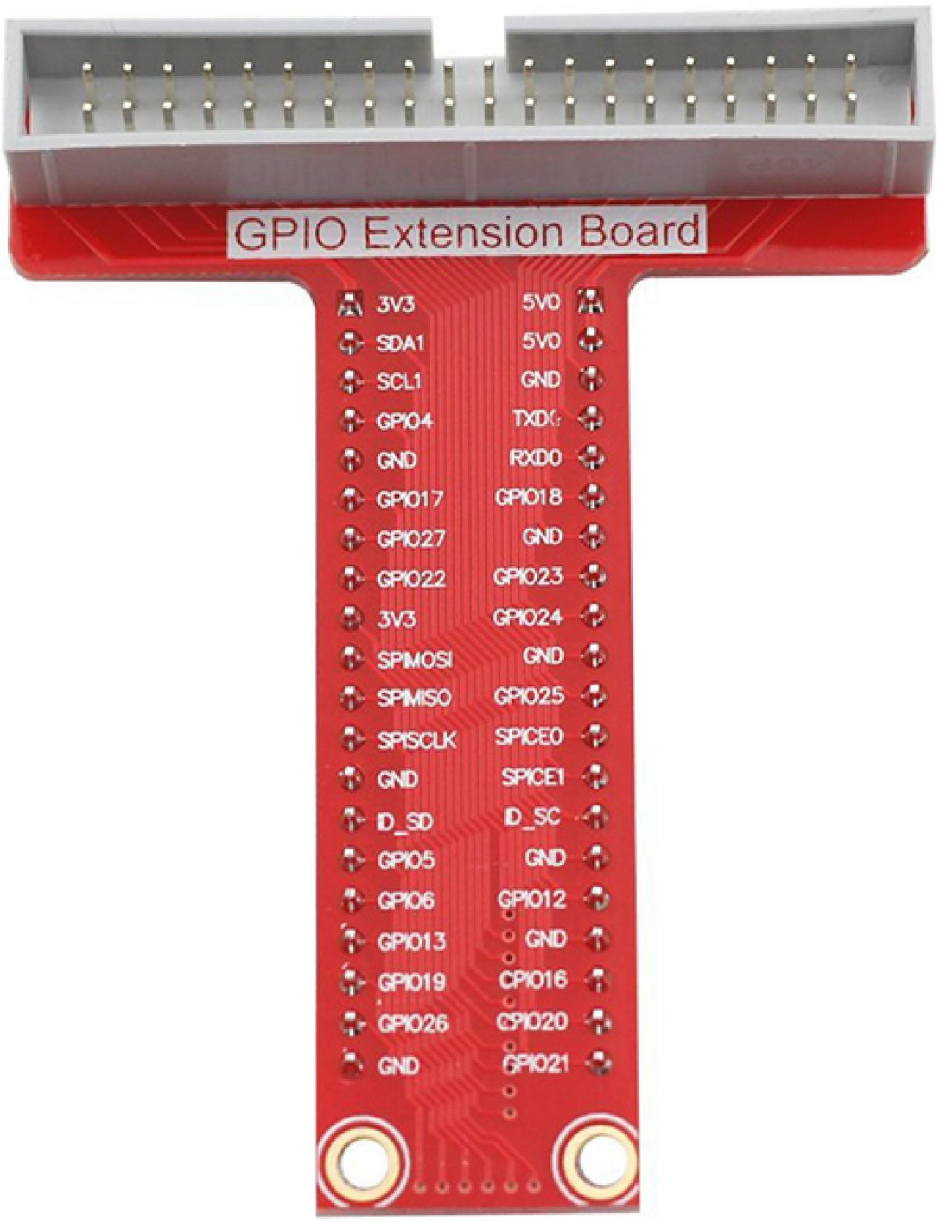
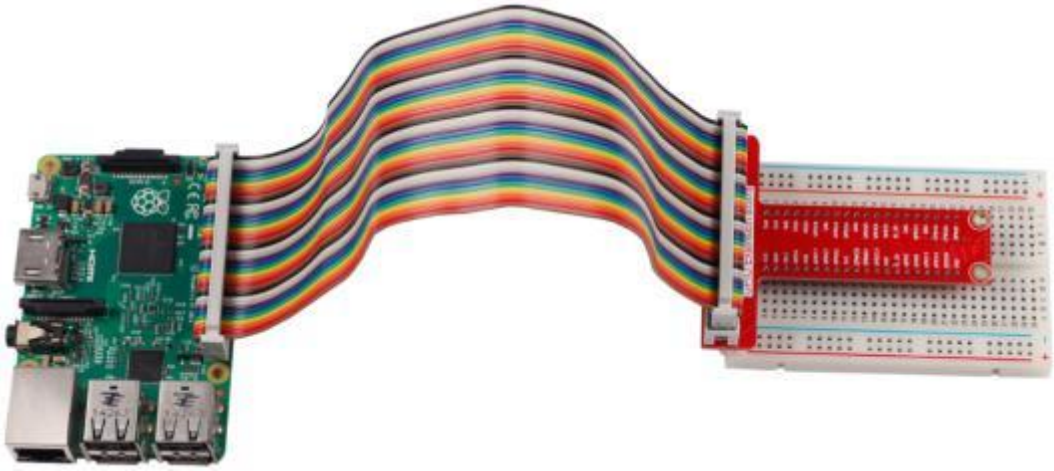
# Introduction

