GPIO Zero Python library

GPIO Zero is a Python library for beginners, used to control the GPIO interface of the Raspberry Pi;

It provides a simple and easy-to-use interface for controlling peripheral devices such as LEDs, buttons, servos, motors, and various sensors.
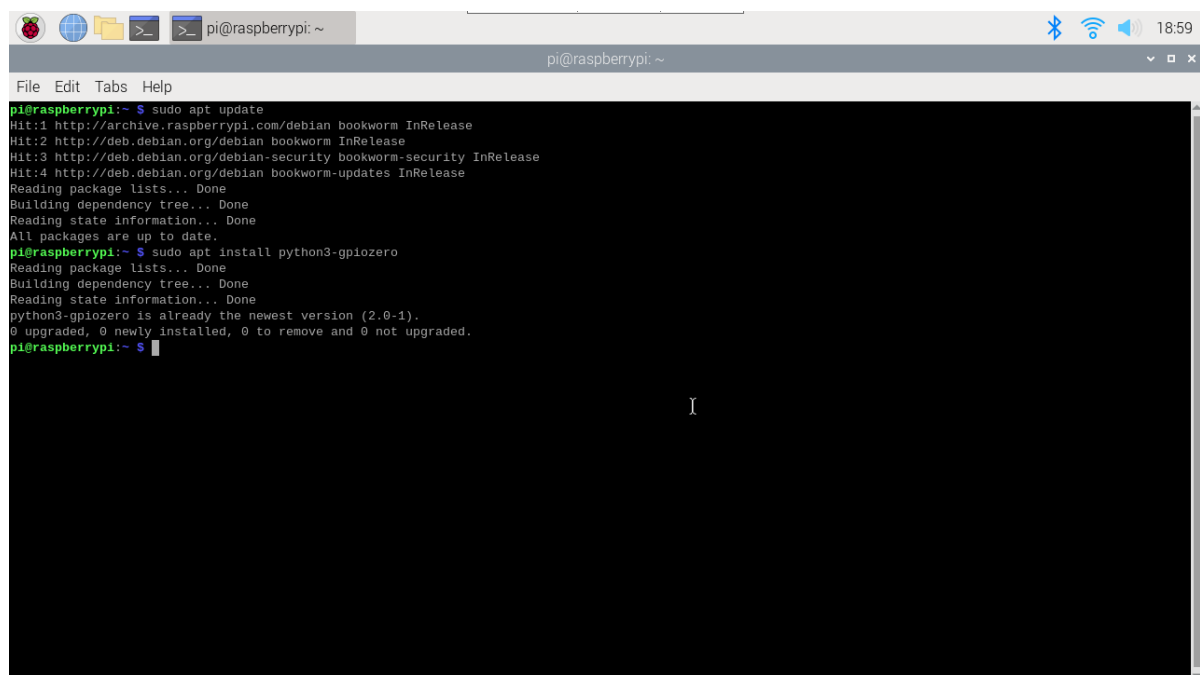
1. Install GPIO Zero

GPIO Zero is installed by default in Raspberry Pi OS desktop images and Raspberry Pi OS Lite images.

