

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.

## 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](#)

## Platform Supported

Arduino	Raspberry Pi
	

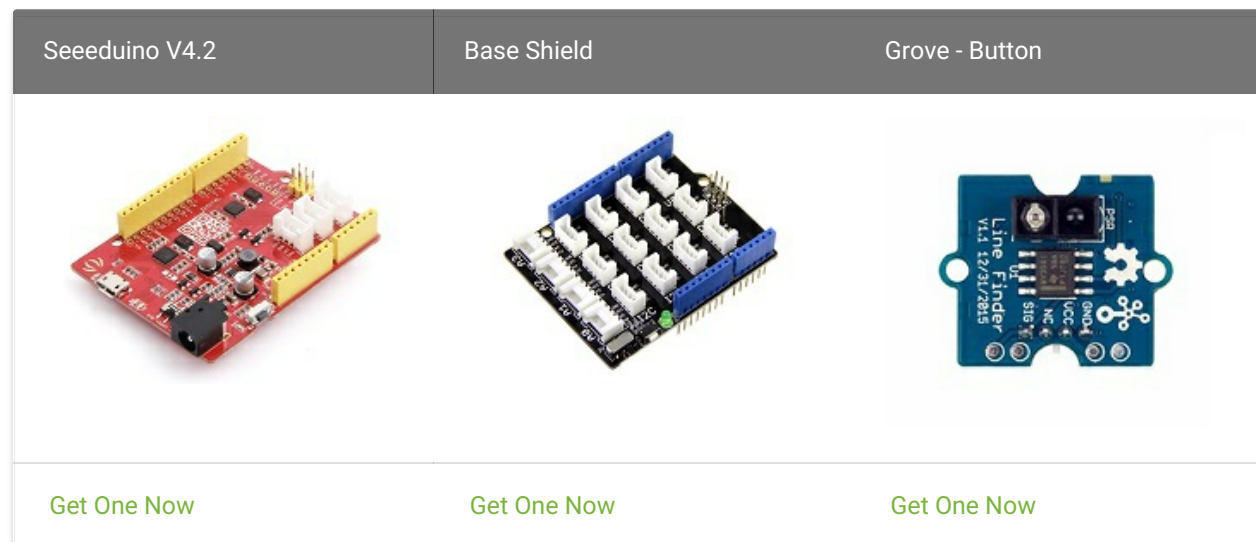
**Caution**  
The platforms mentioned above as supported is/are an indication of the module's software or theoretical compatibility. We only provide software library or code examples for Arduino platform in most cases. It

