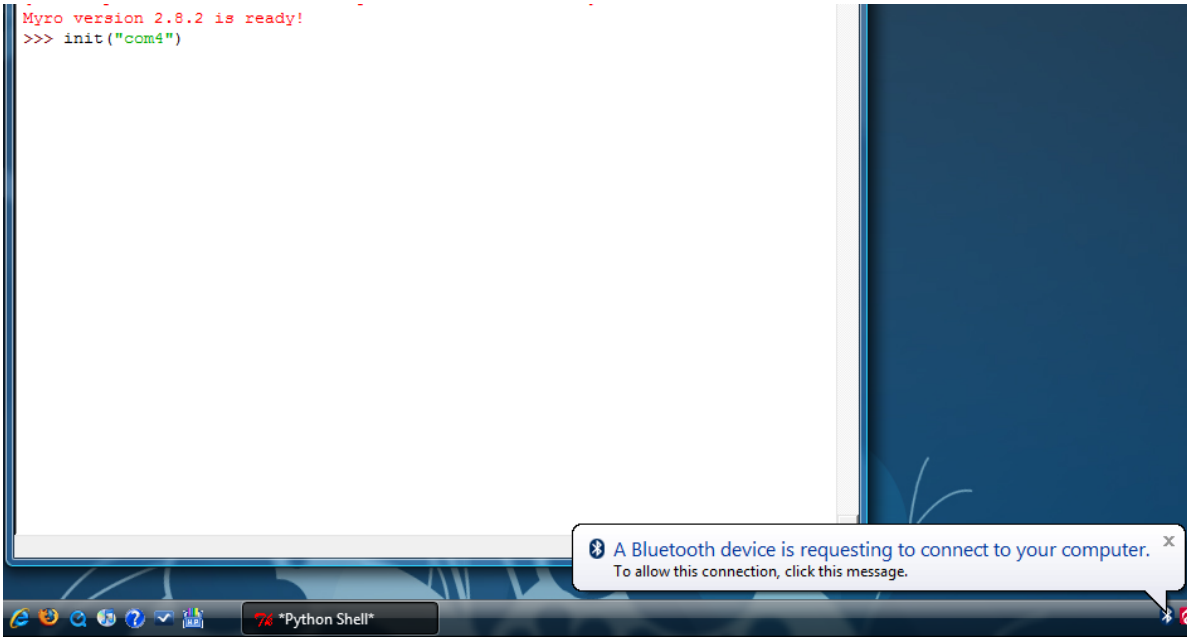

Figure 7: A Bluetooth device is requesting to connect...

Click on the message shown above. You need to enter the passkey/pairing code (1234) to confirm the connection between Python/Myro and the robot. This is done in the window that will pop up when you click your mouse in the bubble message shown above.