- Updated repository list and software

```
sudo apt update
```

- Install GPIO Zero

```
sudo apt install python3-gpiozero
```


2. GPIO pin arrangement

Open the terminal and run the command: pinout

```
This tool is provided by the GPIO Zero Python library
```

```
pi@raspberrypi:~ $ pinout
Description        : Raspberry Pi 5B rev 1.0
Revision           : c04170
SoC                : BCM2712
RAM                : 4GB
Storage            : MicroSD
USB ports          : 4 (of which 2 USB3)
Ethernet ports     : 1 (1000Mbps max. speed)
Wi-fi              : True
Bluetooth          : True
Camera ports (CSI) : 2
Display ports (DSI): 2
```

```
J8:
     3V3  (1) (2)  5V
   GPIO2  (3) (4)  5V
   GPIO3  (5) (6)  GND
   GPIO4  (7) (8)  GPIO14
     GND  (9) (10) GPIO15
  GPIO17 (11) (12) GPIO18
  GPIO27 (13) (14) GND
  GPIO22 (15) (16) GPIO23
     3V3 (17) (18) GPIO24
  GPIO10 (19) (20) GND
   GPIO9 (21) (22) GPIO25
  GPIO11 (23) (24) GPIO8
     GND (25) (26) GPIO7
   GPIO0 (27) (28) GPIO1
   GPIO5 (29) (30) GND
   GPIO6 (31) (32) GPIO12
  GPIO13 (33) (34) GND
  GPIO19 (35) (36) GPIO16
  GPIO26 (37) (38) GPIO20
     GND (39) (40) GPIO21
```

```
J2:
RUN (1)
GND (2)

J7:
COMPOSITE (1)
      GND (2)

J14:
TR01 TAP (1) (2) TR00 TAP
TR03 TAP (3) (4) TR02 TAP

For further information, please refer to https://pinout.xyz/
```
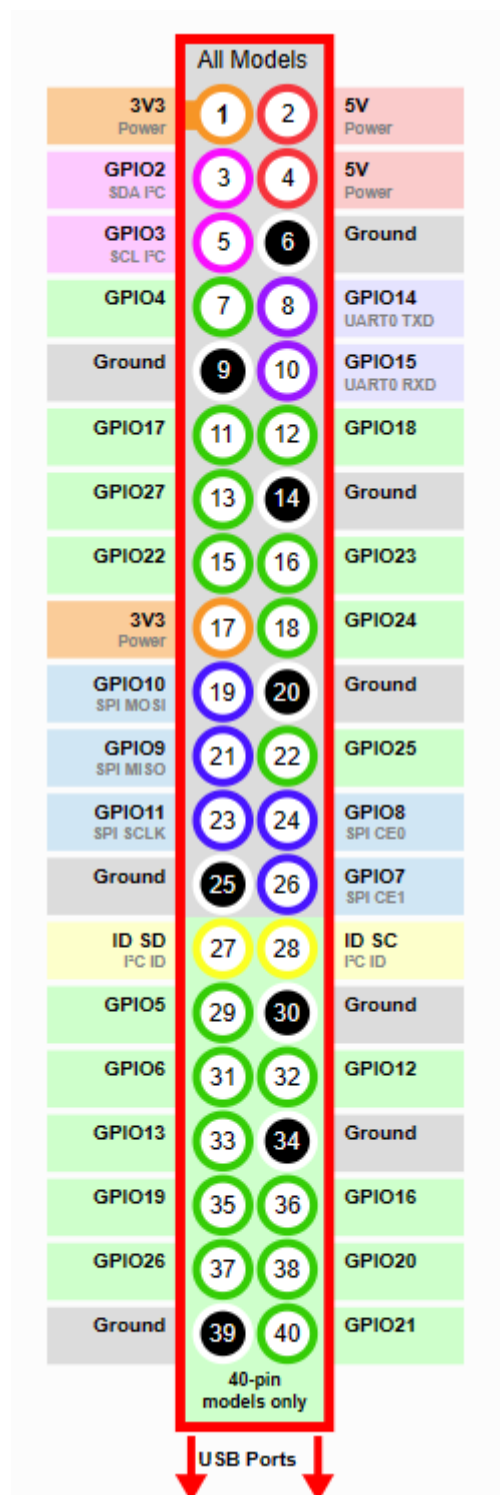
3. Pin number

The GPIO Zero library uses Broadcom (BCM) pin numbers instead of physical (BOARD) numbers: that is, to control GPIO17, you need to specify 17 instead of 11 for the pin number in the program.

Note: When using the Raspberry Pi GPIO pins, you need to pay attention to the pin connection method between the module and the Raspberry Pi motherboard to prevent damage to the motherboard.

```
common problem:
LED: When using LED, a current limiting resistor should be added;
Motor: connected through the motor control board/driver board, not directly
connected.
```

4. Import the GPIO Zero library

- Import the entire library

```
import gpiozero
```

- Import a single interface: use the Button interface in the GPIO Zero library

```
from gpiozero import Button
```

5. Reference materials

For more GPIO pin usage, please refer to the tutorial provided on the official website of the GPIO Zero library!

```
Official website link: https://gpiozero.readthedocs.io/en/latest/
```