

Using Emo with Dragit

Install Dragit

Before any operations, you need to log into the Raspberry Pi remotely first. Here's how:

- 1 · Get the IP address of the Raspberry Pi:

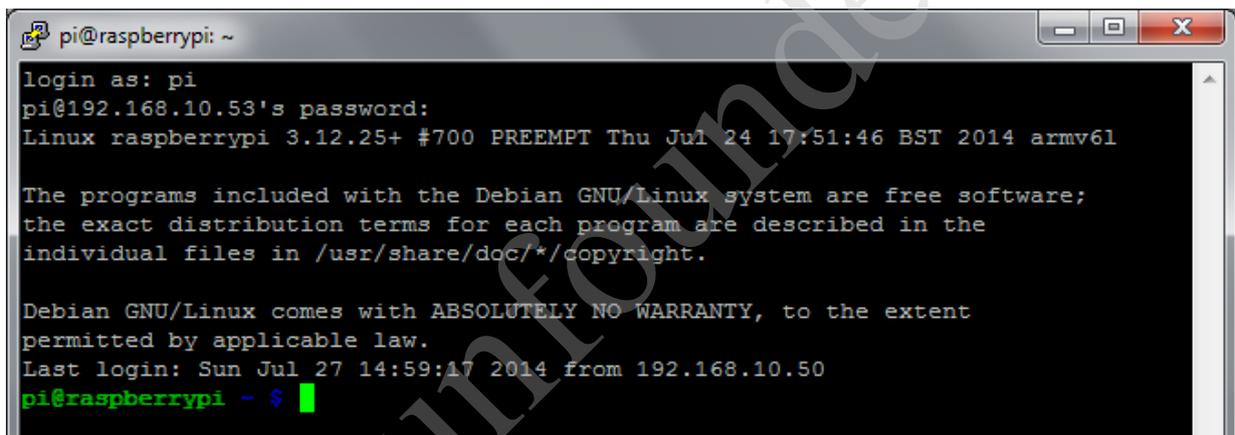
<https://www.raspberrypi.org/documentation/remote-access/ip-address.md>

- 2 · Log in with the IP address, by ssh or VNC:

For ssh: <https://www.raspberrypi.org/documentation/remote-access/ssh/README.md>

For VNC: <https://www.raspberrypi.org/documentation/remote-access/vnc/README.md>

Now you're on the RPi already. Open a terminal for command lines. Let's see what's next.



```
pi@raspberrypi: ~
login as: pi
pi@192.168.10.53's password:
Linux raspberrypi 3.12.25+ #700 PREEMPT Thu Jul 24 17:51:46 BST 2014 armv61

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Sun Jul 27 14:59:17 2014 from 192.168.10.50
pi@raspberrypi ~ $
```

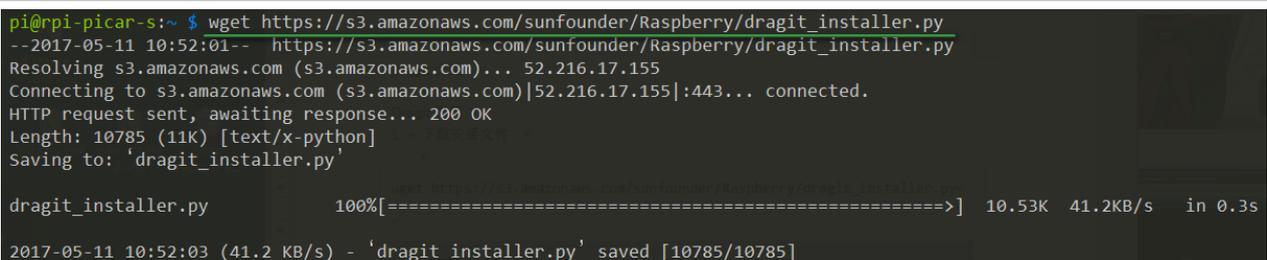
Step 1: Type in `sudo raspi-config` to open Raspberry Pi's SPI:

```
sudo raspi-config
```

