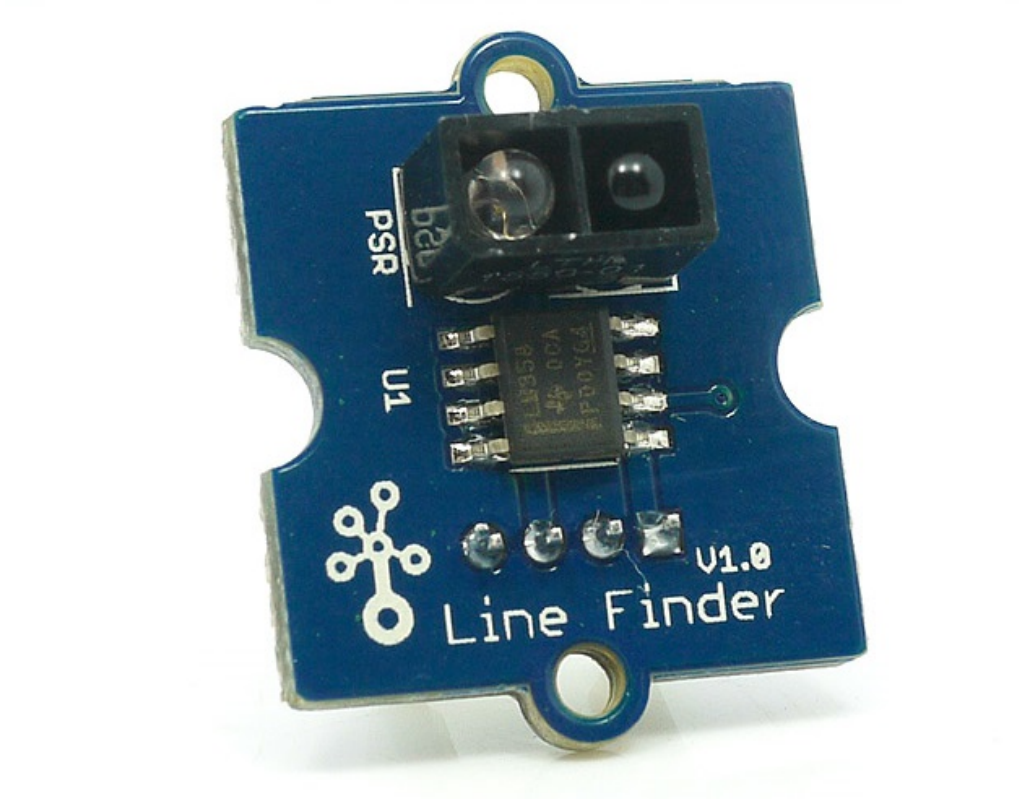


Grove-Line finder is designed for line-following robot. It has an IR emitting LED and an IR sensitive phototransistor. It can output digital signal to a microcontroller so that the robot can follow a black line on white background, or vice versa.

Get One Now

[https://www.seeedstudio.com/Grove-Line-Finder-v1.1-p-2712.html]

Version

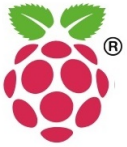
Product Version	Changes	Released Date
Grove-Line Finder V1.0	Initial	Jan 29 2010
Grove-Line Finder V1.1	Add test points	Dec 28 2015

Specification

Parameter	Value/Range
Power supply	5
Digital output mode	TTL (High when black is detected, Low when white is detected)
Connector	4 pin Buckled Grove interface
Dimension	20mm*20mm
ROHS	Yes
Photo reflective diode	RS-06WD
Comparator	MV358

Tip
More details about Grove modules please refer to Grove System [https://wiki.seeedstudio.com/Grove_System/]

Platform Supported

Arduino	Raspberry Pi		
			

Caution

The platforms mentioned above as supported is/are an indication of the module's software or theoritical compatibility. We only provide software library or code examples for Arduino platform in most cases. It is not possible to provide software library / demo code for all possible MCU platforms. Hence, users have to write their own software library.

