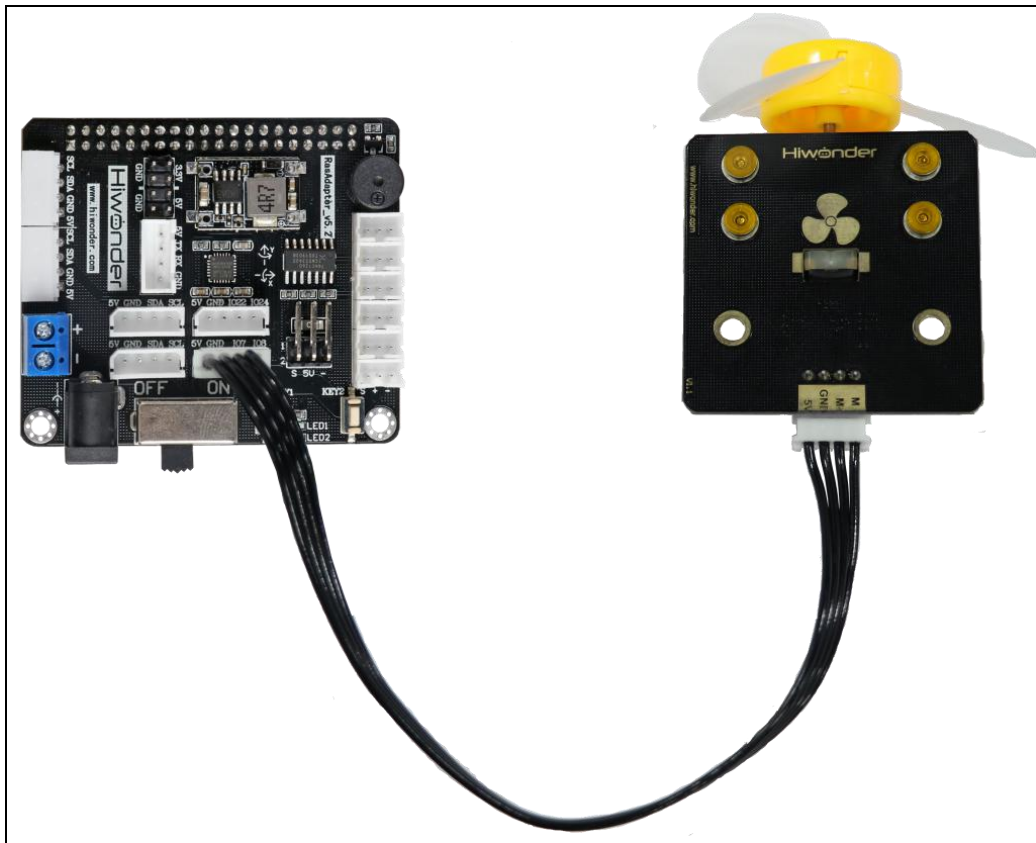


# Lesson 1 Fan Module

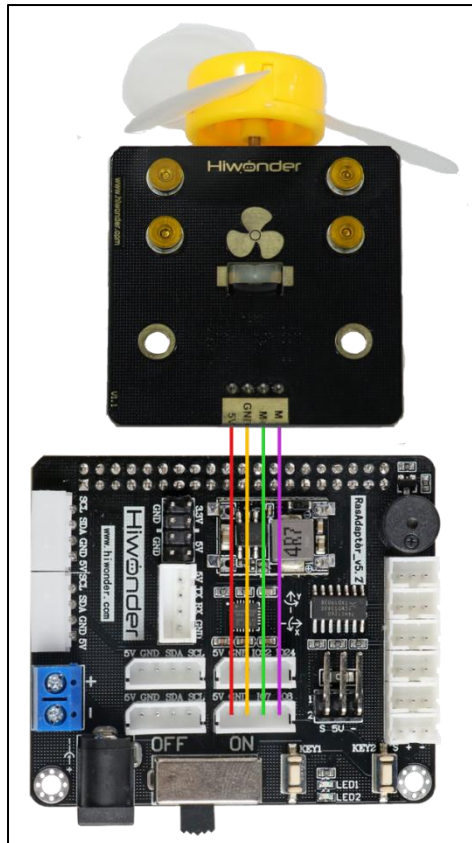
## 1. Getting Ready

Prepare a fan module and connect it to any one of GPIO ports on Raspberry Pi expansion board through 4PIN cable. The wiring effect is as follow:



**Note: Please do not insert forcefully because 4PIN cable uses anti-reverse plugging design.**

In addition, 4 female to female Dupont lines can also be used to connect fan module to Raspberry Pi expansion board, as the figure shown below:



## 2. Module Usage

No extra motor driver board is needed for using the fan module. We can adjust the rotation direction and speed through program. Beyond that, the module is compatible with Lego series for more creative DIY design.

## 3. Working Principle

In this project, we control the fan rotation through two GPIO ports. When one GPIO port is set to high-level and the other one is set to low level, the fan starts rotate.


The source code of the program is located in:  
**`/home/pi/TonyPi/Extend/Sensor/fan_control.py`**

```

34 #fan control
35 def setFan(start):
36     GPIO.setup(24, GPIO.OUT) # correspond Expansion board GPIO8
37     GPIO.setup(26, GPIO.OUT) # correspond Expansion board GPIO7
38     if start == 1:
39         GPIO.output(24, 1)
40         GPIO.output(26, 0)
41     else:
42         GPIO.output(24, 0)
43         GPIO.output(26, 0)
44
45 if __name__ == '__main__':
46     while True:
47         try:
48             setFan(1)
49         except KeyboardInterrupt:
50             setFan(0)
51             break

```

## 4. Operation Steps

- 1) Click  in the upper left corner to open the terminal. Enter command “cd TonyPi/Extend/Sensor/” and press “Enter” to come to the directory of game programmings.

```
pi@raspberrypi:~ $ cd TonyPi/Extend/Sensor/
```

- 2) Enter “sudo python3 fan\_control.py” command, and then press “Enter” to start the game.

```
pi@raspberrypi:~ $ cd TonyPi/Extend/Sensor/
pi@raspberrypi:~/TonyPi/Extend/Sensor $ sudo python3 fan_control.py
```

- 3) If want to close this program, press “Ctrl+C”. You can try multiple time if fail to close.

## 5. Project Outcome

After the program is started, fan starts revolving, vice verse.