Then select **5 Interfacing Options** -> **P4 SPI** -> **yes**

Step 2: Type in the command below to download:

```
wget https://s3.amazonaws.com/sunfounder/Raspberry/dragit_installer.py
```



```
pi@rpi-picar-s: ~ $ wget https://s3.amazonaws.com/sunfounder/Raspberry/dragit_installer.py
--2017-05-11 10:52:01-- https://s3.amazonaws.com/sunfounder/Raspberry/dragit_installer.py
Resolving s3.amazonaws.com (s3.amazonaws.com)... 52.216.17.155
Connecting to s3.amazonaws.com (s3.amazonaws.com)|52.216.17.155|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 10785 (11K) [text/x-python]
Saving to: 'dragit_installer.py'

dragit_installer.py      100%[=====>] 10.53K  41.2KB/s  in 0.3s

2017-05-11 10:52:03 (41.2 KB/s) - 'dragit_installer.py' saved [10785/10785]
```

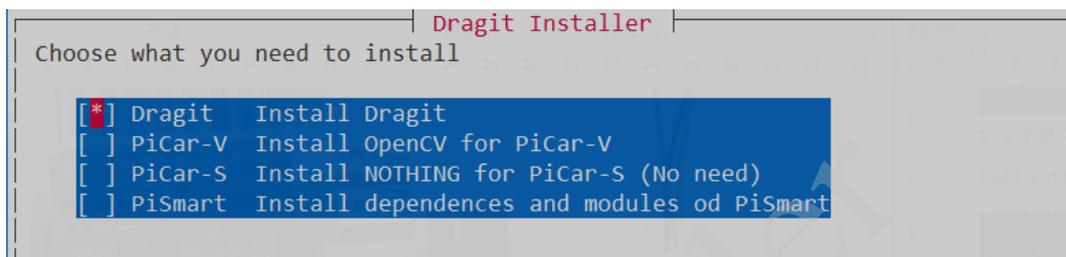
Step 3: After download is done, type in the command to run:

```
sudo python dragit_installer.py
```

```
2017-05-11 11:02:38 (43.2 KB/s) - 'dragit_installer.py' saved [10785/10785]
pi@rpi-picar-s:~ $ sudo python dragit_installer.py |
```

Then you can see what to install. Switch to the one you'd like to install by the arrow key, and check the box by Space bar.

To apply the Emo with Dragit, you only need to install the top one, **Install Dragit**.



Then the program will finish the installation automatically. Just wait for a while and DO NOT disconnect the network.

```
Setting up Dragit...
Done

-e Reboot your pi to take effect or do it later
Done
pi@raspberrypi:~ $ sudo reboot
```

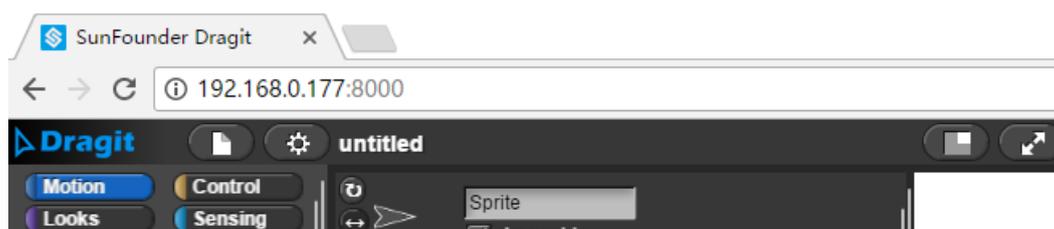
If the prompt above appears, it means the installation is done.

Then reboot the Raspberry Pi:

```
sudo reboot
```

On your computer/tablet, open a web browser (Chrome/Firefox/Safari recommended), enter the IP address of the Raspberry Pi and then 8000:

