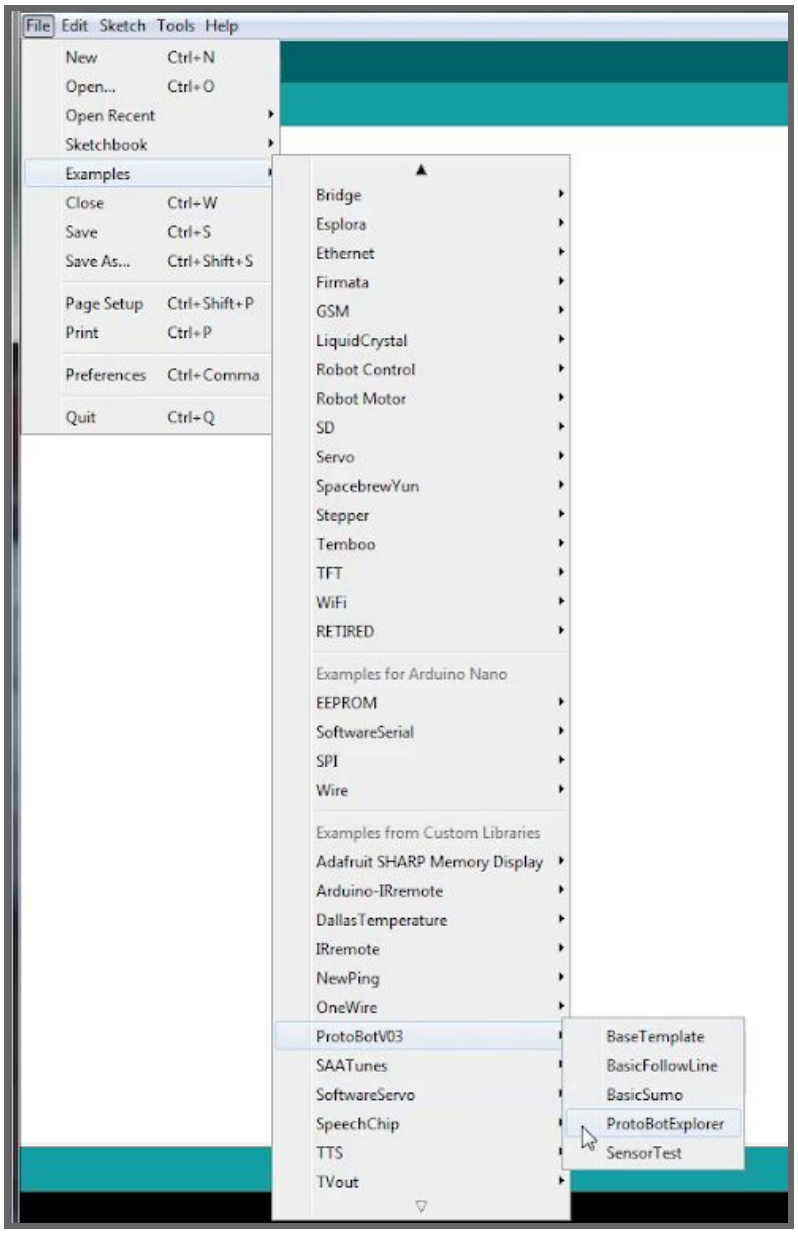
Testing your Protobot

Now that your protobot is built, let's test it to make sure everything works!

Plug the robot into your computer, using a USB cable.

On the desktop, look for the Arduino icon. If you can't find it there, try searching for "Arduino" in the start menu.

Double click the icon to start the Arduino editor.

