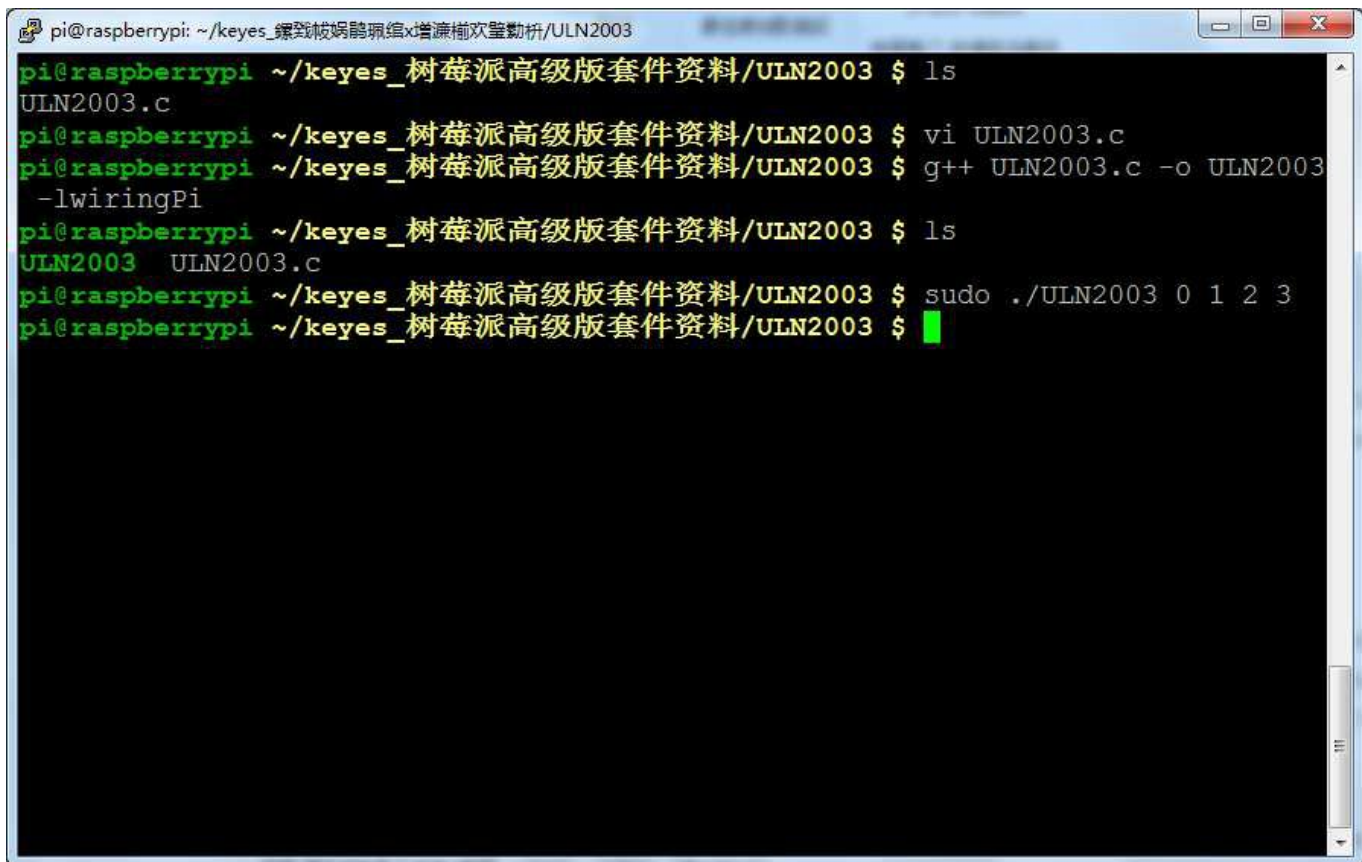


13 ULN2003 stepper motor driving

1 Project process:



```
pi@raspberrypi: ~/keyes_树莓派高级版套件资料/ULN2003 $ ls
ULN2003.c
pi@raspberrypi: ~/keyes_树莓派高级版套件资料/ULN2003 $ vi ULN2003.c
pi@raspberrypi: ~/keyes_树莓派高级版套件资料/ULN2003 $ g++ ULN2003.c -o ULN2003
-lwiringPi
pi@raspberrypi: ~/keyes_树莓派高级版套件资料/ULN2003 $ ls
ULN2003  ULN2003.c
pi@raspberrypi: ~/keyes_树莓派高级版套件资料/ULN2003 $ sudo ./ULN2003 0 1 2 3
pi@raspberrypi: ~/keyes_树莓派高级版套件资料/ULN2003 $
```