This is 40-pin GPIO Extension Board and GPIO cable for Raspberry Pi model B+, 2 model B and 3 model B.It is used to lead out pins of Raspberry Pi to breadboard to avoid GPIO damage caused by frequentplugging in or out.



Connected with Raspberry Pi shown below, the principle is lead out the raspberry pi GPIO by GPIO cable to the GPIO pin extension board and extention board inserted into the breadboard, when you jump wire is inserted into the breadboard, equivalent inserted into the raspberry Pi GPIO.



# Raspberry Pi Pin Number Introduction

The middle column is the pin names marked on the extension board, and the corresponding pin names are provided on its left and right for numbering by BCM and by wiringPi. The Name column is what the Raspberry Pi defines of the pin. "-" in two columns on the same line indicates the pin number and **name** is the same for the two numbering methods.

Besides, in Python, pins are usually defined by the physical position on the board. From top to bottom and left to right, the pin is defined as 3V3 (1), 5V0 (2), SDA1 (3), etc., till GPIO40. You'll get to more details in lessons later.

| Name | wiringPi Pin | BCM GPIO | | | BCM GPIO | wiringPi Pin | Name |
|---|---|---|---|---|---|---|---|
| | | GPIO Extention Board | | | | | |
| 3.3V | - | - | 3V3 | 5V0 | - | - | 5V |
| SDA | 8 | R1:0/R2:2 | SDA1 | 5V0 | - | - | 5V |
| SCL | 9 | R1:1/R2:3 | SCL1 | GND | - | - | 0V |
| GPIO7 | 7 | 4 | GPIO4 | TXD0 | 14 | 15 | TXD |
| GND | - | - | GND | RXD0 | 15 | 16 | RXD |
| GPIO0 | 0 | 17 | GPIO17 | GPIO18 | 18 | 1 | GPIO1 |
| GPIO2 | 2 | R1:21/R2:27 | GPIO27 | GND | - | - | 0V |
| GPIO3 | 3 | 22 | GPIO22 | GPIO23 | 23 | 4 | GPIO4 |
| 3.3v | - | - | 3V3 | GPIO24 | 24 | 5 | GPIO5 |
| MOSI | 12 | 10 | SPIMOSI | GND | - | - | 0V |
| MISO | 13 | 9 | SPIMISO | GPIO25 | 25 | 6 | GPIO6 |
| SCLK | 14 | 11 | SPISCLK | SPICE0 | 8 | 10 | CE0 |
| 0V | - | - | GND | SPICE1 | 7 | 11 | CE1 |
| ID_SDA | 30 | 0 | ID_SD | ID_SC | 1 | 31 | ID_SCL |
| GPIO21 | 21 | 5 | GPIO5 | GND | - | - | 0V |
| GPIO22 | 22 | 6 | IGPIO6 | GPIO12 | 12 | 26 | GPIO26 |
| GPIO23 | 23 | 13 | GPIO13 | GND | - | - | 0V |
| GPIO24 | 24 | 19 | GPIO19 | GPIO16 | 16 | 27 | GPIO27 |
| GPIO25 | 25 | 26 | GPIO26 | GPIO20 | 20 | 28 | GPIO28 |
| GND | - | - | GND | GPIO21 | 21 | 29 | GPIO29 |