## Getting Started

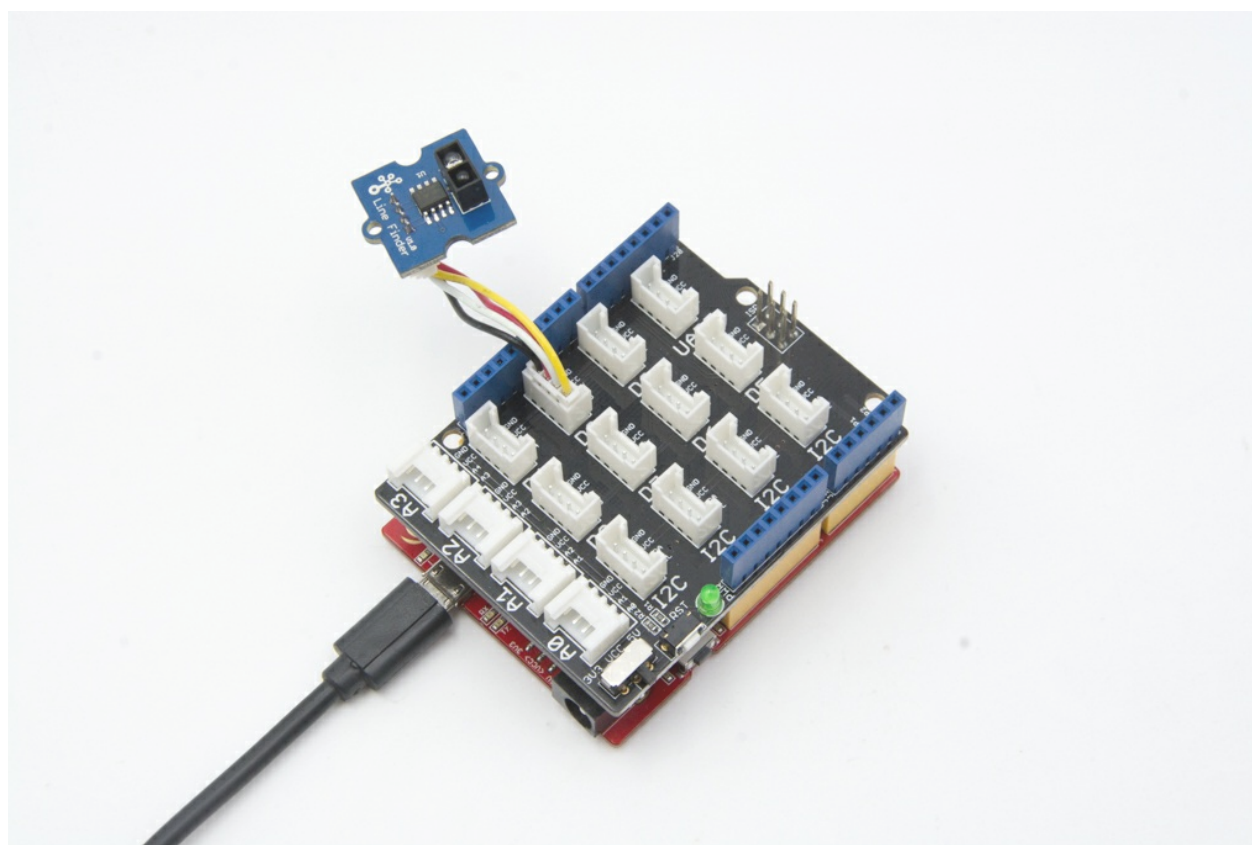
### Play With Arduino

#### Hardware

- Step 1. Prepare the below stuffs:



- 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 pin as an output:
  Serial.begin(9600); // initialize serial communications at 9600 bps:
}
// 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
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.

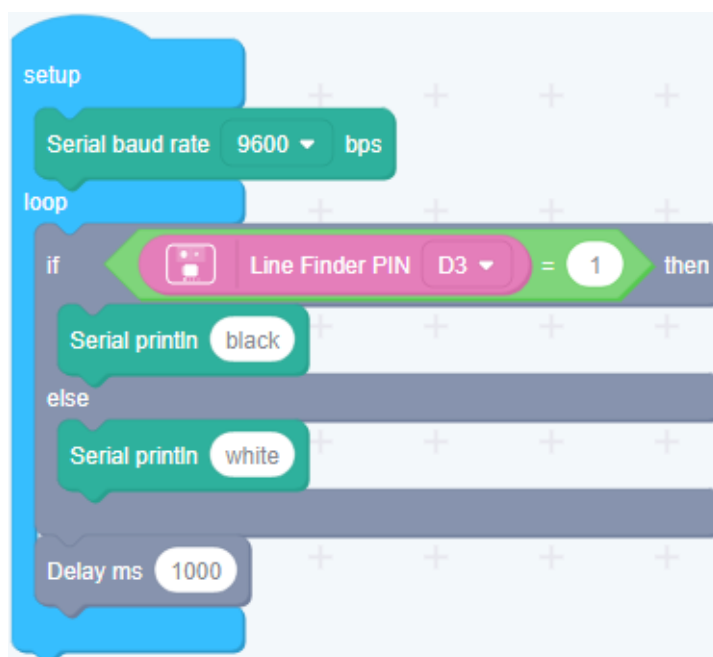
### Software

Step 1. Open [Codecraft](#), 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](#).

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.