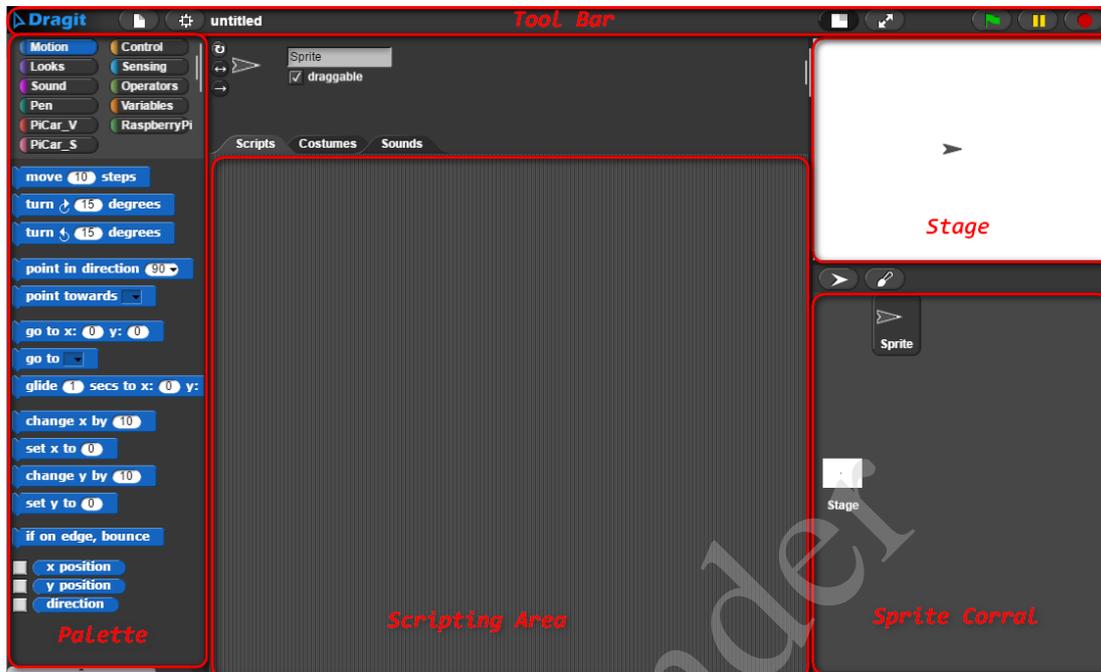
Example: 192.168.0.177:8000



Then you're in the Dragit window.

Overview of Dragit

After opening Dragit, you can see the following window:



There are a few areas in Dragit. The scripts are shown in the scripting area and constructed by blocks in the palette. On top of the Palette, there are many categories, under which are blocks in each category. Blocks on the left column are to be dragged into the *scripting area* to make and combine into bigger chunks. As suggested by the names, the left Palette is like the palette you use for drawing when on the right side you can fulfill your imagination and bring innovative ideas into reality.

Toolbar

On the **Toolbar** at top, besides file saving, settings and zoom in/out, there are also **Execute**, **Pause** and **Stop** buttons.

Stage

On Stage at the top right corner, the icon you added and the data set will be displayed here.



Scripting Area

There can be one or more *scripts* for a project in DragIt. The scripts are shown in the *scripting area* and constructed by *blocks* in the *palette*.

On the scripting area, you can drag the blocks there and make and combine larger chunks.

Palette

On the upper area of the Palette, there are 14 categories including Motion, Control, Modules, etc. And on the lower part the blocks of that category are shown. If the scripting area is the canvas, then the palette is what you use to fulfill your imagination and bring innovative ideas into reality.

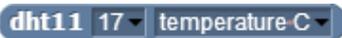
Motion

The Motion category includes the ,  and  blocks, for movement.

Control

The Control category includes , ,  and  blocks, for execution, loop and determination of programs.

Modules

The Modules category includes , ,  and  blocks, for acquiring values returned from various sensor modules and control of the display module.

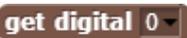
RaspberryPi

The RaspberryPi category includes , ,  and  blocks, for GPIO port control and data collection of the Raspberry Pi.

PiCar_V, PiCar_S, and PiPlus

The PiCar_V, PiCar_S and PiPlus categories include blocks for control of these three robot and learning kits.

PiSmart

The PiSmart category includes blocks for analog signal acquisition , digital signal acquisition , speech , speech recognition , LED control , motor control , servo control , and

