Installation and Setup Guide

for
Eclipse, iCommand and BlueCove

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Introduction

Eclipse

 "Eclipse is an open-source software framework written primarily in Java." In its default form it is an Integrated Development Environment (IDE) for Java developers, consisting of the Java Development Tools (JDT) and the Eclipse Compiler for Java (ECJ). Users can extend its capabilities by installing plug-ins written for the Eclipse software framework, such as development toolkits for other programming languages (Eclipse 2007). Also the Eclipse was chosen for this project because it is completely portable which means that you can use it on any machine you need to with out having the administrative rights.

iCommand

 iCommand is a Java API which is used to program or control the NXT brick over a Bluetooth connection. The advantage of using iCommand is that it can use the standard Lego NXT or leJOS firmware to receive commands from Java code from your computer (Windows, Linux, Macintosh or Windows Mobile). (Jose Solorzano)

BlueCove

 BlueCove is a Java library for Bluetooth (JSR-82 implementation) that currently interfaces with the Mac OS X, WIDCOMM, BlueSoleil and Microsoft Bluetooth stack found in Windows XP SP2 or Windows Vista and WIDCOMM and Microsoft Bluetooth stack on Windows Mobile.

Installation

To install the Eclipse IDE you need to do following:

1. Go to http://nxt.tiim.info/
2. Click onto the Download link.
3. Click onto the Eclipse link in a table, to start downloading.
4. Ones downloaded extract the file into Program Files directory on your PC
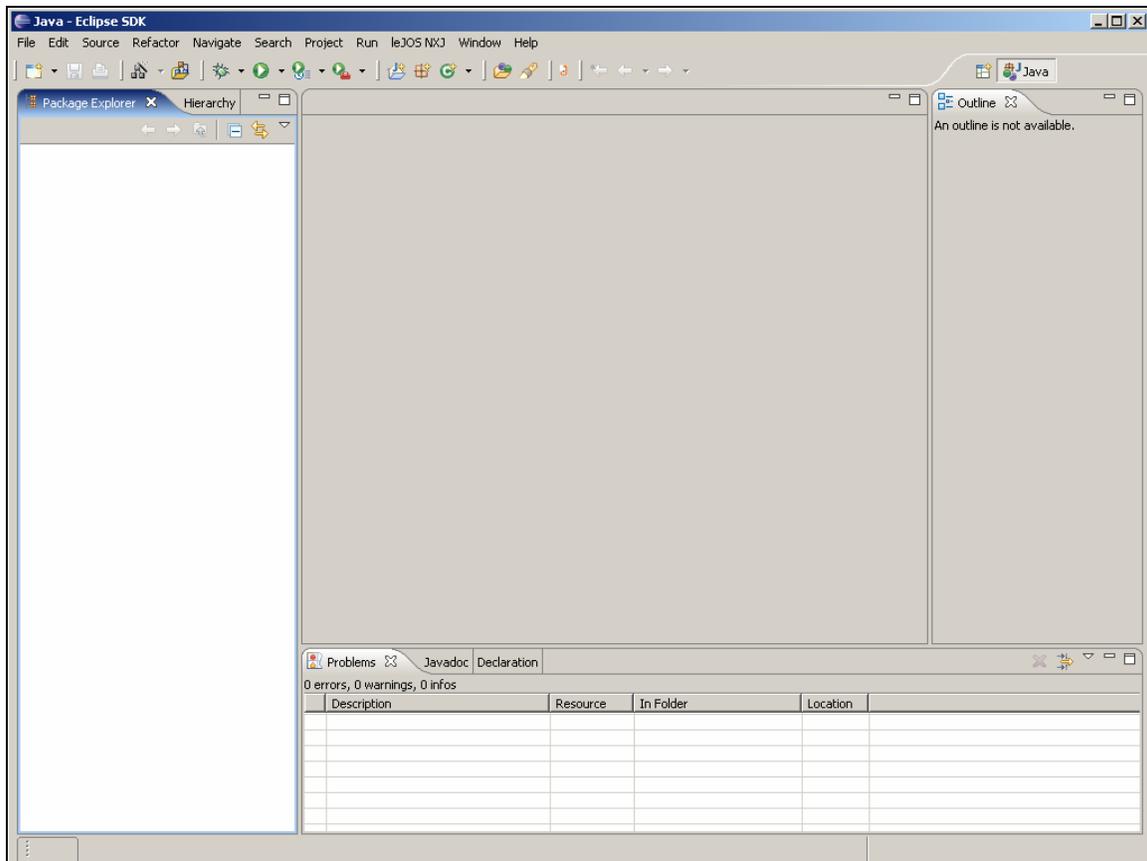5. That is it!

Figure 1: Eclipse IDE

iCommand

To install iCommand on to your PC you will need to do following:

1. Go to http://nxt.tiim.info/
2. Click onto the Download link.
3. Click onto the iCommand link in a table, to start downloading.
4. Ones downloaded extract the file into Program Files directory on your PC
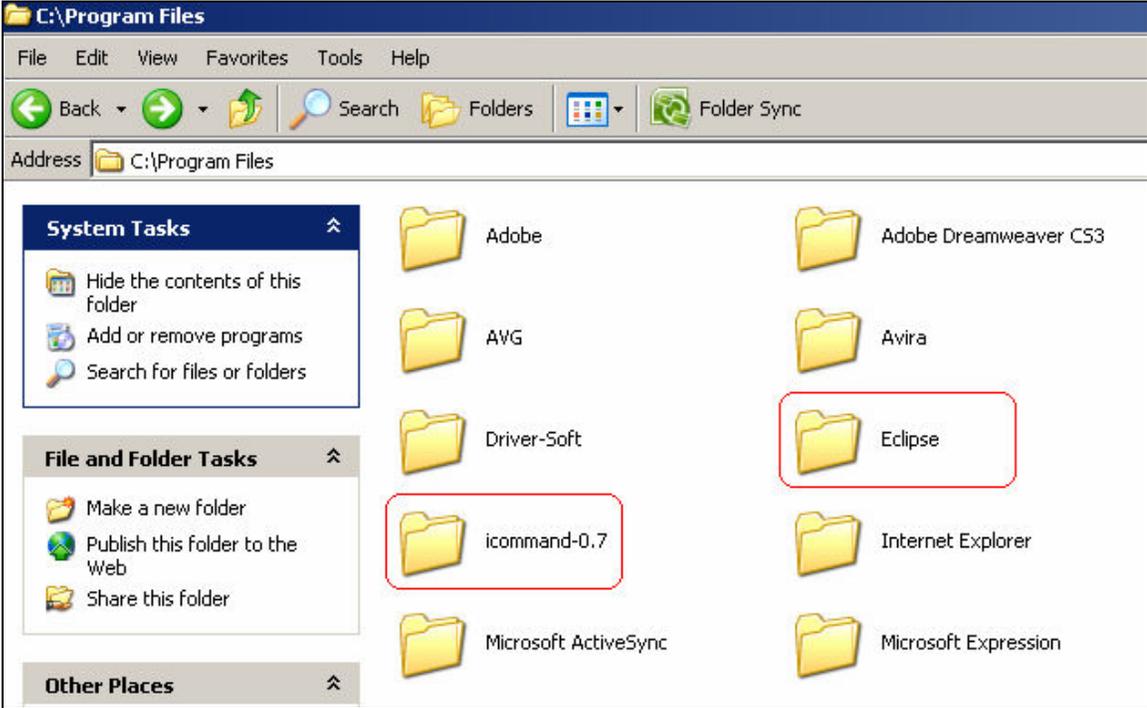5. If you did that correctly you will have something similar to the screen shot below in Figure 2.