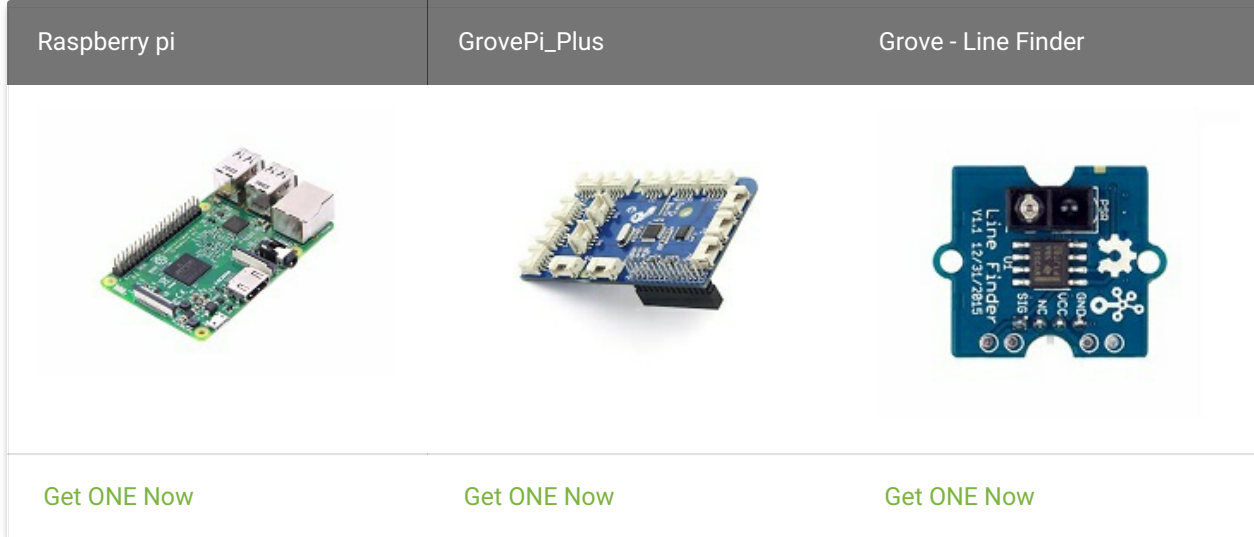
#### Success

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

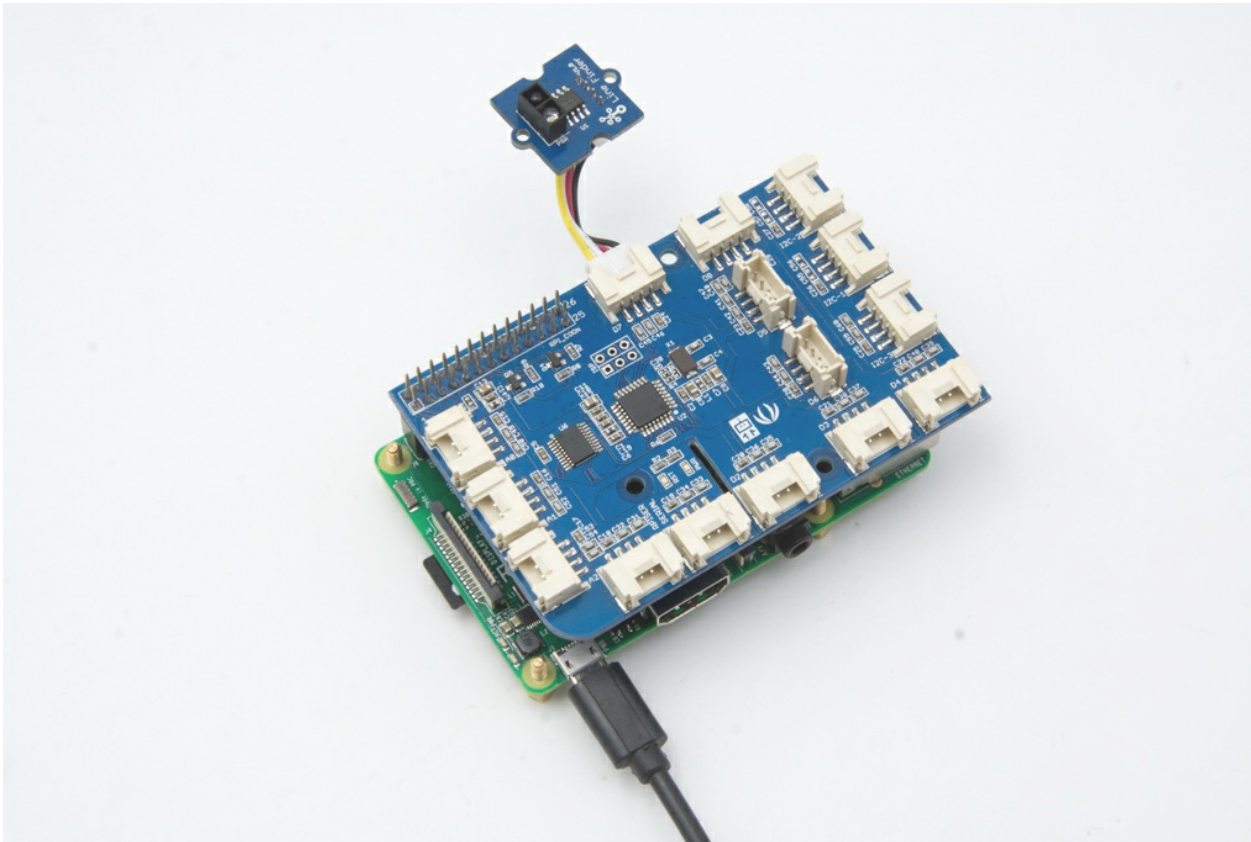
## Play With Raspberry Pi

### Hardware

- Step 1. Prepare the below stuffs:



- 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](#) to configure the development environment.
- Step 2. Git clone the Github repository.

