CONNECTION GUIDE FOR THE IROBOT CREATE

Pre-Requisites

MATLAB 2008 or later needs to be installed on your system. The latest version of MATLAB can be downloaded for free as a Columbia student from the following link:

http://portal.seas.columbia.edu/matlab/

The Bluetooth adaptor, Element Direct BAM (Bluetooth Adaptor Module), allows us to connect to the iRobot Create wirelessly.

Steps to Connect – Windows 7 / Windows 8

1. Connect the Element Serial BAM into the cargo bay connector and then power on the Roomba.





- 2. Click on "Add a Device" under Control Panel → Hardware and Sound.
- **3.** The system will begin to search for available Bluetooth devices. Click on the Bluetooth device, which goes by the name of *"Element Serial"*. Click on *"Next"*.

Choos Select a c	se a device or printer to	add to this PC	
4	Alex's MacBook Pro Laptop	Desktop PC Desktop PC	^
Ũ	Element Serial Unknown	MajMin7 Laptop	
	SHUBHU-PC Digital media player		~

4. The Element Serial Bluetooth device will ask for a passcode. Enter *0000* in the passcode textbox. Click on *"Next"*.

🗗 Add a device		- • ×
Enter the passo	code for your device	
Ů	You might need to enter the same passcode into the device.	
	Ne	xt Cancel

5. The windows will then begin to install the drivers for the Element Serial Bluetooth adaptor. Click on *"OK"* when this process completes.

6. Go to Control Panel → Devices and Printers → View devices and printers. Scroll down all the way to the bottom and you can see that the Element Serial Bluetooth device is present under the "Unspecified" category. Right click on the Element Serial and click on "Properties". Under the "Services" tab, look below the "Bluetooth Services" where you will find the Serial Port of Bluetooth device. For example, "COM3". Remember this port for your future reference. This is your iRobot Create Serial Port.



- 7. Open the MATLAB and navigate to the *"MatlabToolboxiRobotCreate"* folder.
- **8.** Right click on the folder and go to *Add to Path → Selected folders and subfolders*.

Current Folder	\odot	Command Wind	wob		۲
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 ■ MatlabToolboxiRob ■ Juide 	Open Show in Exp	blorer	Ctrl+D		
	Create Zip I	File	53		
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	Copy Paste		Ctrl+C Ctrl+V		
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Ready					

9. Then, in the command window, type

r = RoombaInit(iRobot Create Serial Port Number);

For example, in Step 6, our iRobot Create Serial Port was **'COM3'**. So, in our command window, we will write something like this:

r = RoombaInit(3);

Here, r is a variable called the *"serial port object"*. This variable has all the port numbers and settings through which we communicate to the iRobot Create.

Comman	d Window	\odot
New to	MATLAB? Watch this <u>Video</u> , see <u>Examples</u> , or read <u>Getting Started</u> .	×
<i>f</i> x >> r =	= RoombaInit(3);	

10. If the connection is successful, we should hear 2 beep sounds and the 2 LED lights on the Roomba should flash on.

Troubleshooting under Windows:

If you cannot connect to the iRobot Create, try the following steps:

- 1. Close the MATLAB if it is open. If not, go to the next step.
- **2.** Terminate the "Element Serial" Bluetooth device connection from the system by doing the following:
 - a. Go to **Control Panel** → **Devices and Printers**→**View devices and printers**→**Element Serial**. Right click on it and then press on *"Remove Device"*.
- **3.** Switch off the Roomba.
- **4.** Take out the Element Serial BAM from the cargo bay connector.
- 5. Put the Element Serial BAM back into the cargo bay connector.
- 6. Power on the Roomba.
- 7. Repeat the steps for connecting.

Steps to Connect – Mac OSX

1. Connect the Element Serial BAM into the cargo bay connector and then power on the Roomba.



2. Click on "Set Up Bluetooth Device" under the Bluetooth icon.



3. The system will begin to search for available Bluetooth devices. Click on the Bluetooth device, which goes by the name of *"Element Serial"*. Click on *"Continue"*.

0 0	Bluetooth Setup Assis	stant
	Welcome to the Bluetooth Se When your device appears in don't see your device in the I "discoverable." For more info came with your device.	etup Assistant. the list, select it and click Continue. If you ist, make sure it is powered on and rmation, see the documentation that
	Devices	Туре
	Element Serial	Unknown
	irt's Mac mini3	Desktop
	Searching for devices – 2 four	nd

4. The Element Serial Bluetooth device will automatically add **0000** as a passcode and pair the device.



5. The windows will then begin to install the drivers for the Element Serial Bluetooth adaptor. Click on *"OK"* when this process completes.



6. Open terminal and type the following command:

ls /dev/tty.*

This command displays the serial ports connected to your machine and should by default show */dev/tty.ElementSerial-ElementSe*



7. Open the MATLAB and navigate to the *"MatlabToolboxiRobotCreate"* folder.



8. Right click on the folder and go to *Add to Path*→*Selected folders and subfolders*.

9. Then, in the command window, type

```
r = RoombaInit_mac(iRobot Create Serial Port Number);
```

For example, in Step 7, our iRobot Create Serial Port was *'ElementSerial-ElementSe'*. So, in our command window, we will write something like this:

r = RoombaInit_mac('ElementSerial-ElementSe');

Here, r is a variable called the *"serial port object"*. This variable has all the port numbers and the settings through which we communicate to the Roomba.



10. If the connection is successful, we should hear 2 beep sounds and the 2 LED lights on the Roomba should flash on.