Figure 2: Program Files

6. Ones that is done you will need to set the "classpath" in the "Environment Variables", and to do this you will need to do:

1. Right click onto "My Computer" icon and select "Properties" as shown in Figure 3.
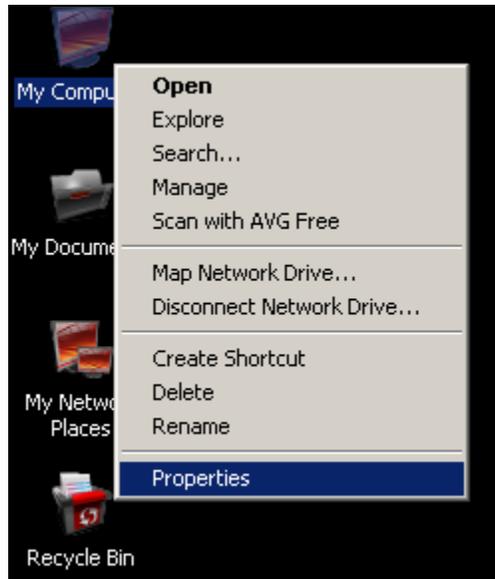
Figure 3: My Computer -> Properties

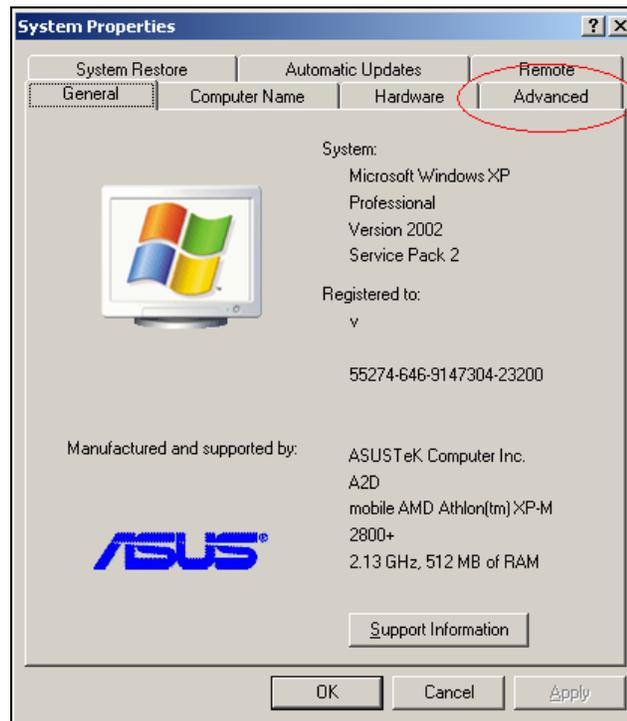2. Select "Advanced" tab from System Properties as shown in Figure
    4.

Figure 4: System Properties

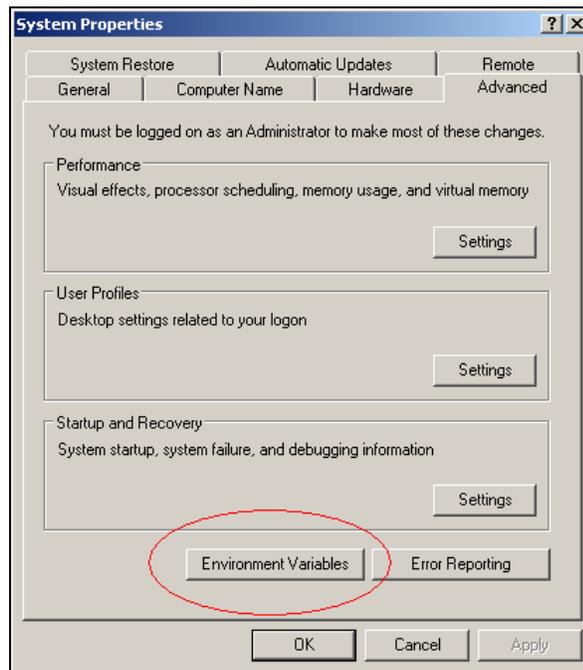3. Then from the "Advanced" tab click onto "Environment Variables" button as shown in Figure 5.

Figure 5: "Advanced" tab in "System Properties".

4. In the "Environment Variables" you will need to enter "classpath" for the iCommand by clicking on to the "New" button as shown in Figure 6.
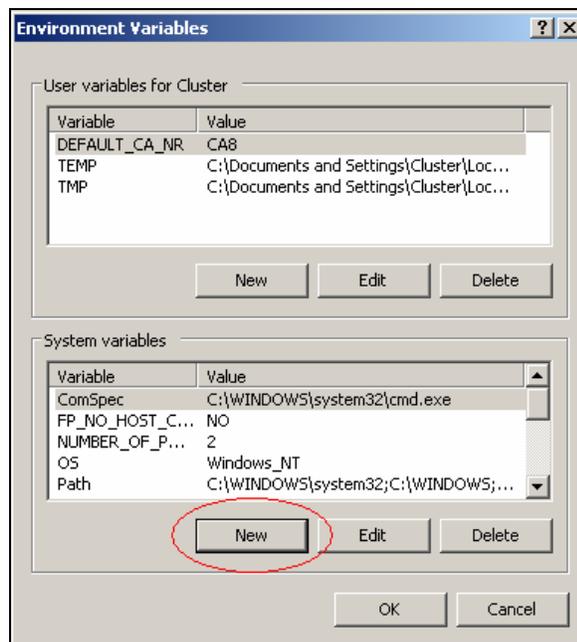

Figure 6: "New" System Variable

5. After you click the "New" button you will need to enter following information:
   - For "Variable name:" enter CLASSPATH
   - For "Variable value:" enter .;C:\Program Files\icommand-0.7\dist\icommand.jar
   - Finish by clicking "OK" button.

   Note: Make sure that you don't forget to put in "Variable name:" "Variable value:" exactly as it is above and as it is shown in the Figure 7.
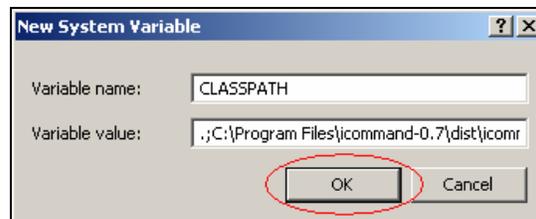
Figure 7: "New System Variable"

6. If you did everything correctly you will have exactly the same result as shown in the Figure 8.
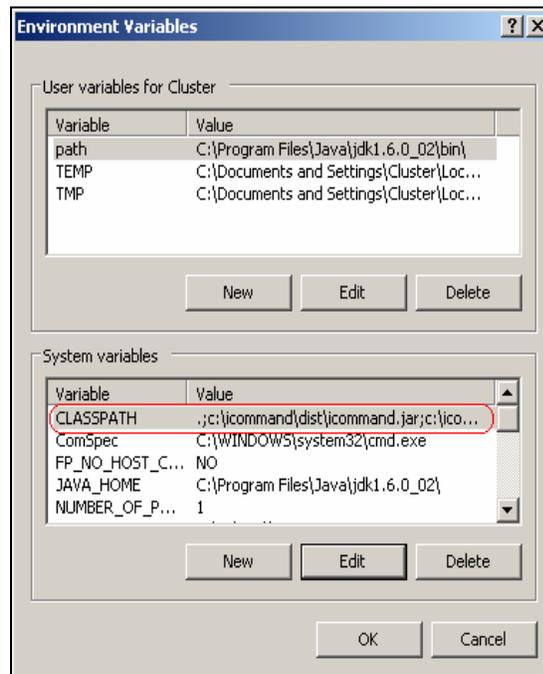
Figure 8: Correctly set "CLASSPATH" in the "Environment Variables"