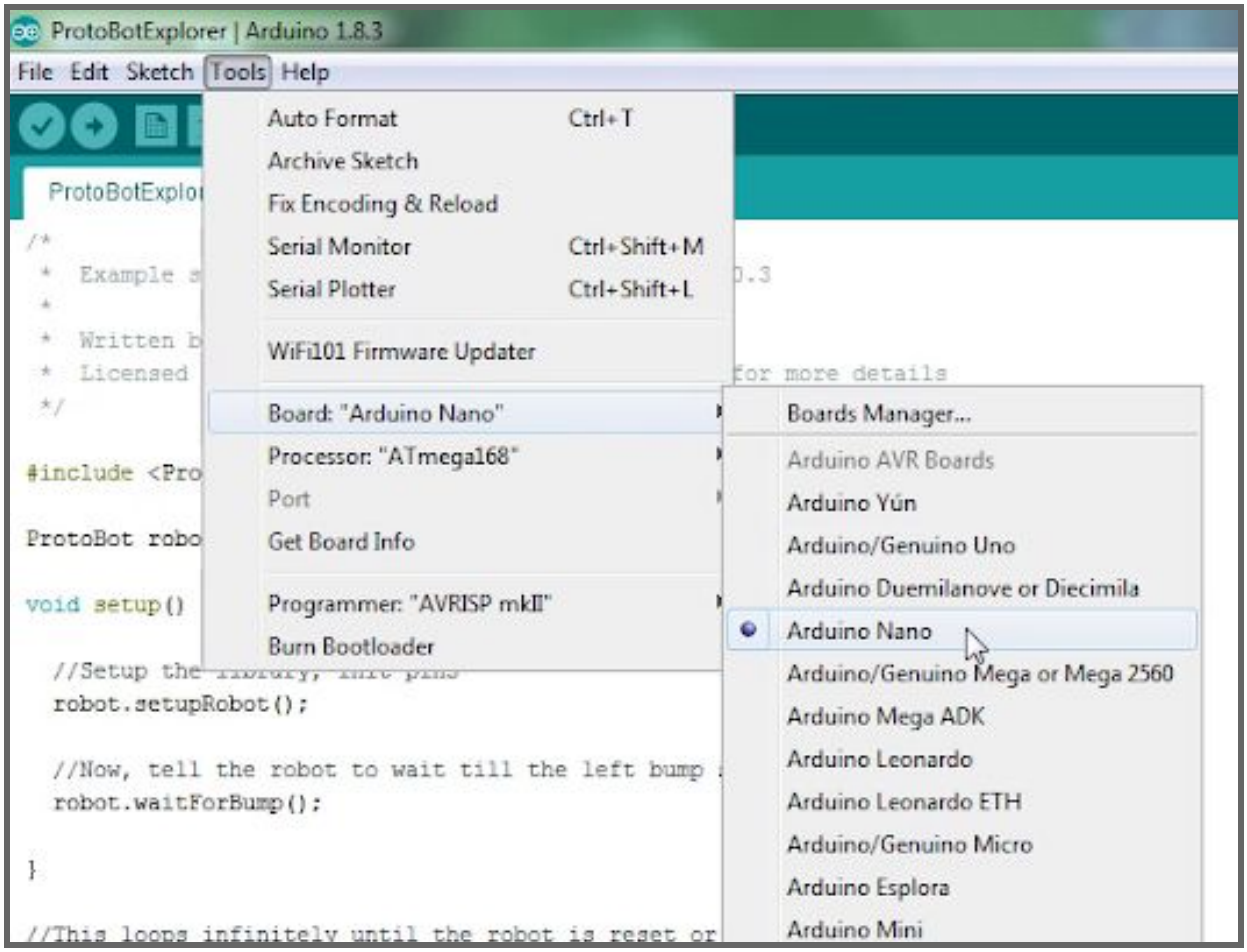


Once the Arduino IDE is started, click on "File", then "Examples", and scroll all the way down.

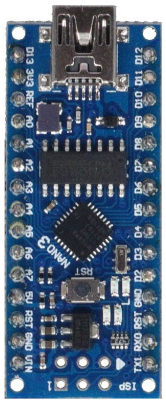
You should see "ProtoBotV03". Click on that, and then click on "ProtoBotExplorer".

This is the example program we'll use to test your robot.

In the lower right corner of the screen, you should see something like this, that says “Arduino Nano on COMX” (X can be any number) If you do, you can skip this next step. Otherwise, continue on.



Under “Tools”, “Board:”, select “Arduino Nano”.



Arduino Nano
ATmega168

Arduino Nano
ATmega328

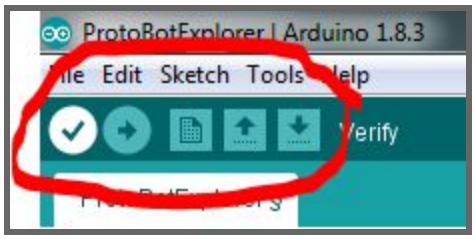
Look at the Arduino board on your robot to determine which kind it is.

Then, under “Tools”, “Processor”, select which kind your board is.

It can either be an “ATmega168” or “ATmega328”. If you’re not sure, try one, then the other.

Next, select which port your arduino is connected to, under “Tools”, “Port”. Usually there will be one option, select that.

If there are several options, try each one until one works.



Up in the top left corner of the Arduino editor, you'll see several buttons.

The checkmark button tests your program to make sure there are no errors, and the right facing arrow (upload) button sends the program to the robot.

Go ahead and click on the upload button! A progress bar down at the bottom of the screen will tell when it's done.

Once your program has finished uploading to the robot, unplug the robot, put it on the floor, plug the battery in, and bump the bumpers to start it!

If everything works, great! You can skip the rest of this! If it isn't quite working right, no fear! That's perfectly normal, and should be easy to fix.

Is the robot:

- **Spinning in circles, or driving backwards?**
  - The motors may be reversed. Figure out which ones are going backwards, and switch how the wires are plugged into the board.
- **Constantly backing up and turning?**
  - One of the line sensors are probably plugged in wrong. Figure out which one is being triggered, and then make sure the wires are plugged in correctly!
- **Doing something else that's weird?**
  - The most common cause of robot troubles is sensors or motors plugged in wrong. Make sure everything is correctly plugged in, and if that doesn't work, take it to a camp helper or mentor.