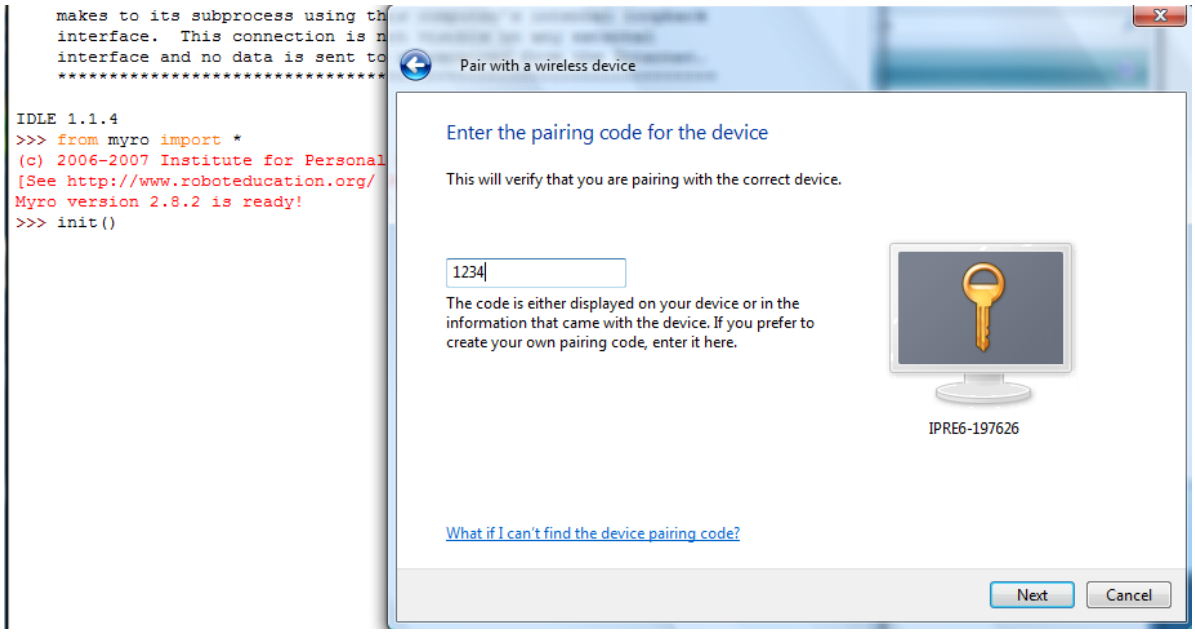

Figure 8: Entering the pairing code/passkey (1234).

Notice that as soon as you enter the passkey and press the "Next" button, you get a response from the robot in the Python window. You can click "Close" on the passkey window (see below).

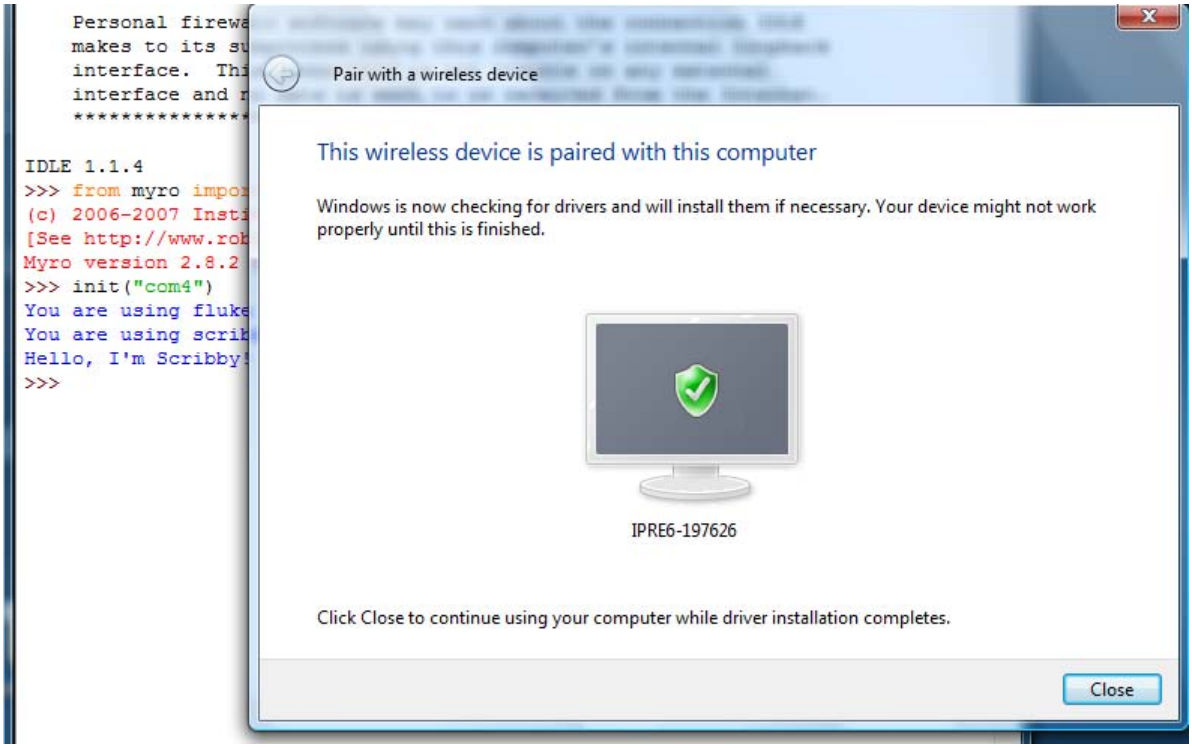

Figure 9: Done establishing the connection.