7. Click "OK" then "OK" again and that is it!

To install the BlueCove you need to do following:

1. Go to http://nxt.tiim.info/
2. Click onto the Download link.
3. Click onto the BlueCove link in a table, to start downloading.
4. Ones downloaded extract the file into the directory on your PC where iCommand.jar is located (Example: C:\Program Files\icommand-0.7\dist\), also shown in the Figure 9.
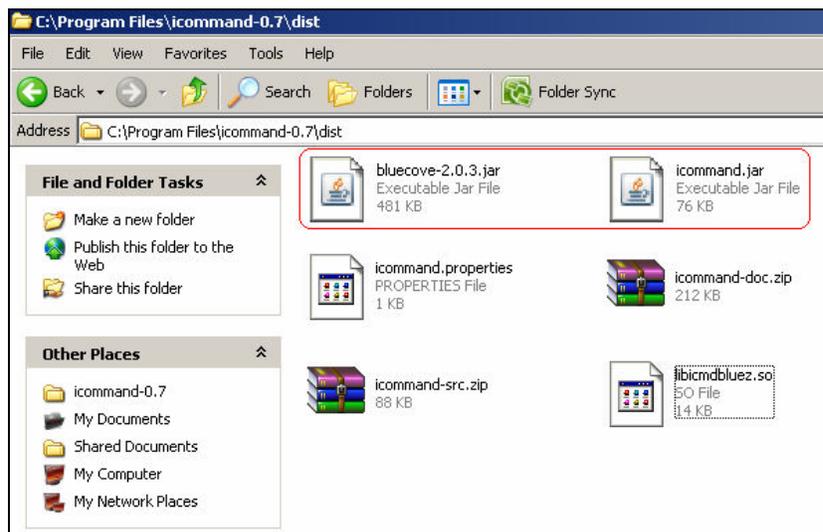
Figure 9: icommand.jar and bluecove-2.0.3.jar directory

5. After that you will need to set the "classpath" for the BlueCove as well, by now those steps should be easy for you since you have done it for the iCommand. The only change you need to do is instead of clicking onto the "New" button to create the "classpath" you will click on the "Edit" button as shown in the Figure 10.
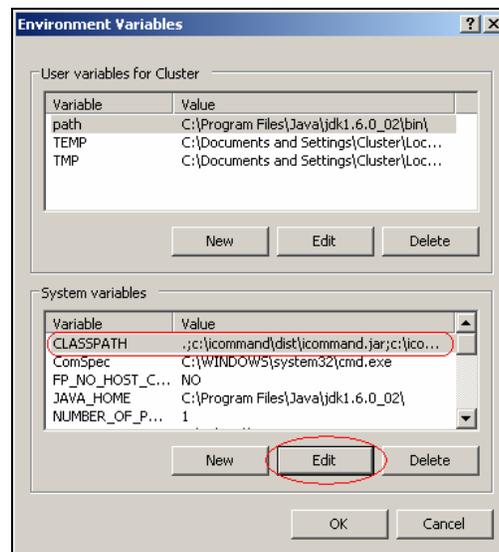
Figure 10: "Edit" System Variable

6. Then you will add the following information ;C:\Program Files\icommand-0.7\dist\bluecove-2.0.3.jar to the already existing information in the "Variable value:". After that click "OK" until all windows close.
7. Ones you do that you should have something like this:

.;C:\Program Files\icommand-0.7\dist\icommand.jar;C:\Program Files\icommand-0.7\dist\bluecove-2.0.3.jar

How to make it all work together

Eclipse

1. Start by opening Eclipse IDE, as shown in the Figure 11.
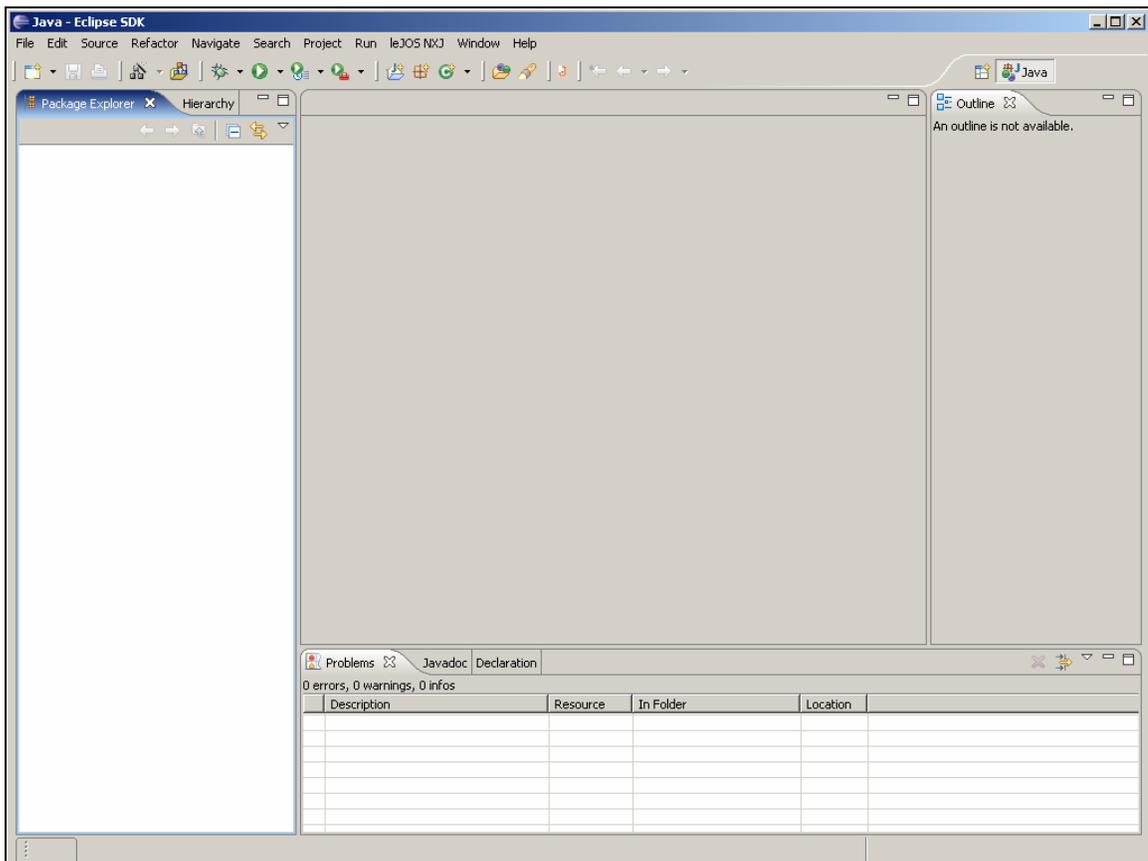
Figure 11: Eclipse IDE

