Scratch Programming

Scratch Programming With the Raspberry Pi and the GoPiGo

We've optimized Scratch and the GoPiGo for our operating system, Raspbian for Robots. This is a free operating system you run on your Raspberry Pi. You can purchase an SD Card for the Pi with Raspbian for Robots already installed here. You can also download the latest version and install it with these directions. The below instructions assume you are using Raspbian for Robots.

Connect To Your GoPiGo

The first step to programming in Scratch with the GoPiGo and Raspberry Pi is to connect over wifi or ethernet. You may find our tutorial on setting up the GoPiGo and connecting over wifi helpful. You can watch the Youtube playlist below.

Start Scratch

To start on the Scratch, just double click the **Scratch** Icon on the Desktop

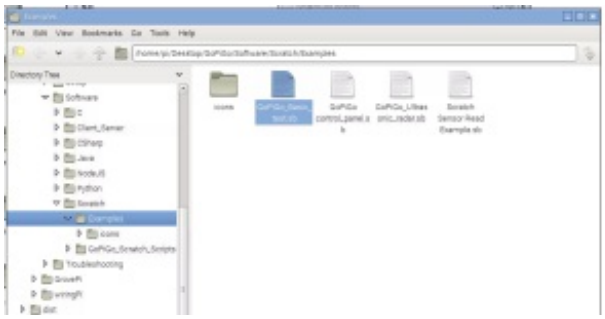
After clicking the Scratch icon on the Desktop, the Scratch for Robots window will open. The Scratch Controller terminal program (the black window with white text) will open as well, do not close it! In the Scratch Controller window you can select your robot (the GoPiGo should appear in the picture as shown below).

You can start programming directly by clicking on "Start Programming." You can also select an example program by clicking "Open Examples". This will open the example program directory.

If you double click a Scratch program in the directory, or double click any Scratch program you have saved, a Scratch dialog box will pop up.

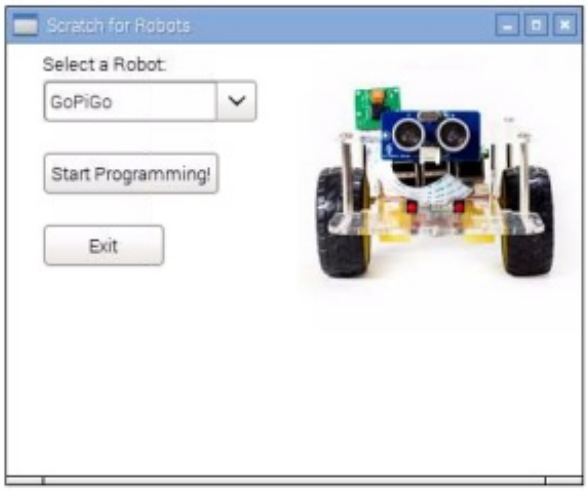
The Scratch for Robots robot selector will appear. Select the GoPiGo in the dropdown menu, and press “Start Programming”.

You will get a warning that all the Scratch programs running will be closed. You can only run one Scratch program at a time.



After clicking “OK” the example program will appear. You will see an alert that communications have started. Click “Ok” and begin!

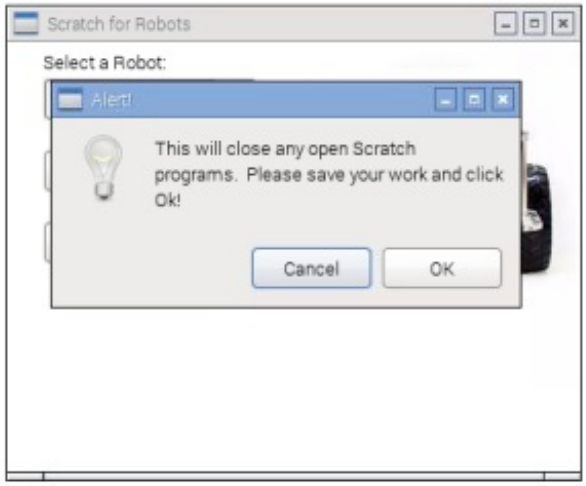
Beginning programming, in the below example you’ll see the example car.

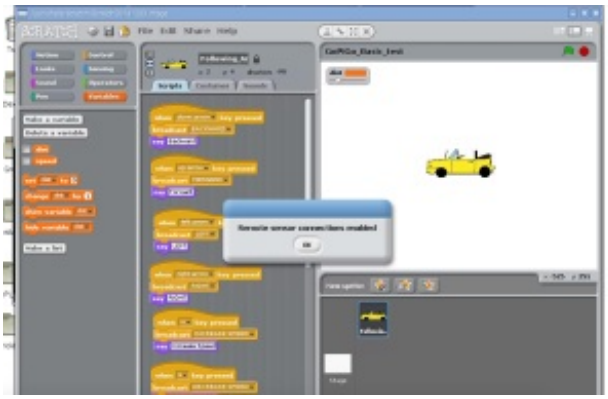


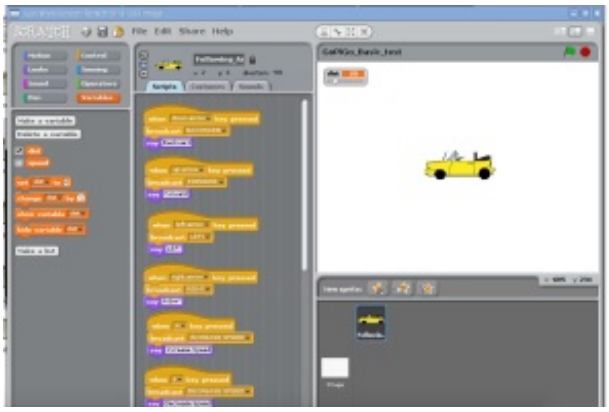
Sensors and Ports

For more information on which sensors go on the different ports of the GoPiGo in Scratch, please see our description and software here.

Have a question? Ask us on the forums!







Block Reference: Scratch Broadcast Messages

Here is a quick reference on the blocks available in Scratch for the GoPiGo and how to create custom blocks for GoPiGo with Scratch.

Reference Sheet of all GoPiGo Scratch Commands

Do click on the image to get it on its own so you can print it and keep it as a reference guide when programming.

Making Custom Broadcast Messages for Scratch

You can easily make Custom Broadcast Messages with Scratch for the GoPiGo.

To interact with the Scratch program, there is a Python program running in the background (GoPiGoScratch.py). This program catches the commands from the Scratch interface and runs a command on the GoPiGo. This program is automatically launched by the Scratch icon in Raspbian for Robots.

To make a custom command, just add a condition for the new broadcast message in the Python example.

Example:

For the run **forward** block in Scratch:

Here is the Python code handling it:

```
if msg=="FORWARD":
  if en_gpg:
    fwd()
  if en_debug:
    print msg
```

Similarly, you can make your own block and easily make them work with the GoPiGo.

Have a question or a suggestion? Go check out our support page here or post it on the forums here.