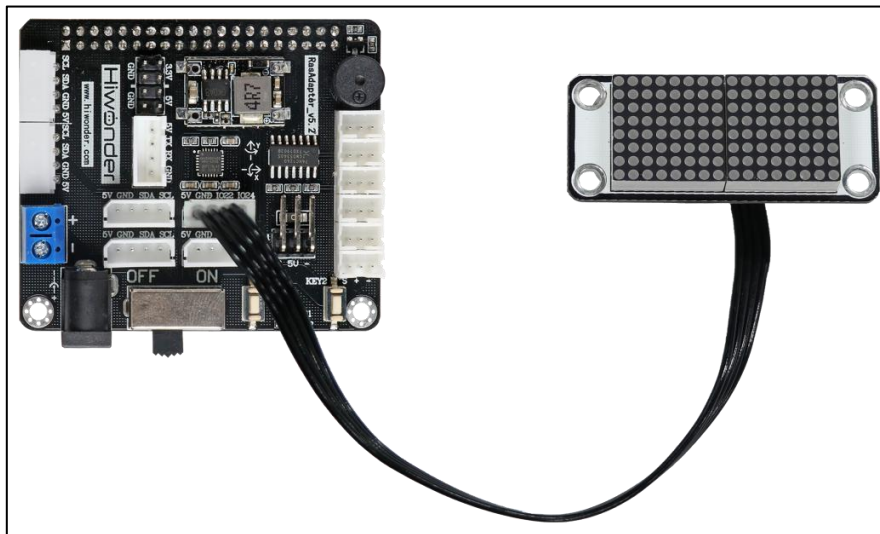


Lesson 5 Dot Matrix Module

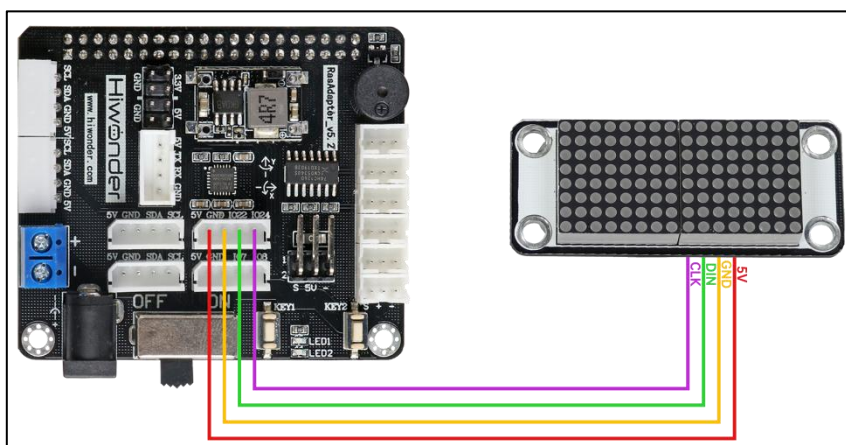
1. Getting Ready

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



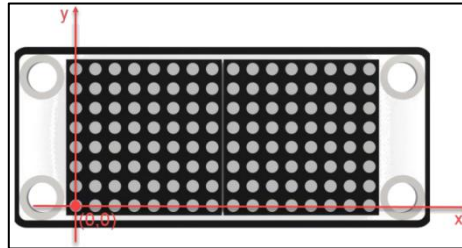
Note: Please do not insert forcefully because 4PIN cable uses anti-reverse plugging design.

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



2. Module Usage

The dot matrix module used in this lesson is composed of two red 8×8 LED dot matrix screens. The dot matrix screen can be controlled by driving the control chip. It features high display brightness, no flash during display and simple wiring, and can display number, text, pattern and other contents.



3. Working Principle


In this project, we control the display module of the dot matrix module through a set of hexadecimal data. A set of data contains 16 data in total, and each data control one column of the LED screen.

The source code of program is located in:

/home/pi/TonyPi/Extend/Sensor/LatticeDisplayDemo.py

```
25 if __name__ == "__main__":
26     while True:
27         try:
28             ## display 'Hello'
29             tm.display_buf = (0x7f, 0x08, 0x7f, 0x00, 0x7c, 0x54, 0x5c, 0x00,
30                             0x7c, 0x40, 0x00, 0x7c, 0x40, 0x38, 0x44, 0x38)
31
32             tm.update_display()
33             time.sleep(5)
34         except KeyboardInterrupt:
35             tm.display_buf = [0] * 16
36             tm.update_display()
37             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 the game programmings.

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

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

```
pi@raspberrypi:~ $ cd TonyPi/Extend/Sensor/  
pi@raspberrypi:~/TonyPi/Extend/Sensor $ sudo python3 LatticeDisplayDemo.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, the dot matrix screen will display the text “Hello”. When the program is closed, the screen will turn off completely.