2. After which you should click on to "File" and then "Project, as shown in Figure 12.
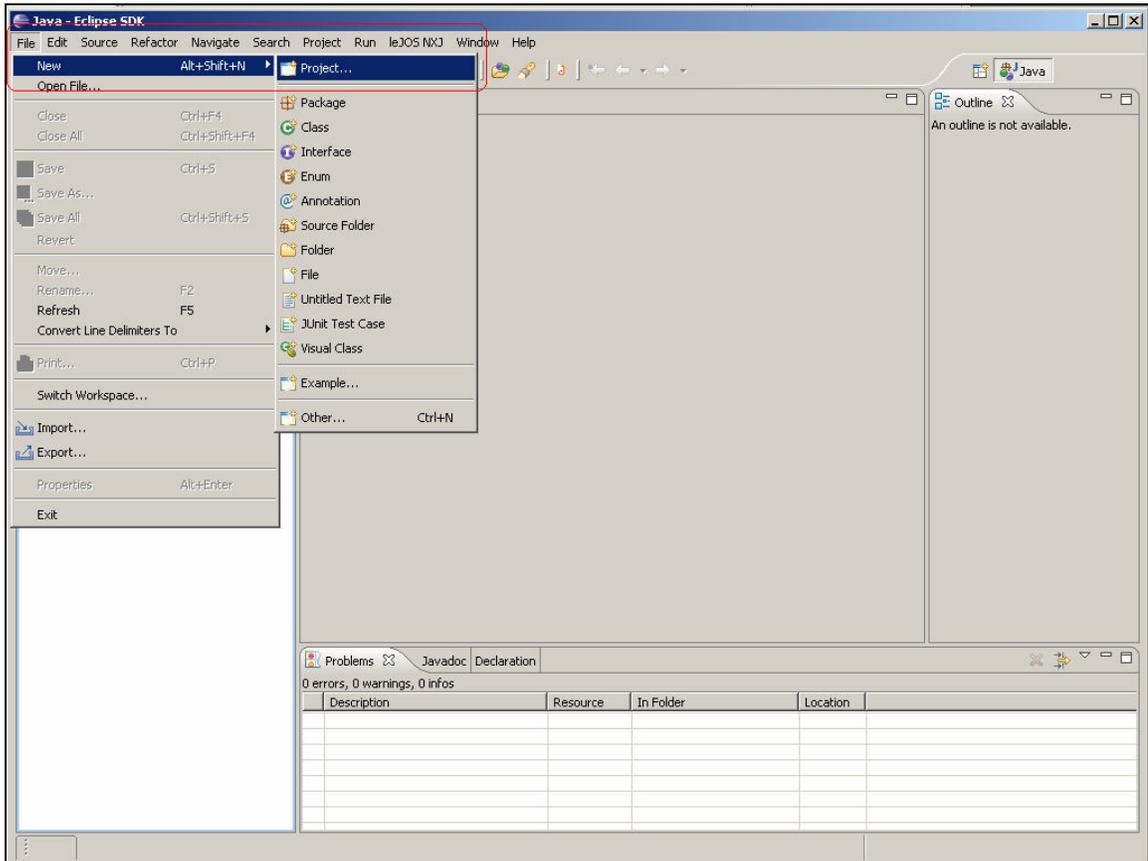
Figure 12: Eclipse IDE Project Selection

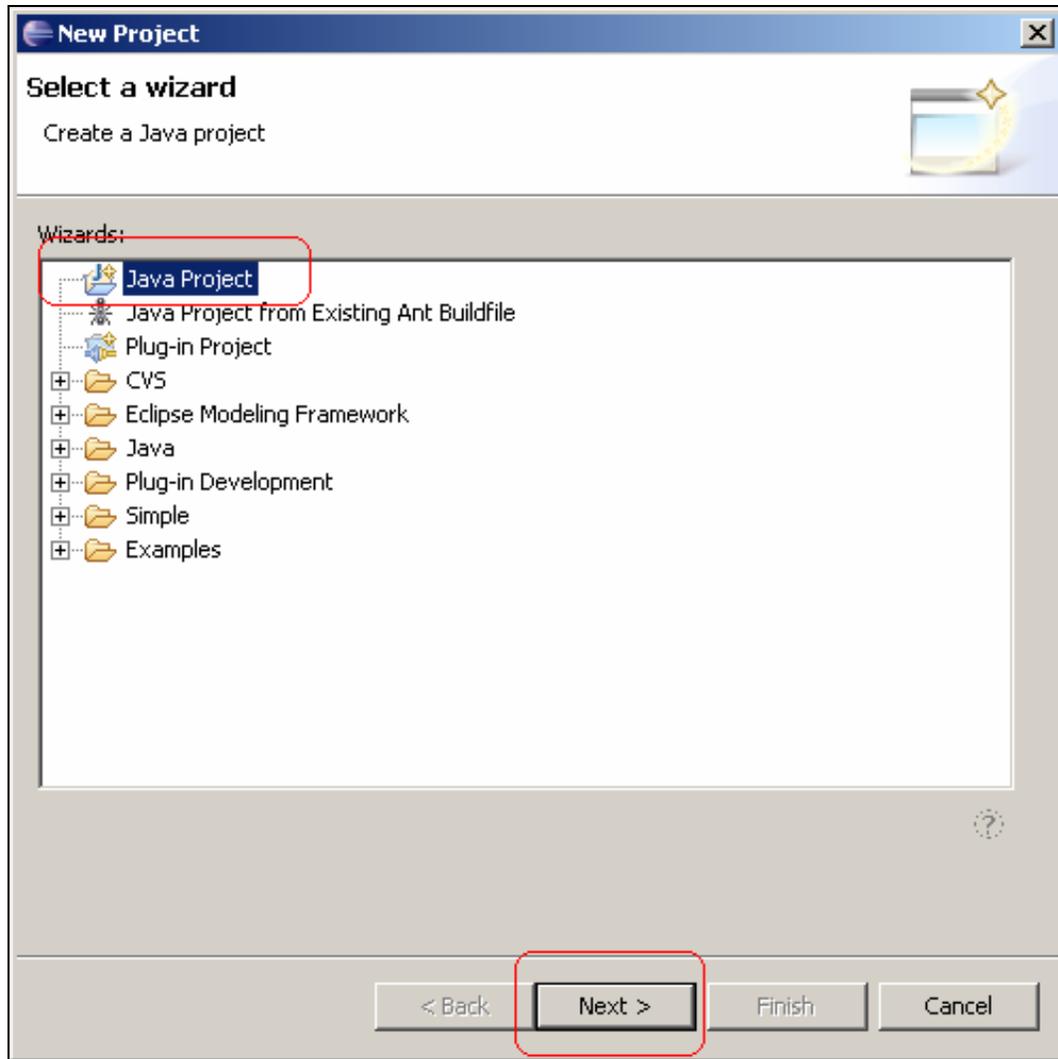3. Next click on the "Java Project" followed by clicking on to the "Next" button as shown in the Figure 13.

