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<u>How to Setup and Operate RoombaCam</u>

This document will take you through everything you need to know to set up and operate your own version of my RoombaCam project.

Necessary Components:
1. iRobot Create robot
2. One laptop (server) running Windows XP with wireless networking capabilities and at least 2 USB ports
3. Another computer (laptop or desktop) running Windows XP(If this computer does not have wireless capabilities an Ethernet cord is also needed)
4. Wireless router and router power cord
5. Logitech web cam
6. USB to DE-9 serial cable

7. DE-9 to round serial cable (included with Create)

8. Cable/Zip ties
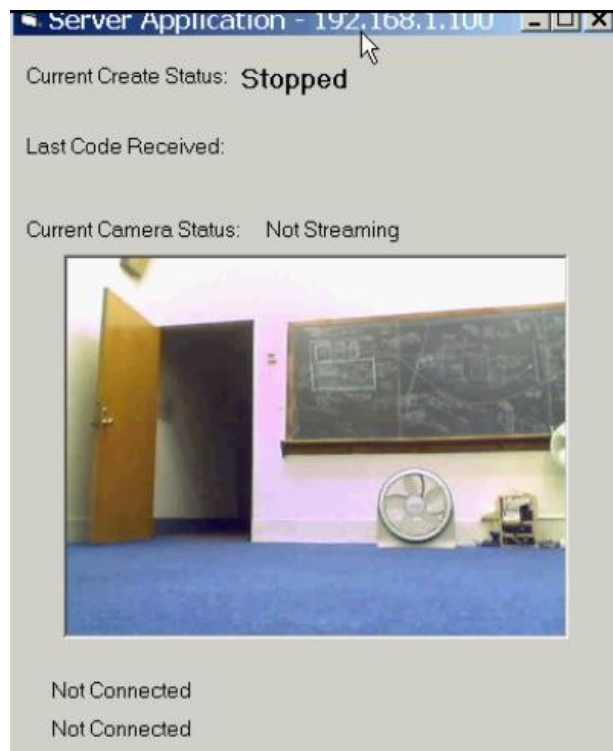9. A copy of my "RoombaCam Server" and "RoombaCam Client" applications.

Setup Steps:
1. Turn on both computers, leave the Create off for now.
2. Connect wireless router to power supply and power on
3. Ensure that the laptop computer finds and connects to the wireless router
4. If the second computer has wireless capability, ensure that it also connects to the router. Otherwise, connect the second computer to the router via the Ethernet cord.
**Note: Since the router does not need to be connected to the world wide web these computer will not receive an internet connection via the router. The router is only used to communicate wirelessly between the two computers, not to access the internet.
5. Connect the webcam to the server computer.
6. Join together the USB to DE-9 cable and connect the DE-9 to round serial cable to the Create
7. Plug the USB end of the USB to DE-9 cable into the server laptop and allow Windows time to recognize the new hardware.
8. Determine which COM port number the robot is connected through. To do so: right click My Computer – Properties – Hardware Tab – Device Manager. This will have a listing of all the hardware on your machine. There should be a listing for "Ports (COM & LPT)". In this section, determine which COM port has the adapter plugged into it. This is the number that you will use when initializing the server program.

9. Turn on the Create robot.
10. Place the laptop on the robot trying to keep the Create's sensors clear to move. The Create setup should now look similar to the image below.
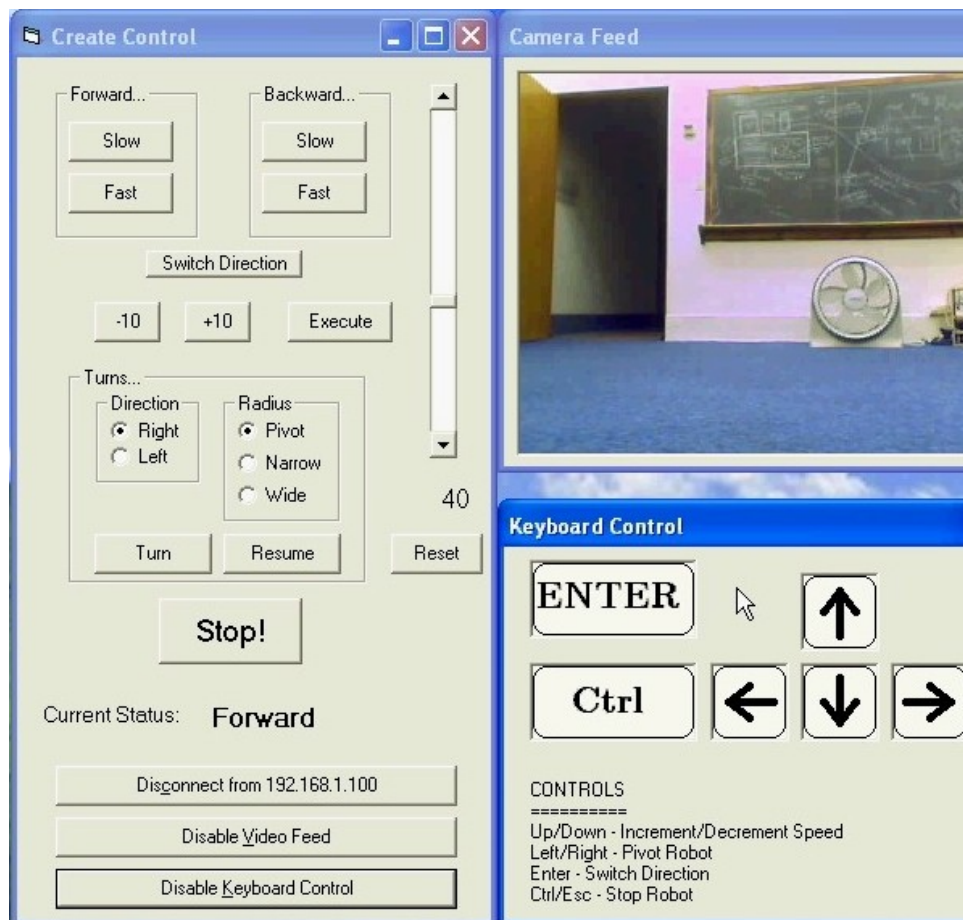

11. On the server (laptop) computer execute "RoombaCam Server". Select the appropriate COM port number as you determined in step number 8 and click OK. You should then see a screen similar to the one below.

12. Notice the IP address in the top bar of the form (in the picture above it is 192.168.1.100). This address will be required in the initialization of the Client application.
13. Close the lid of the laptop partially although not all the way to prevent the laptop from going into standby mode. Attach the webcam to the cover of the laptop via the cable/zip ties and position it so it is looking forward.
14. On the other (client) computer, start my "RoombaCam Client" application. You will be prompted with a form like the one below:

15. In the first form that opens, enter the IP address you read from the Server application. Keep the port number as the default and click "Connect".
16. On the next form that opens (titled "Create Control"), click the "Enable Video Feed" and "Enable Keyboard Control" buttons. You should now have a screen that looks similar to this:

17. The system is now set up and you are able to control the Create on the client computer via the keyboard or mouse. When the Keyboard Control form has focus you will be able to use the keyboard for limited control of the robot, otherwise the Create Control form allows a broader range of control of the Create via the mouse.