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

- Step 3. Execute 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 LOW when white line is detected
        if grovepi.digitalRead(line_finder) == 1:
            print("black line detected")
        else:
            print("white line detected")

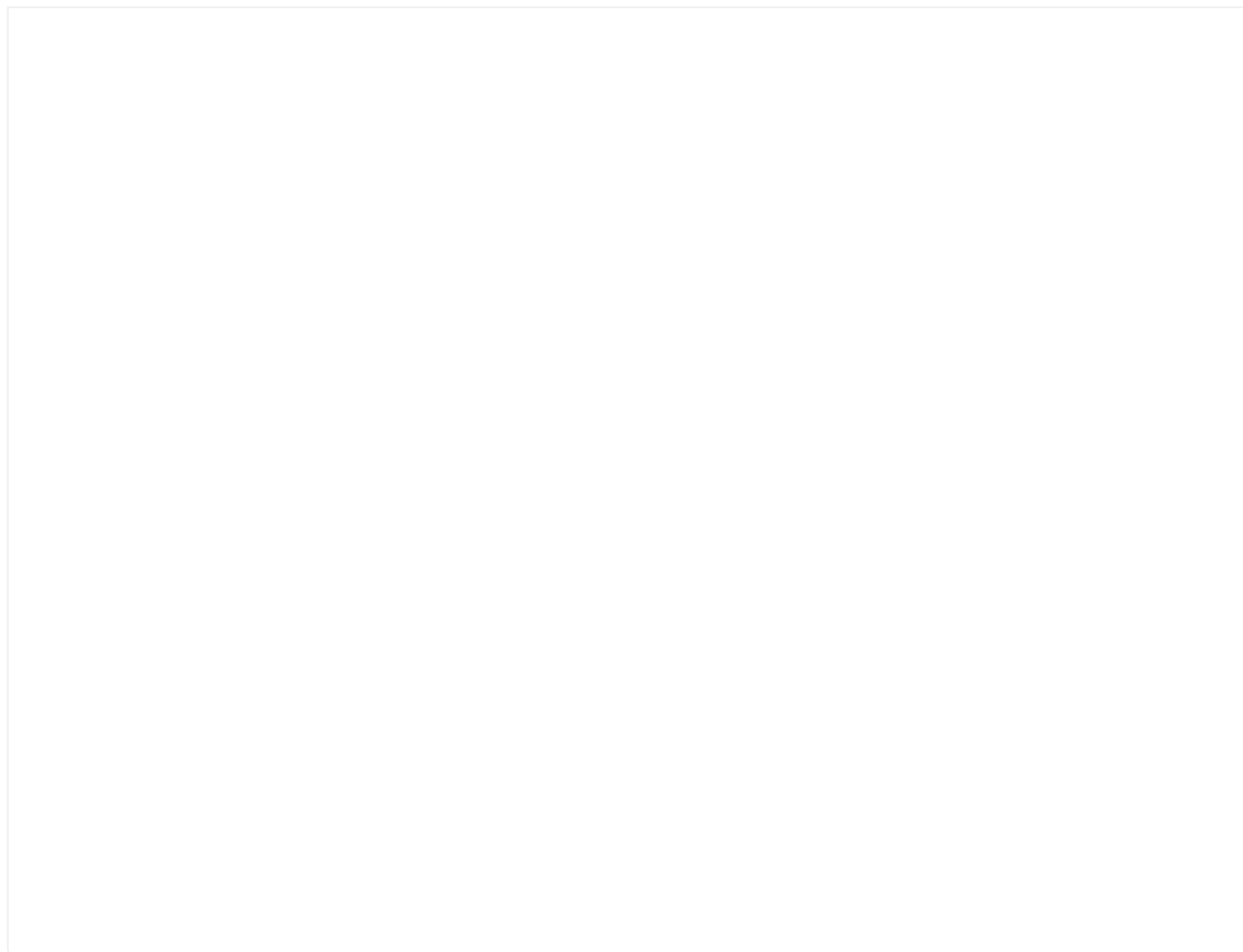
        time.sleep(.5)
    except IOError:
        print("Error")
```

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

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



## Grove-Line Finder Schematic V1.1



### Resources

- [Eagle&PDF] [Grove-Line Finder Schematic V1.0](#)
- [Eagle&PDF] [Grove-Line Finder Schematic V1.1](#)
- [Datasheet] [LMV358.PDF](#)
- [Codecraft] [CDC File](#)

### Tech Support

Please submit any technical issue into our [forum](#).