Getting Started

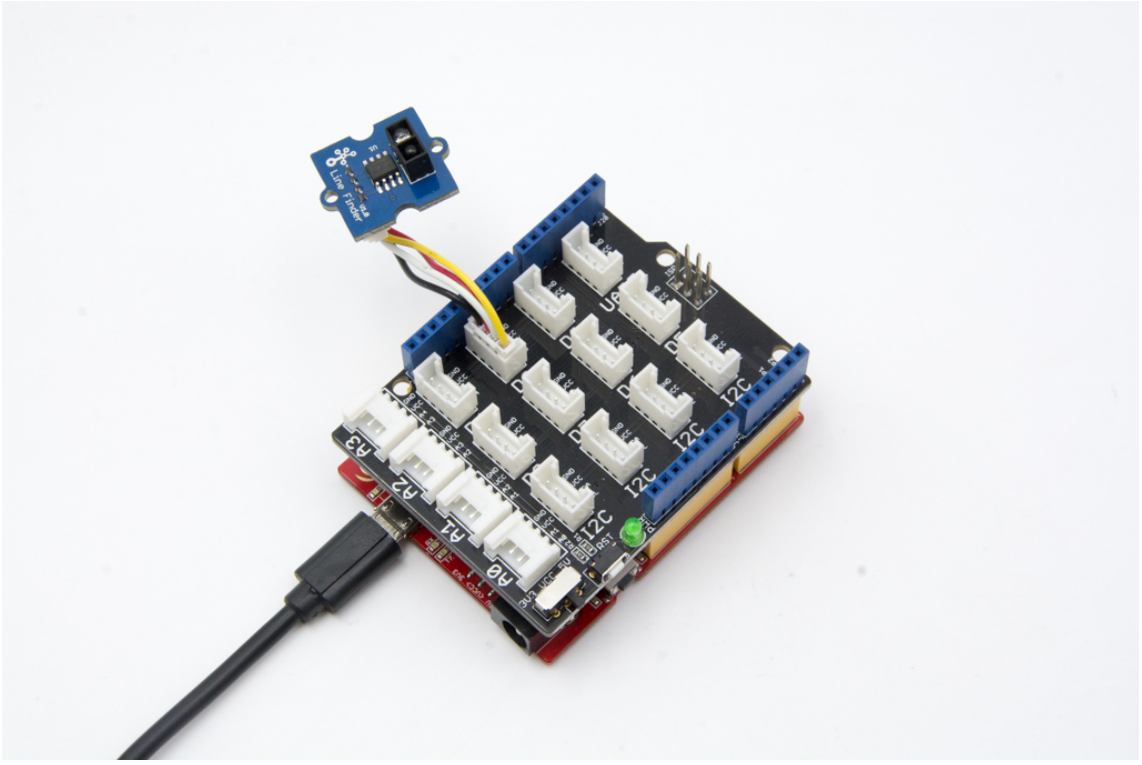
Play With Arduino

Hardware

- Step 1. Prepare the below stuffs:

Seeeduino V4.2	Base Shield
	
Get One Now [https://www.seeedstudio.com/Seeeduino-V4.2-p-2517.html]	Get One Now [https://www.seeedstudio.com/Base Shield-V2-p-1378.html]

- Step 2. Connect Grove-line finder to port D3 of Grove-Base Shield.
- Step 3. Plug Grove - Base Shield into Seeeduino.
- Step 4. Connect Seeeduino to PC through a USB cable.



Note
If we don't have Grove Base Shield, We also can directly connect Grove-Line finder to Seeeduino as below.

Seeeduino	Grove-Line finder
5V	Red
GND	Black
Not Conencted	White
D3	Yellow

Software

- Step 1. Copy the code into Arduino IDE and upload.

```
//-----------------------------------------------------
//Name: Line finder digital mode
//Function: detect black line or white line
//Parameter:   When digital signal is HIGH, black line
//             When digital signal is LOW, white line
//-----------------------------------------------------
int signalPin =  3;    // connected to digital pin 3
void setup()   {
  pinMode(signalPin, INPUT); // initialize the digital p
  Serial.begin(9600);  // initialize serial communicatio
}
// the loop() method runs over and over again,
// as long as the Arduino has power
void loop()
{
  if(HIGH == digitalRead(signalPin))
    Serial.println("black");
  else  Serial.println("white");  // display the color
  delay(1000);                  // wait for a second
}
```

- Step 2. Open the serial port and we will see "black" when put the sensor on top of black lines and "white" when on white area.

```
white
white
white
black
black
black
black
black
```

Play with Codecraft

Hardware

Step 1. Connect a Grove - Line Finder to port D3 of a Base Shield.