Figure 13: New Project Selection

4. On the next window you will need to enter "Project name:" for this I have used "Gui" and clicked on the "Next" button as shown in the Figure 14.
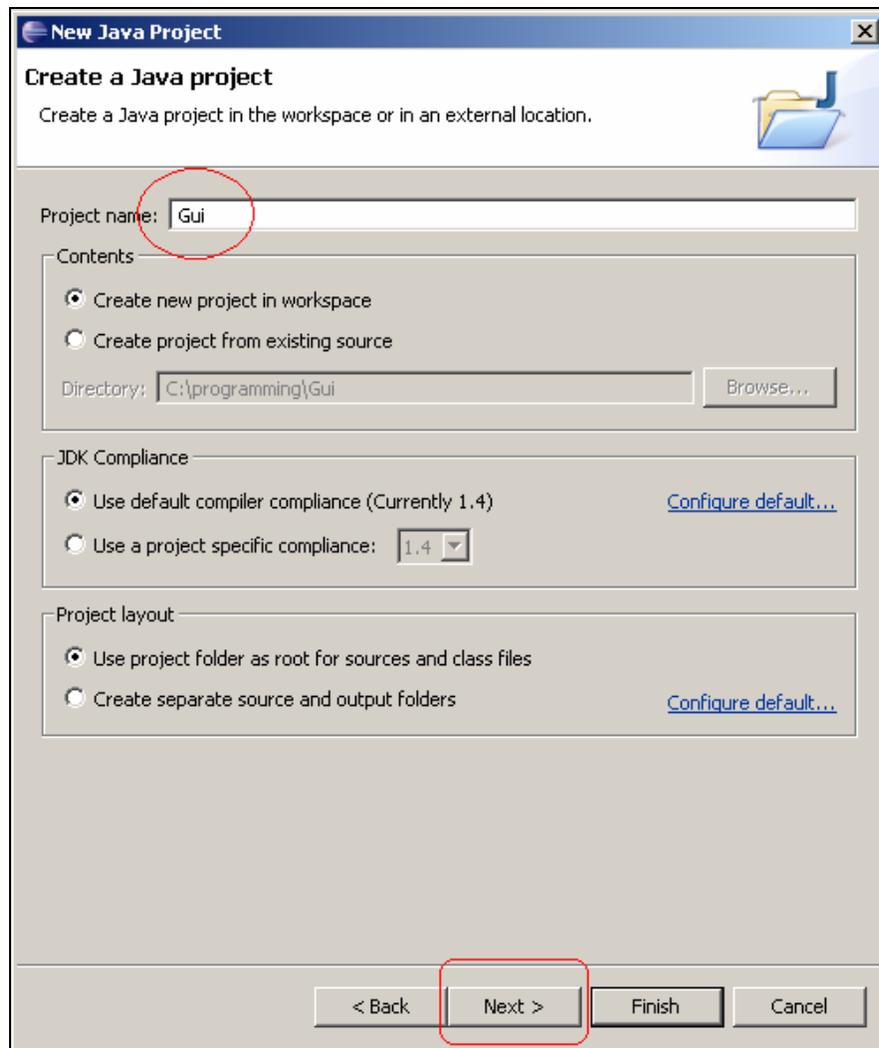
Figure 14: Create a Java project

5. On the new window you will need to select "Libraries" tab as shown in Figure 15. Then you need to click on to the "Add External JARs…" button as shown in the Figure 16.
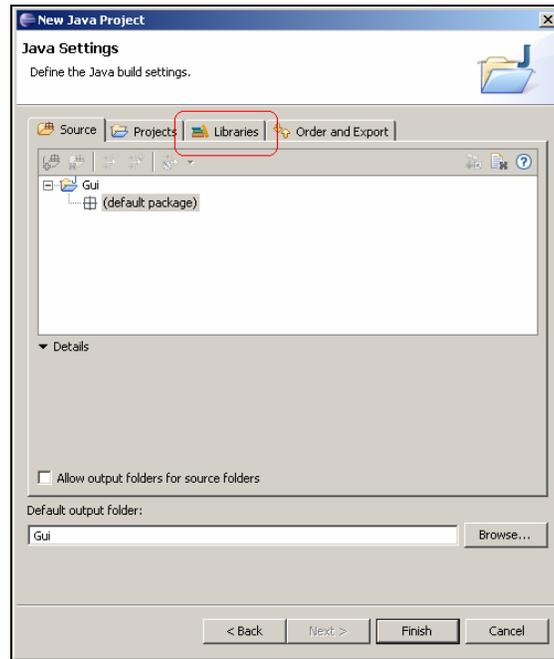
Figure 15: Java Settings
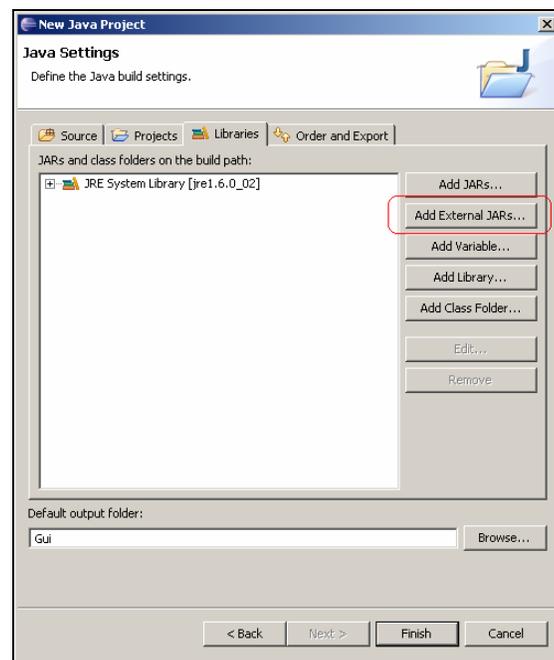
Figure 16: Java Settings External JARs…

6. Next you will need to navigate to the directory where icommand.jar and bluecove.jar are; if you have followed the instructions from the "Installation Guide" above they should be found by following this path " C:\Program

Files\icommand-0.7\dist" as shown in the Figure 17, and select both JARs as shown in the Figure 18.
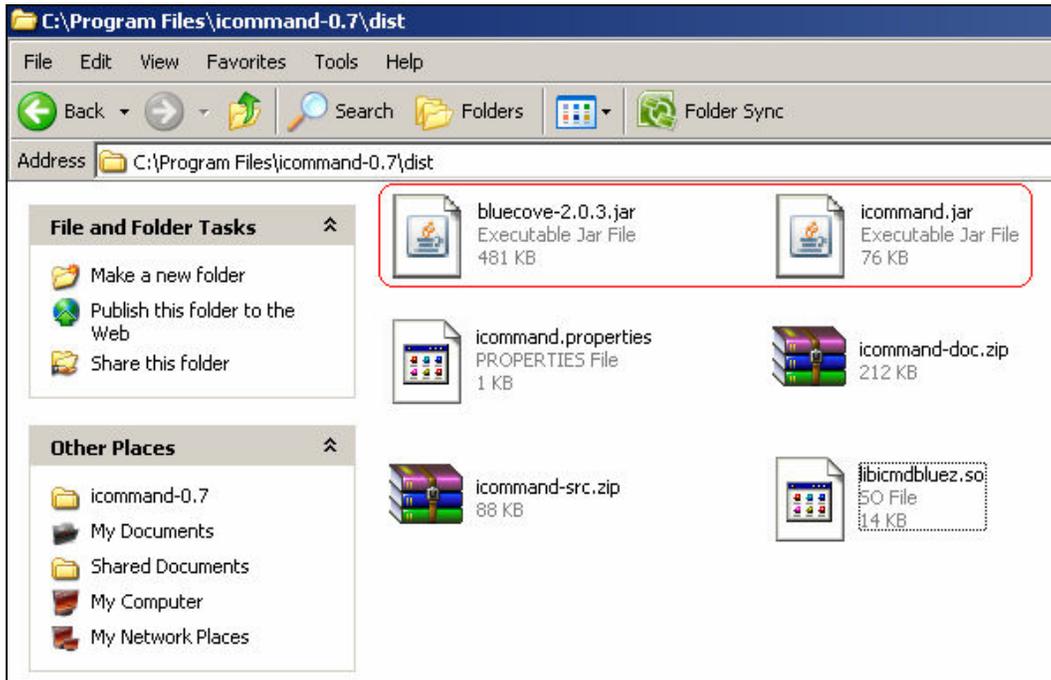
Figure 17: Directory Location of the iCommand and BlueCove JAR files
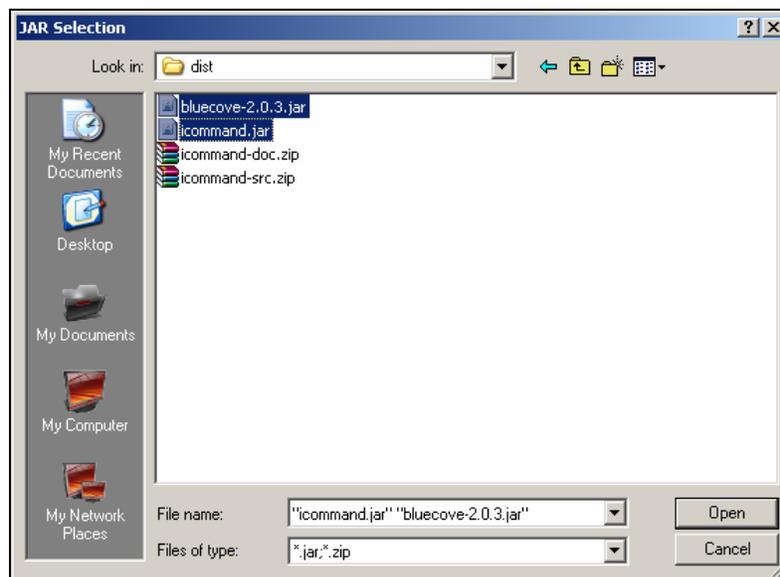
Figure 18: iCommand and BlueCove selection

7. If you did that correctly you should have successfully added icommand.jar and bluecove-2.0.3.ja files as shown in the Figure 19, after that just click on to the "Finish" button.

