Matrix Keypad

Overview

In this project, we will try to get every key code on the Keypad work.

Experimental Materials:

Raspberry Pi *1

Matrix Keypad *1

T-type expansion board *1

Breadboard*1

Some DuPont lines

Product description：

● Function:Tons of electronic devices use them for user input.

● Application: Keypads are used in all types of devices, including cell phones, fax machines, microwaves, ovens, door locks, etc. They're practically everywhere.

Keypad is a device that integrates a number of keys. As is shown below, a 4x4 Keypad integrates 16 keys:
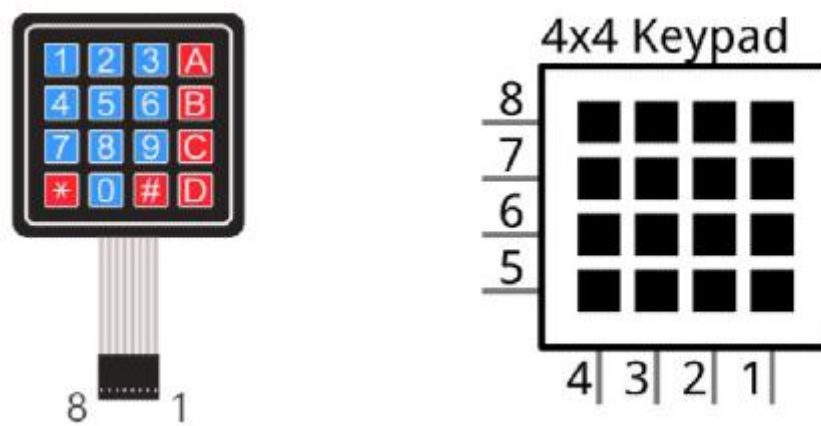

Internal circuit is shown below.
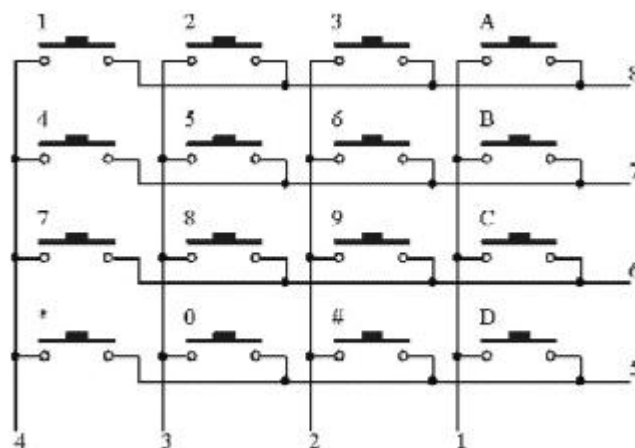
The state of the keys for each column or row is detected using a row scan or column scan method. Taking the column scan method as an example, a low level is sent to the first column (PIN1), and the level states of the

5th, 6th, 7th, and 8th lines are detected, and it is judged whether the A,

B, C, and D keys are pressed. Then send the low level to the 2nd, 3rd, and

4th columns in order to detect whether other keys are pressed.

Technical Parameters:

Maximum Circuit Rating: 35VDC, 100mA

Wiring diagram：
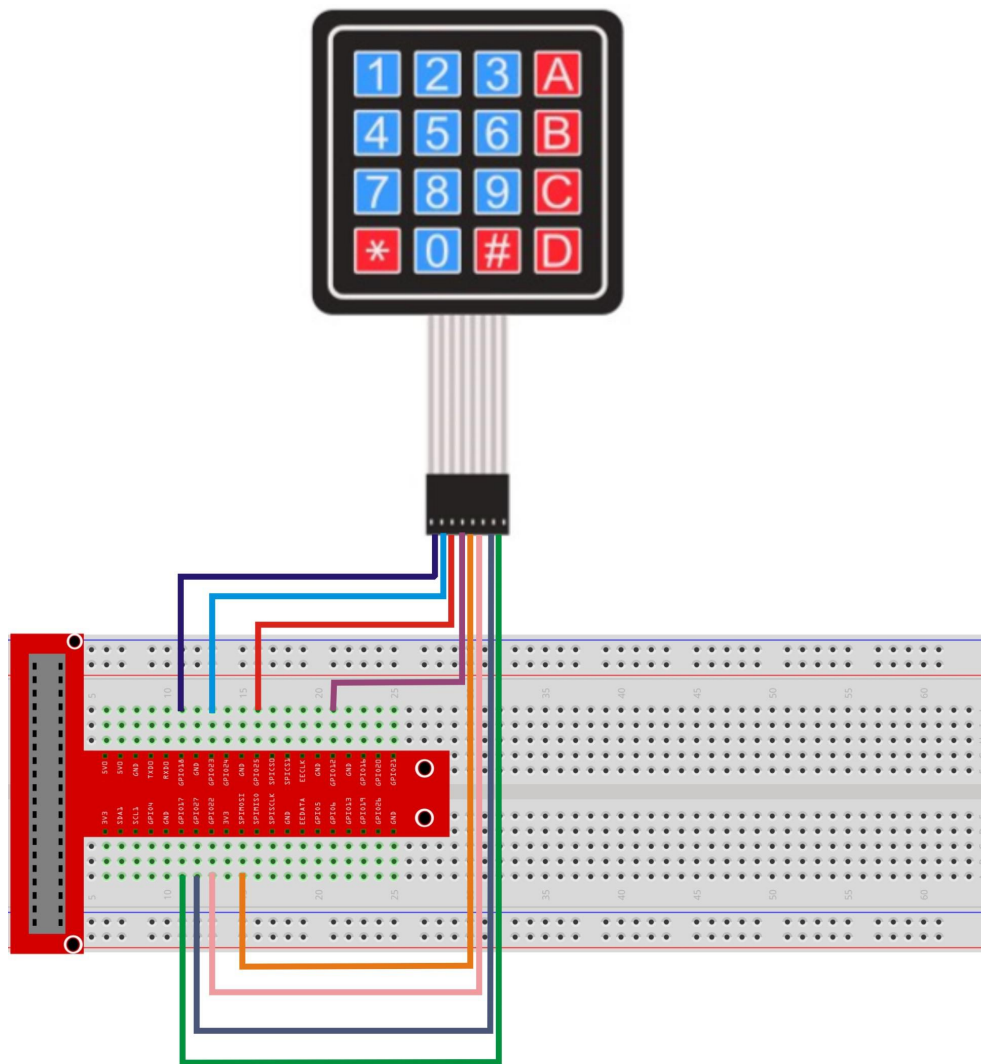
Experimental results:

In the directory where the code file is located, execute the following command

C：
gcc MatrixKeypad.cpp Keypad.cpp Key.cpp -o MatrixKeypad -lwiringPi
sudo ./MatrixKeypad

Python:

python MatrixKeypad.py

After the program is executed, press any key on the MatrixKeypad, the terminal will print out the corresponding key code. As is shown below:

```
Program is starting ...
You Pressed key :   1
You Pressed key :   2
You Pressed key :   3
You Pressed key :   4
You Pressed key :   5
You Pressed key :   6
You Pressed key :   7
You Pressed key :   8
You Pressed key :   9
You Pressed key :   0
You Pressed key :   *
You Pressed key :   #
You Pressed key :   A
You Pressed key :   B
You Pressed key :   C
You Pressed key :   D
```