Step 2. Plug the Base Shield to your Seeeduino/Arduino.

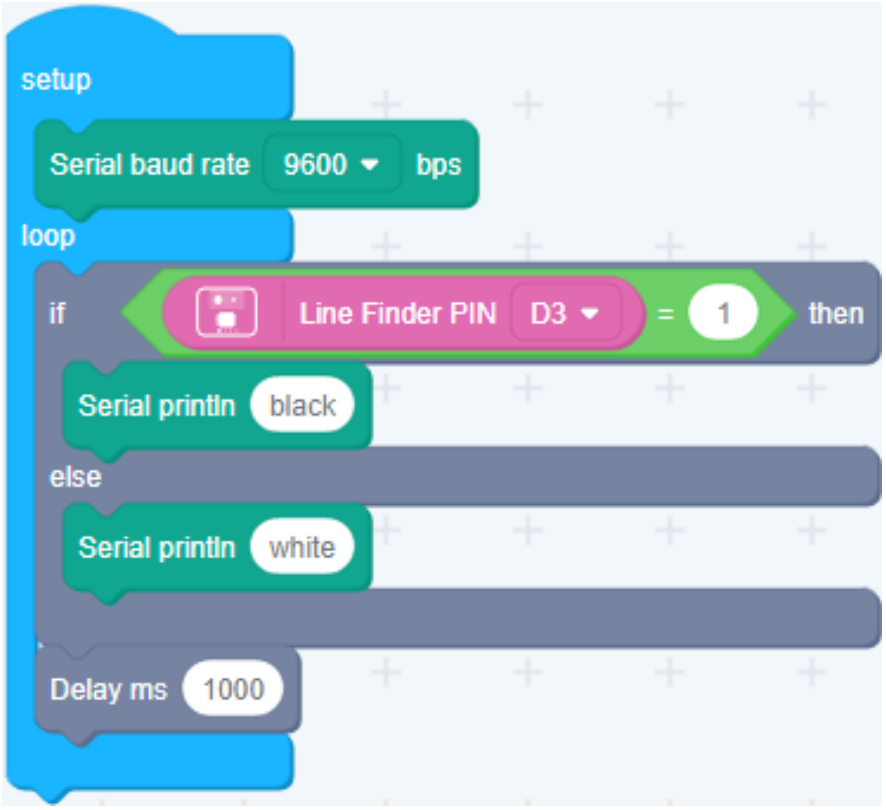
Step 3. Link Seeeduino/Arduino to your PC via an USB cable.

Software

Step 1. Open Codecraft [https://ide.chmakered.com/], add Arduino support, and drag a main procedure to working area.

> **Note**
> If this is your first time using Codecraft, see also Guide for Codecraft using Arduino [https://wiki.seeedstudio.com/Guide_for_Codecraft_using_Arduino/].

Step 2. Drag blocks as picture below or open the cdc file which can be downloaded at the end of this page.



Upload the program to your Arduino/Seeeduino.

> **Success**
> When the code finishes uploaded, you will see line found or not in Serial Monitor.