Figure 19: Java Settings

8. Now that we are done with JAR files we need to set up a "Package" this is where our java files (or our java application) and icommand.properties (this file holds iCommand properties which are required for Bluetooth connection) will be stored. So to set up package you need toclick onto "File" the "Package" as shown in the Figure 20.

Figure 20: Package creation
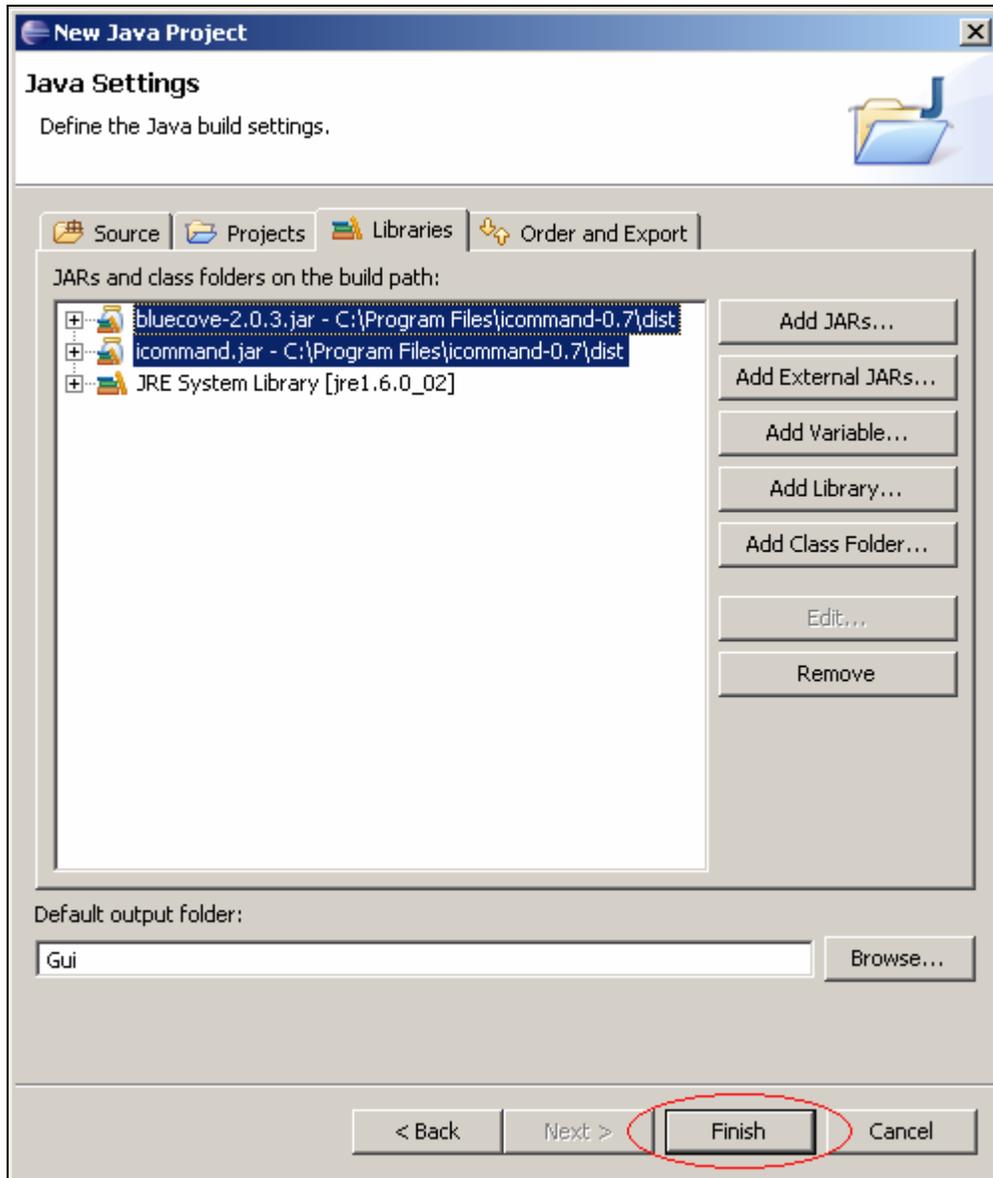
9. Next you need to create a name for your package as shown in the Figure 21, but make sure that it is in the lower case otherwise you will not be abele to create package and finally click "Finish" button.
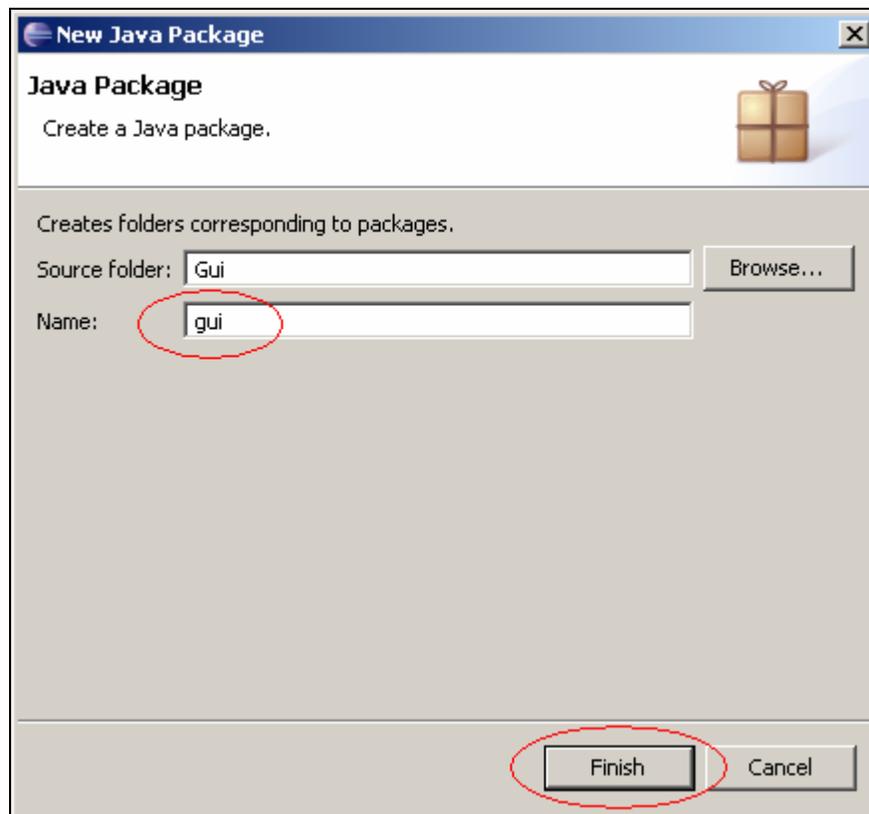
Figure 21: New Java Package