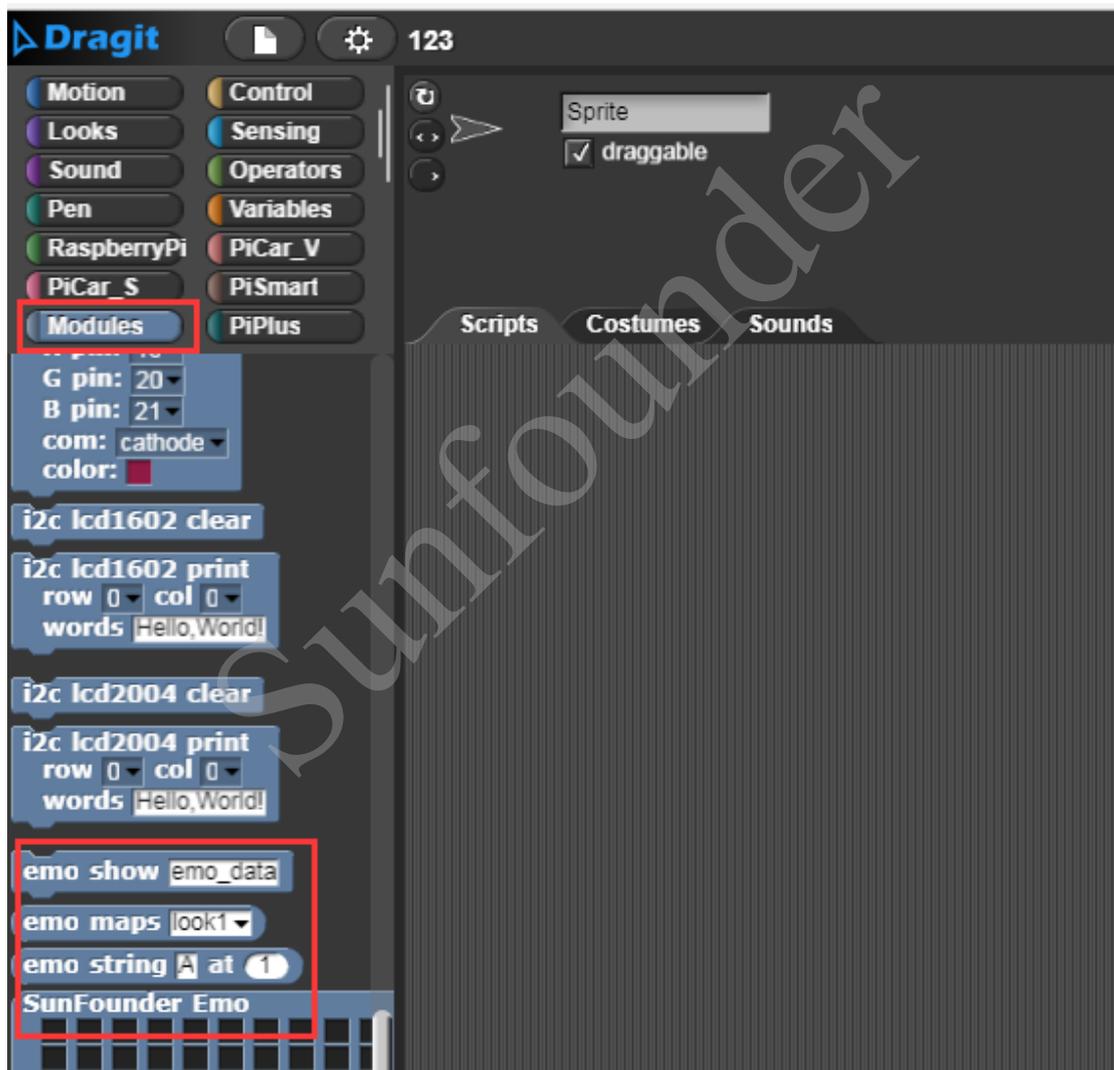
dictionary setting .

Variables

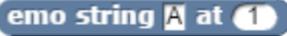
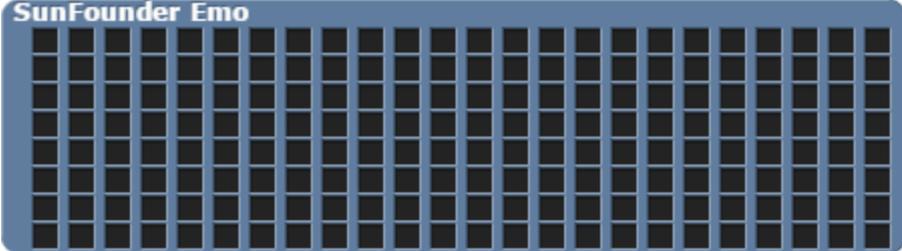
The Variables category includes , , and  blocks for variable and block making, variable value setting and list creation.