Step 3. Give your robot a name, and then use the gamepad() operation to control the movements of your robot. Do Exercises 7, 8 & 9 from Chapter 1 (The World of Robots) from your text. Remember that the markers supplied to you are permanent markers. Always ensure that when using permanent markers, you are using them on a sheet of paper (the lab will have ample supplies).

In the future: Each time you insert your Bluetooth dongle into a computer, you will go through the above configuration steps to obtain the COM port number that you will use to establish a connection with the robot. Make sure you save this handout in your carrying case for future use. If you connect the same robot to the same computer, all you have to do is turn both ON, pull up the Bluetooth dialog, select the robot (as shown below), right click and pop up the Properties window. Select the "Services" tab to see what COM port is being used (See below).

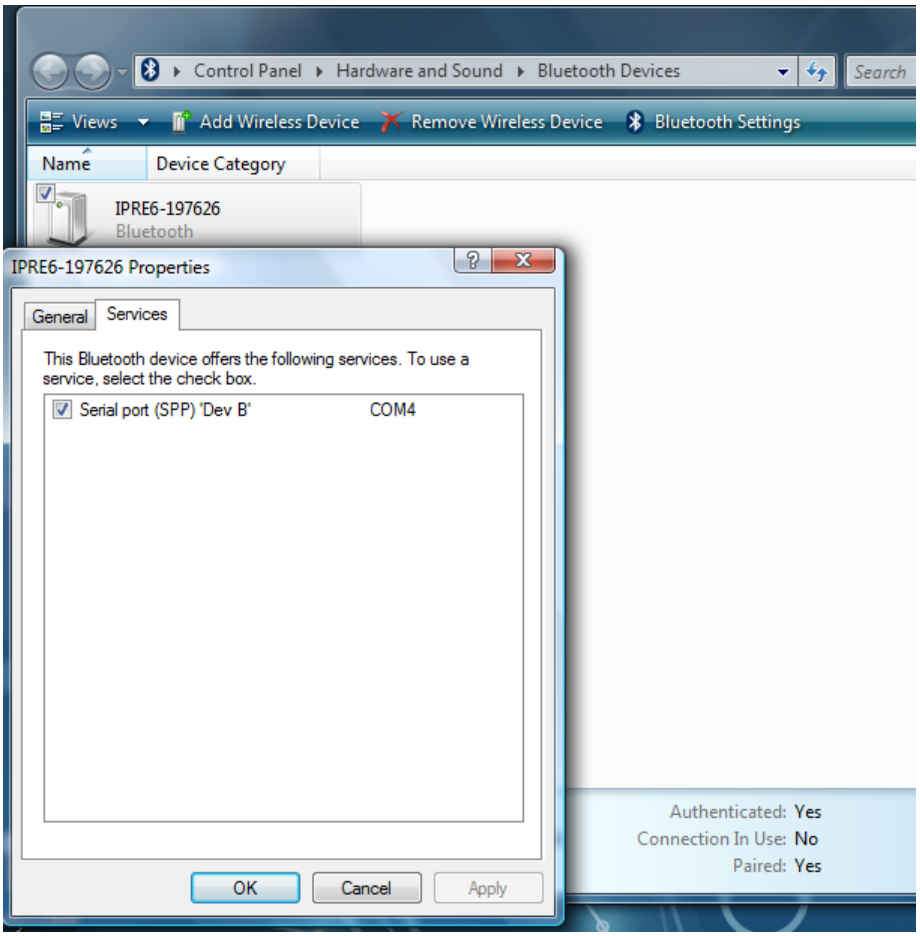

Figure 10: To check the COM port number, select the device and look at its Properties.