CameraBot

This tutorial assumes you have completed the [[Raspberry Pi Tutorial]]

At this point, you've got a Create® 2 with a Raspberry Pi® and camera. What next? How about a mobile sentry robot? Since you've finished all the other tutorials, you've got your hardware mostly in place -- a robot with a Raspberry Pi in the bin, and a camera poking out. Drill a hole in the bin to route the camera ribbon cable out, and build a bracket to attach it to the robot.

You could build the bracket out of card-stock, sheet metal, or 3-D print it. Files are attached in case you'd like to take the 3D-printing route.

- (Our 3D-printable case is based on this design: **http://goo.gl/C5vVPf**)
- Case files:
  Rpi_Camera_Mount_Roomba.stl
  Rpi_Camera_Mount_Front.stl
  Rpi_Camera_Mount_Back.stl
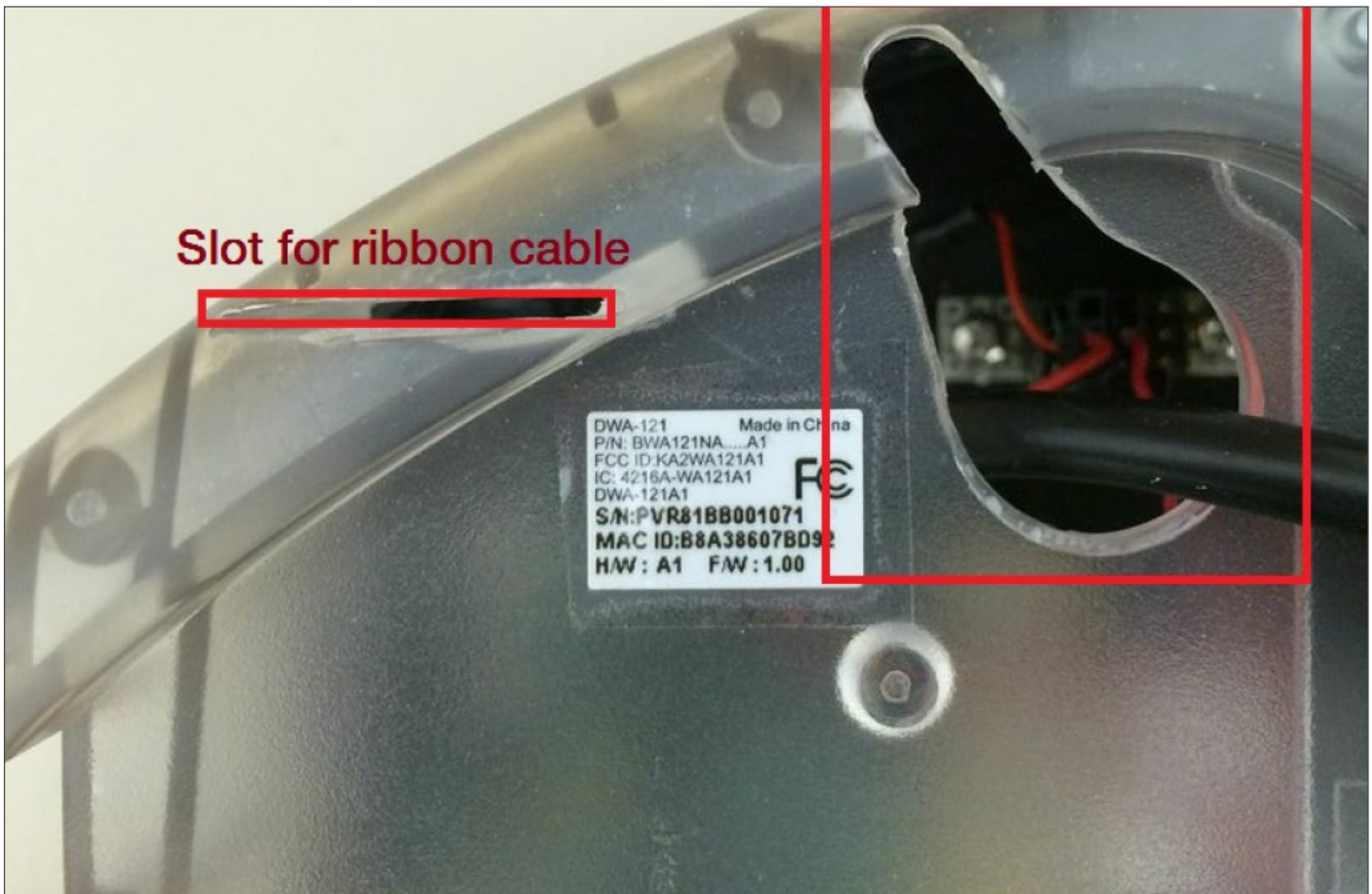
Now that the camera is poking out of the robot with the bin closed, it's time to install some software on the robot to view the camera remotely. We used the tutorial at **http://goo.gl/vIB7xu** . Once you complete this tutorial, you should be able to view live video from your Raspberry Pi using a web browser.

To drive the robot, we'll use a small server program on the robot to receive commands, and a client program on the host computer. For compatibility and ease of hacking, we'll write both pieces of software in Python.

Run robotServer.py on the Raspberry Pi, and robotClientGUI.py on the machine. You'll have to edit the variable called HOST near the beginning of robotClientGUI to point to your robot. When you run robotClientGUI, a blank window will open. Click to select it, and the press **'S'** or **'F'** to put the robot in either Safe or Full mode.

Note that if the robot is in Safe mode, and you crash into something triggering a wheel drop, you'll have to press 'S' again to regain control. If you choose Full mode, the robot will be fully under your control, but in this mode it will not charge (so you'll have to put it back into either Safe or Passive when you're done). Click and drag within the window to move the robot!