Use Emo with Dragit

You can find the blocks for Smileys or Emoji control under the **Module** category. There are three blocks for most use:



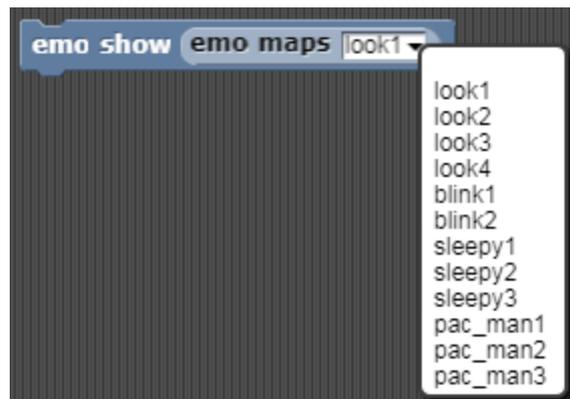
	To send the data of emoji to the SunFounder Emo to display. The slot needs an array of hexadecimal numbers for the emoji on Emo.
	On the drop-down list there are some pre-set emojis. The block returns the array of the hexadecimal numbers for the pre-set emoji selected.

	<p>Input what you want Emo to display (letters and characters) in the first slot; in the second slot, enter an integer for the starting point to display contents (can be smaller than 0, but the left part of that column will not be displayed on Emo)</p>
	
<p>The points in this dot matrix are mapped with the pixel points on SunFounder Emo. Light up the points on the side, so those on the Emo will be turned on, thus making emojis on the display. The block returns an array of hexadecimal numbers for the emoji.</p>	

It is quite simple to use:

Display pre-set faces

Drag out the block `emo show emo_data`, then drag the `emo maps look1` into the slot in the block and click on the combined block, so the emoji will be displayed accordingly. Change the emoji displayed by switching the options of pre-set faces on the drop-down list of the emo maps block.



The Emo can also display several emoji one by one. Click the `wait 1 secs` block under the Control category to interval different emoji, but the shortest interval time between different emoji is 1ms. If you need to display these emoji recycling circularly, then you need to add the Forever block.

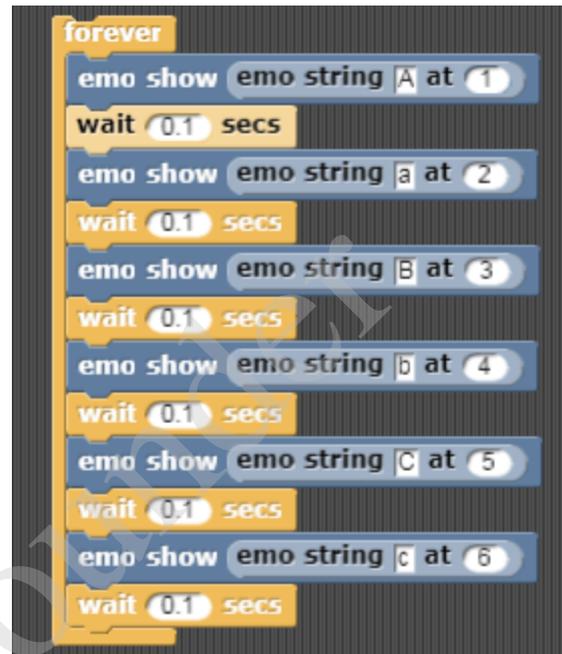
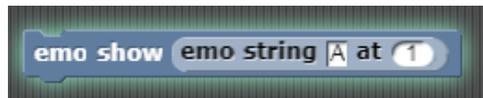
```
forever
emo show emo maps look1
wait 0.1 secs
emo show emo maps look2
wait 0.1 secs
emo show emo maps look3
wait 0.1 secs
emo show emo maps look4
wait 0.1 secs
emo show emo maps blink1
wait 0.1 secs
emo show emo maps blink2
```



Display letters and characters

Drag out the block `emo show emo_data`, then drag the `emo string A at 1` into the slot in the block and click on the combined block, you will find the A is on the most left side.

`emo string A at 1` The number 1 means from the first line it begin as 1. You can also change 1 to other number (1-24), you will see the change of the location of A. You can also change A to other letters or characters.



DIY emojis

You can use SunFounder Emo to display whatever pictures you need.