10. Ones that is done you can go into following directory "C:\programming\Gui\gui" to copy and paste either my "Gui.java" application or find yours. If you copy and paste my "Gui.java" application you just need to go back to Eclipse IDE and hit F5 key the Gui.java should appear, also don't forged to copy and paste icommand.properties file from the "C:\Program Files\icommand-0.7\dist" directory. Ones that is done you should see exactly the same as it is shown in the Figure 22 and Figure 23. Also note that you might need to enter "package.gui;" line on top of the Gui.java file as shown in Figure 22.
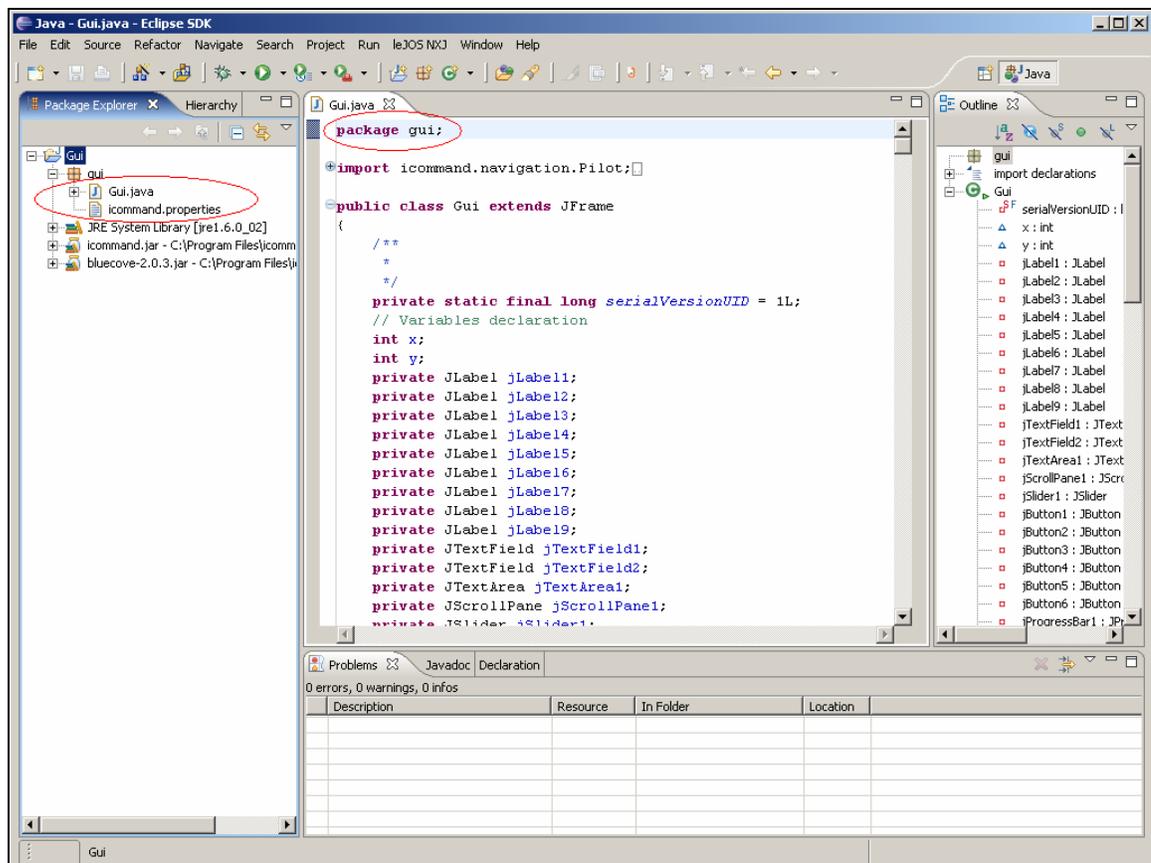
Figure 22: Eclipse IDE with Gui.java and icommand.properties files loaded
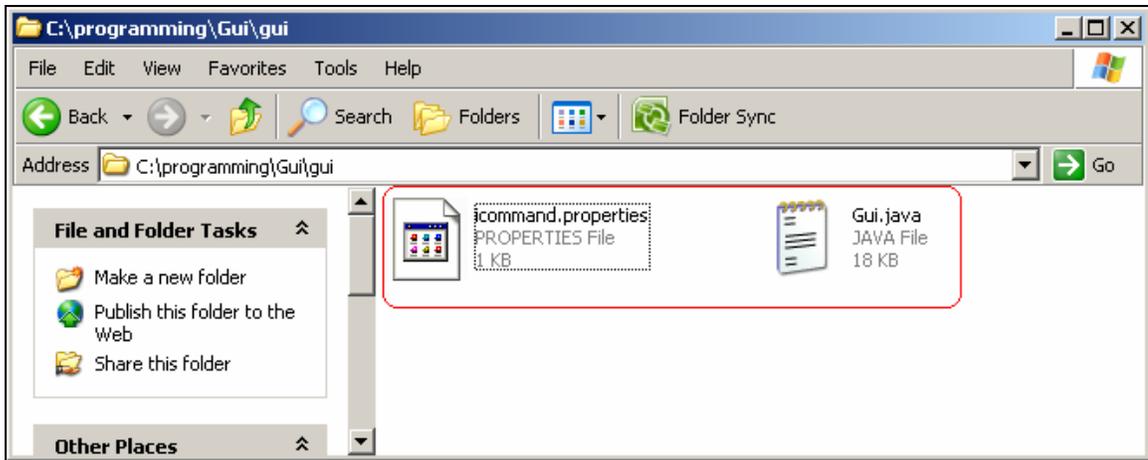
Figure 23: Gui.java and icommand.properties directory

icommand.properties
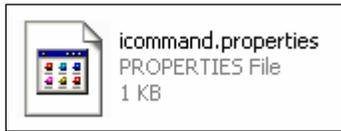
1. icommand.properties file hold few variables necessary for Bluetooth communication between your PC and Lego NXT Mindstorm, and since we are using BlueCove we will be focusing on that par of the icommand.properties file as shown in the Figure 24.
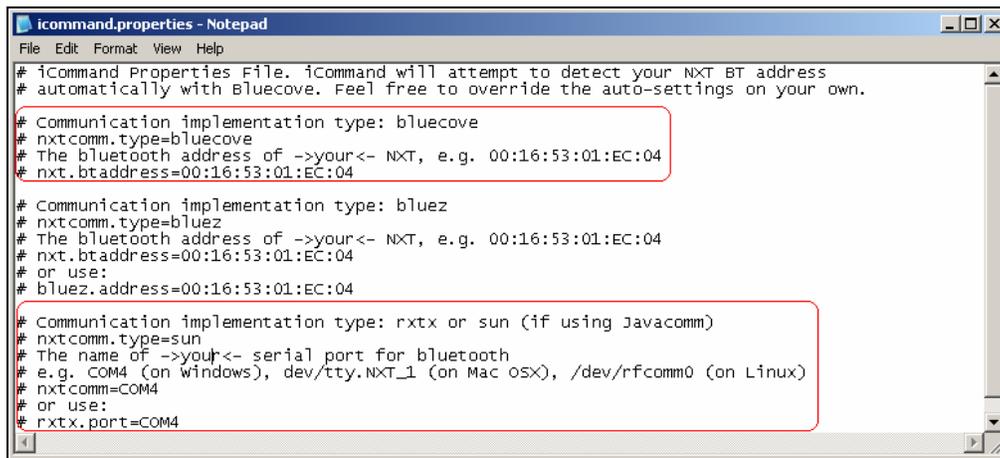
Figure 24: icommand.properties BlueCove Settings

2. So what we will do here is remove the "#" symbols in front of "nxtcomm.type=bluecove", "nxt.btaddress=00:16:53:01:EC:04", "nxtcomm.type=sun" and "nxtcomm=COM4" as shown in the Figure 25.