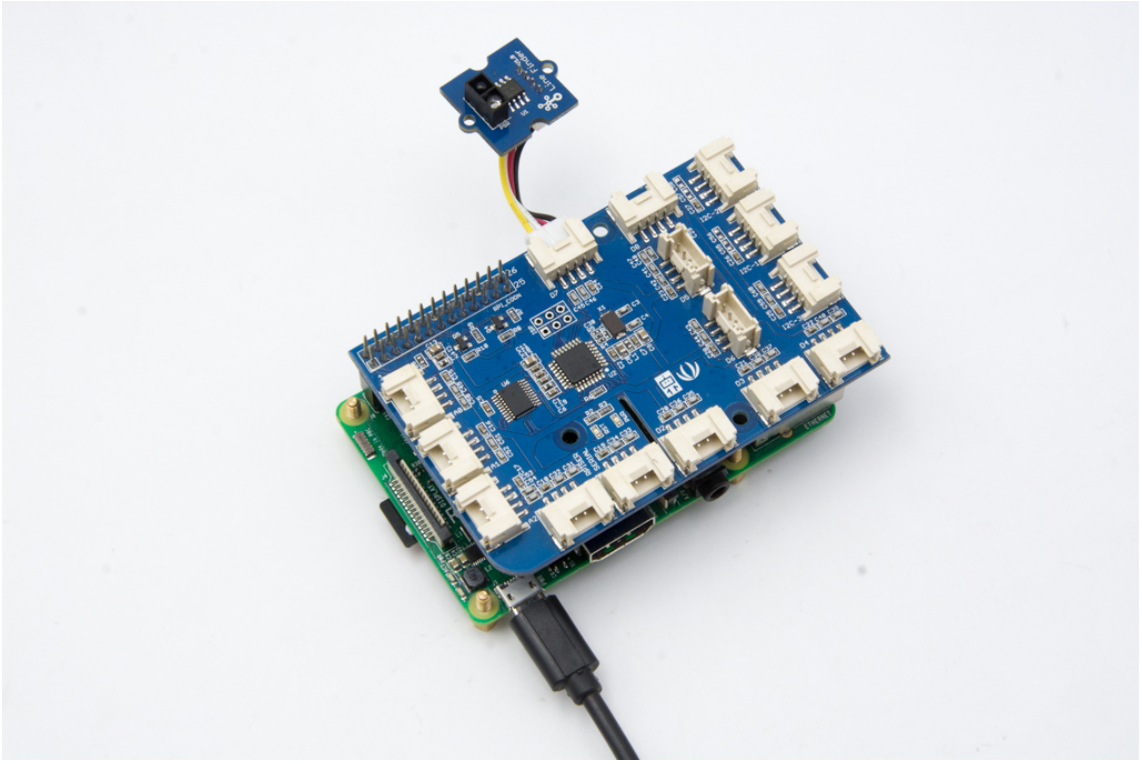
Play With Raspberry Pi

Hardware

- Step 1. Prepare the below stuffs:

Raspberry pi	GrovePi_Plus
	
Get ONE Now [https://www.seeedstudio.com/Raspberry-Pi-3-Model-B-p-2625.html]	Get ONE Now [https://www.seeedstudio.com/Grove p-2241.html]

- Step 2. Plug the GrovePi_Plus into Raspberry.
- Step 3. Connect Grove-Line Finder to D7 port of GrovePi_Plus.
- Step 4. Connect the Raspberry to PC through USB cable.



Software

- Step 1. Follow Setting Software [https://www.dexterindustries.com/GrovePi/get-started-with-the-grovepi/setting-software/] to configure the development environment.
- Step 2. Git clone the Github repository.

```
cd ~
git clone https://github.com/DexterInd/GrovePi.git
```

- Step 3. Excute below commands.

```
cd ~/GrovePi/Software/Python
python grove_line_finder.py
```

Here is the grove_line_finder.py code.

```
import time
import grovepi

# Connect the Grove Line Finder to digital port D7
# SIG,NC,VCC,GND
line_finder = 7

grovepi.pinMode(line_finder,"INPUT")

while True:
    try:
        # Return HIGH when black line is detected, and L
        if grovepi.digitalRead(line_finder) == 1:
            print ("black line detected")
        else:
            print ("white line detected")

        time.sleep(.5)

    except IOError:
        print ("Error")
```

- Step 4. We will see black line detected when the sensor is on top of black line.

```
pi@raspberrypi:~/GrovePi/Software/Python $ python grove_1
black line detected
black line detected
white line detected
white line detected
```

Grove-Line Finder Schematic V1.0

Grove-Line Finder Schematic V1.1

Resources

- **[Eagle&PDF]** Grove-Line Finder Schematic V1.0 [https://files.seeedstudio.com/wiki/Grove_Line_Finder/res/202000970_Grove%20-%20Line%20Finder%EF%BC%88CN%EF%BC%89%20v1.0.zip]
- **[Eagle&PDF]** Grove-Line Finder Schematic V1.1 [https://files.seeedstudio.com/wiki/Grove_Line_Finder/res/202000932_Grove%20-%20Line%20Finder%20v1.1.zip]

- **[Datasheet]** LMV358.PDF [https://files.seeedstudio.com/wiki/Grove_Line_Finder/res/Lmv358.pdf]
- **[Codecraft]** CDC File [https://files.seeedstudio.com/wiki/Grove_Line_Finder/res/Grove_Line_Finder_CDC_File.zip]

Tech Support

Please submit any technical issue into our forum [https://forum.seeedstudio.com/].

[https://www.seeedstudio.com/act-4.html?utm_source=wiki&utm_medium=wikibanner&utm_campaign=newproducts]