

树莓派第三课 PWM灯控制

大家好, 现在开始我们科易互动机器人树莓派基础套件的第三课。首先进入我们的第三课资料文件夹, 操作同第一课。这节课我们要用到wiringPi库, 库具体安装见附件。我们还会学习到一个简便的Nano编辑器, 方便查看和修改我们的C文件。当然也可以使用Vim编辑器, 一个很强大的编辑器。

```

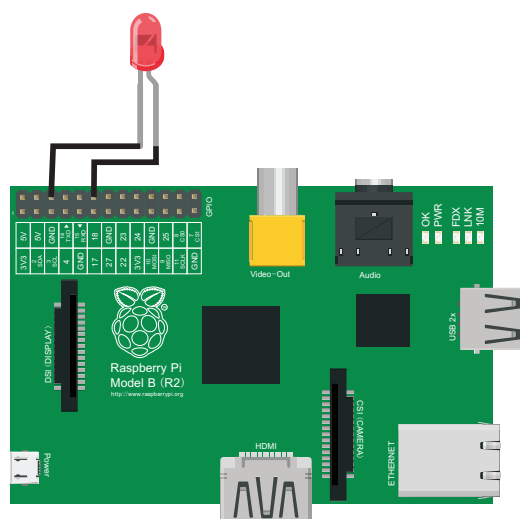
pi@raspberrypi: ~/树莓派基础套件程序资料/第三课 \ PWM灯控制/
pi@raspberrypi: ~/树莓派基础套件程序资料/第三课 \ PWM灯控制/ $ ls
pwm.c
pi@raspberrypi: ~/树莓派基础套件程序资料/第三课 \ PWM灯控制/ $ nano pwm.c
pi@raspberrypi: ~/树莓派基础套件程序资料/第三课 \ PWM灯控制/ $ gcc -Wall -o pwm pwm.c -lwiringPi
pi@raspberrypi: ~/树莓派基础套件程序资料/第三课 \ PWM灯控制/ $ ls
pwm  pwm.c
pi@raspberrypi: ~/树莓派基础套件程序资料/第三课 \ PWM灯控制/ $ gpio readall
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| BCM | wPi |   Name   | Mode | V | Physical | V | Mode | Name   | wPi | BCM |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 3.3v |      |          |      |   | 1 || 2 |      |          |      |      | |
| 2 | 8 | SDA.1 | ALT0 | 1 | 3 || 4 |      |          |      |      |
| 3 | 9 | SCL.1 | ALT0 | 1 | 5 || 6 |      |          |      |      |
| 4 | 7 | GPIO. 7 | IN | 1 | 7 || 8 | 1 | ALT0 | TxD | 15 | 14 |
|      |      | 0v |      |   | 9 || 10 | 1 | ALT0 | RxD | 16 | 15 |
| 17 | 0 | GPIO. 0 | IN | 0 | 11 || 12 | 0 | IN | GPIO. 1 | 1 | 18 |
| 27 | 2 | GPIO. 2 | IN | 0 | 13 || 14 |      |          |      |      |
| 22 | 3 | GPIO. 3 | IN | 0 | 15 || 16 | 0 | IN | GPIO. 4 | 4 | 23 |
|      |      | 3.3v |      |   | 17 || 18 | 0 | IN | GPIO. 5 | 5 | 24 |
| 10 | 12 | MOSI | ALT0 | 0 | 19 || 20 |      |          |      |      |
| 9 | 13 | MISO | ALT0 | 0 | 21 || 22 | 0 | OUT | GPIO. 6 | 6 | 25 |
| 11 | 14 | SCLK | ALT0 | 0 | 23 || 24 | 1 | ALT0 | CE0 | 10 | 8 |
|      |      | 0v |      |   | 25 || 26 | 1 | ALT0 | CE1 | 11 | 7 |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 28 | 17 | GPIO.17 | IN | 0 | 51 || 52 | 0 | IN | GPIO.18 | 18 | 29 |
| 30 | 19 | GPIO.19 | IN | 0 | 53 || 54 | 0 | IN | GPIO.20 | 20 | 31 |
+-----+-----+-----+-----+-----+-----+-----+-----+
| BCM | wPi |   Name   | Mode | V | Physical | V | Mode | Name   | wPi | BCM |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
pi@raspberrypi: ~/树莓派基础套件程序资料/第三课 \ PWM灯控制/ $ sudo ./pwm
Raspberry Pi wiringPi PWM test program
^Cpi@raspberrypi: ~/树莓派基础套件程序资料/第三课 \ PWM灯控制/ $

```

图一

```
pi@raspberrypi: ~/... PWM 带...  
GNU nano 2.2.6 File: pwm.c  
  
int bright ;  
  
printf ("Raspberry Pi wiringPi PWM test program\n") ;  
  
if (wiringPiSetup () == -1)  
    exit (1) ;  
  
pinMode (1, PWM_OUTPUT) ;  
  
for (;;)   
{  
    for (bright = 0 ; bright < 1024 ; ++bright)  
    {  
        pwmWrite (1, bright) ;  
        delay (1) ;  
    }  
  
    for (bright = 1023 ; bright >= 0 ; --bright)  
    {  
        pwmWrite (1, bright) ;  
        delay (1) ;  
    }  
}  
  
return 0 ;  
}  
  
[ Read 58 lines ]  
^G Get Help    ^O WriteOut    ^R Read File    ^Y Prev Page    ^K Cut Text     ^C Cur Pos  
^X Exit        ^J Justify     ^W Where Is     ^V Next Page    ^U UnCut Text   ^T To Spell
```

图二



图三