Figure 25: icommand.properties BlueCove Settings change

3. Ones you do that you should have the same icommand.properties file as it is in the Figure 26. Note the numbers and letter marked with the red oval shape, that is the MAC address, and COM port they would be different for most PC's and they need to be changed.

Figure 26: icommand.properties with correct settings

4. To get the correct MAC address you will need to connect your NXT Mindstorm to your PC via Bluetooth and go to properties which are found in the "Bluetooth Devices" as shown in the Figure 27.
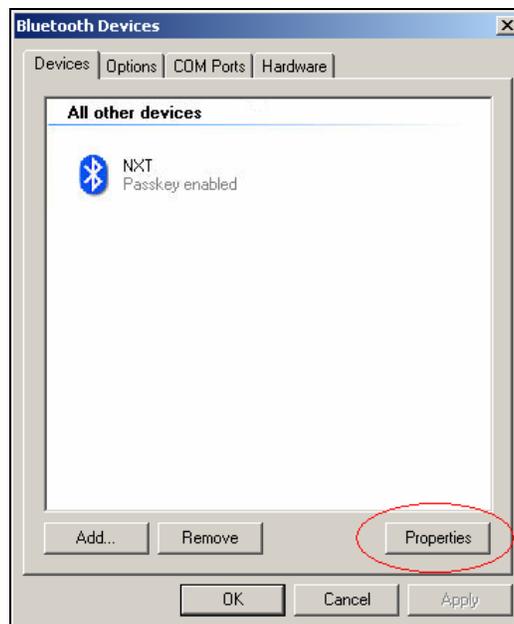

Figure 27: Bluetooth Devices

5. Ones there you just need to copy the MAC address next to the "Address:" label as shown in the Figure 28.
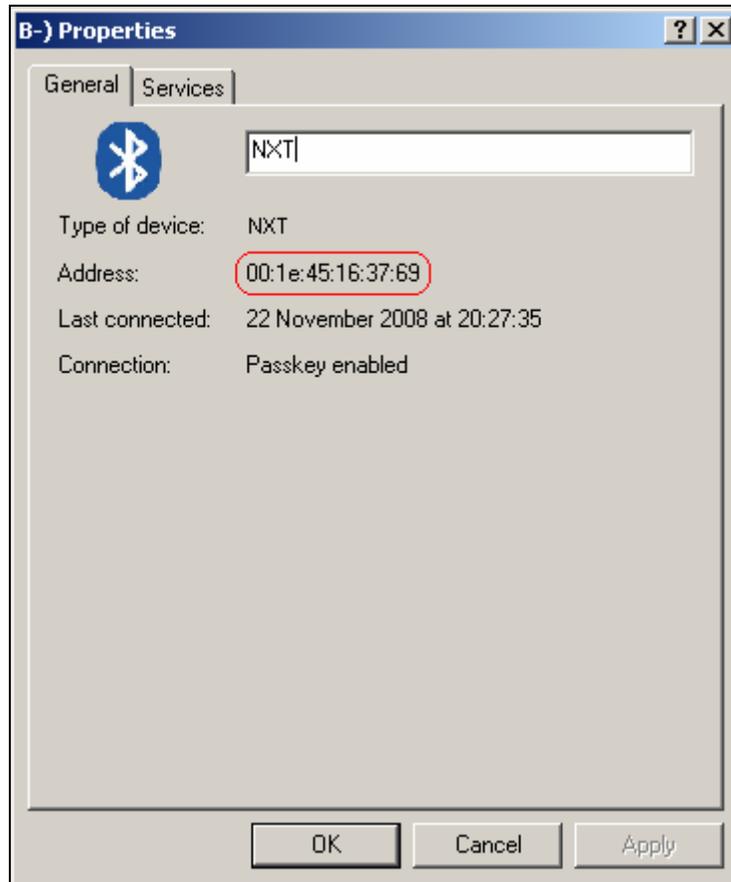

Figure 28: Bluetooth Properties

6. To get the COM port you will need to click on the "COM Ports" tab as shown in the Figure 29 and select the one that is assigned to your NXT, if that doesn't work you will need to go to Device manager of your PC and try all of the "Standard Serial over Bluetooth link" ports as shown in the Figure 30.
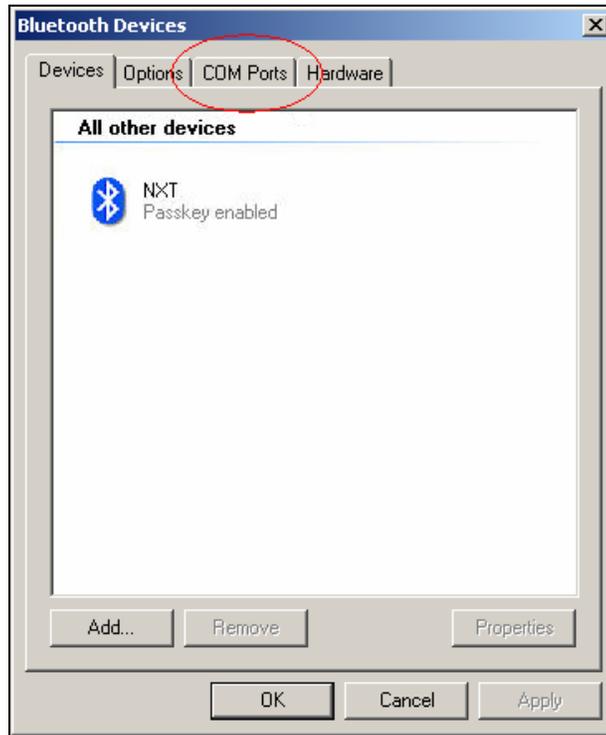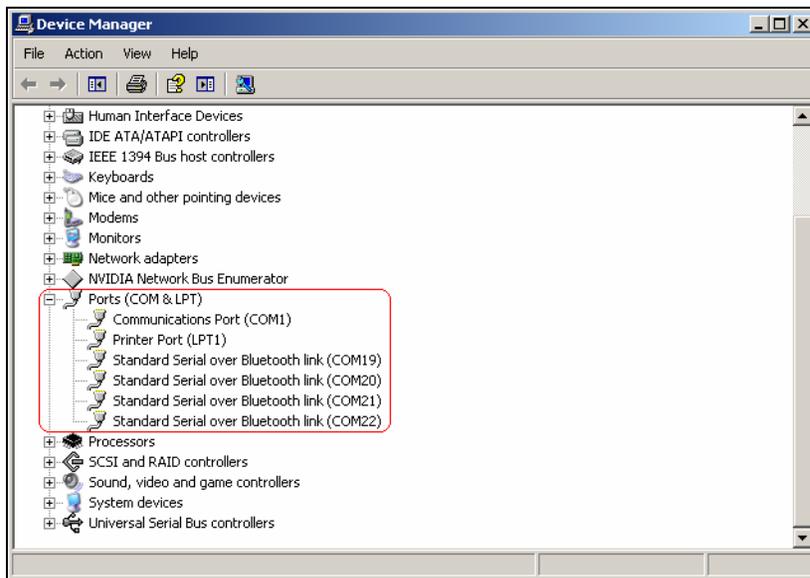
Figure 29: Bluetooth Devices COM Ports

Figure 30: Device Manager

That's it you are finished!