2 Project source code:

```
pi@raspberrypi: ~/keyes_鑼戮絨謁鵲鵲鑼x鑼濶櫟歡鑼動枰/Uln2003
/* moto.c
 * A program to control a stepper motor through the GPIO on Raspberry Pi.
 *
 * Author: Darran Zhang (http://www.codelast.com)
 */

#include <wiringPi.h>
#include <stdio.h>
#include <unistd.h>
#include <stdlib.h>

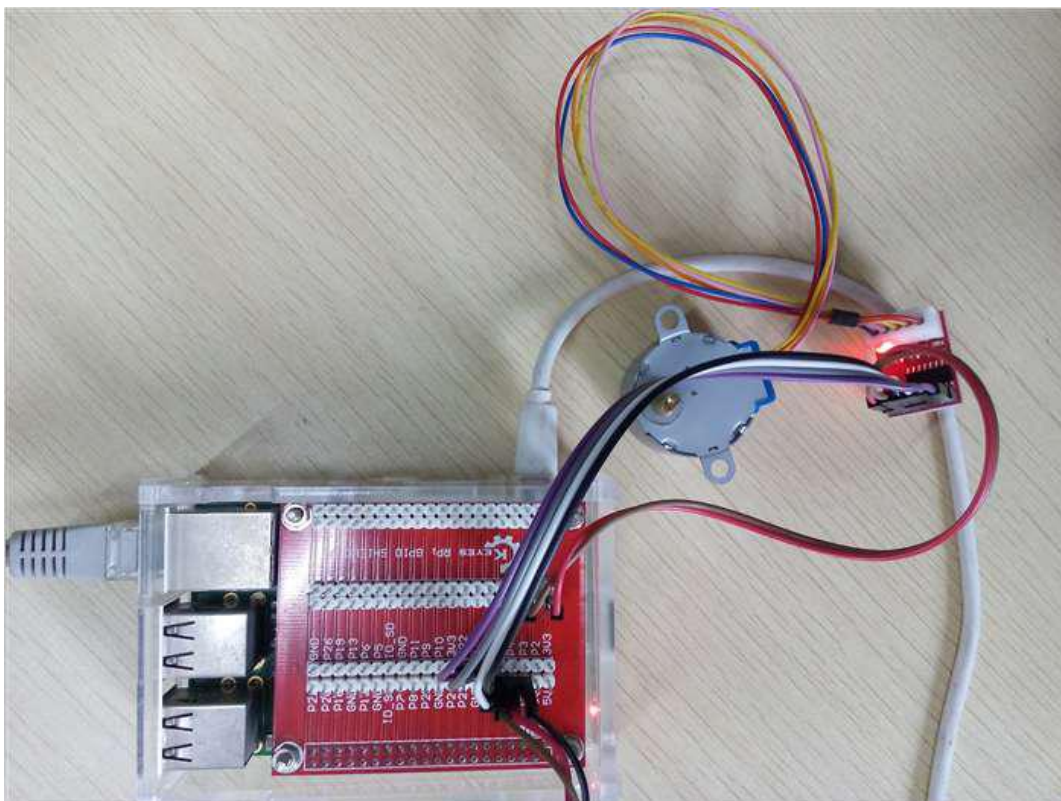
#define CLOCKWISE 1
#define COUNTER_CLOCKWISE 2

void delayMS(int x);
void rotate(int* pins, int direction);

int main(int argc, char* argv[]) {
    if (argc < 4) {
        printf("Usage example: ./motor 0 1 2 3 \n");
        return 1;
    }

    /* number of the pins which connected to the stepper motor driver board */
    "ULN2003.c" 83L, 1996C                                     1,1      Top
```

3 Project circuit connection:



4 Pin definition

Red circled area are GPIO ports corresponding to ULN2003 IN1 IN2 IN3 IN4.

```

pi@raspberrypi: ~/keyes_树莓派高级版套件资料/ULN2003 $ gpio readall
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| BCM | wPi |   Name   | Mode | V | Physical | V | Mode |   Name   | wPi | BCM |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|      |      | 3.3v     |      |   | 1 | 2 |      | 5v       |      |      | |
|  2  |  8  | SDA.1    | ALT0 | 1 | 3 | 4 |      | 5V       |      |      |
|  3  |  9  | SCL.1    | ALT0 | 1 | 5 | 6 |      | 0v       |      |      |
|  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   | OUT  | 1 | 11 | 12 | 0 | OUT  | GPIO. 1 | 1  | 18  |
| 27  |  2  | GPIO. 2   | OUT  | 0 | 13 | 14 |      | 0v       |      |      |
| 22  |  3  | GPIO. 3   | OUT  | 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 |      | 0v       |      |      |
|  9  | 13  | MISO     | ALT0 | 0 | 21 | 22 | 0 | IN   | GPIO. 6 | 6  | 25  |
| 11  | 14  | SCLK     | ALT0 | 0 | 23 | 24 | 1 | ALT0 | CE0     | 10  | 8   |
|      |      | 0v       |      |   | 25 | 26 | 1 | ALT0 | CE1     | 11  | 7   |
|  0  | 30  | SDA.0     | IN   | 1 | 27 | 28 | 1 | IN   | SCL.0   | 31  | 1   |
|  5  | 21  | GPIO.21   | IN   | 1 | 29 | 30 |      | 0v       |      |      |
|  6  | 22  | GPIO.22   | IN   | 1 | 31 | 32 | 0 | IN   | GPIO.26 | 26  | 12  |
| 13  | 23  | GPIO.23   | IN   | 0 | 33 | 34 |      | 0v       |      |      |
| 19  | 24  | GPIO.24   | IN   | 0 | 35 | 36 | 0 | IN   | GPIO.27 | 27  | 16  |
| 26  | 25  | GPIO.25   | IN   | 0 | 37 | 38 | 0 | IN   | GPIO.28 | 28  | 20  |
|      |      | 0v       |      |   | 39 | 40 | 0 | IN   | GPIO.29 | 29  | 21  |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| BCM | wPi |   Name   | Mode | V | Physical | V | Mode |   Name   | wPi | BCM |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
pi@raspberrypi: ~/keyes_树莓派高级版套件资料/ULN2003 $

```

