

EXPERIMENT NO: 10

Roll No:**Class: BE****Division: A****Date:**

TITLE: Understanding GPIO and its use in program. Interface buzzer using relay with Raspberry-Pi. Write an application to turn ON/OFF buzzer with certain delay

AIM: To understand GPIO and its programming usage by interfacing a buzzer using a relay with Raspberry Pi and writing an application to turn the buzzer ON/OFF with a specified delay.

Task: To interface a buzzer using a relay with Raspberry Pi to turn the buzzer ON/OFF with a specified delay

Source Code:

```
import time
import RPi.GPIO as GPIO

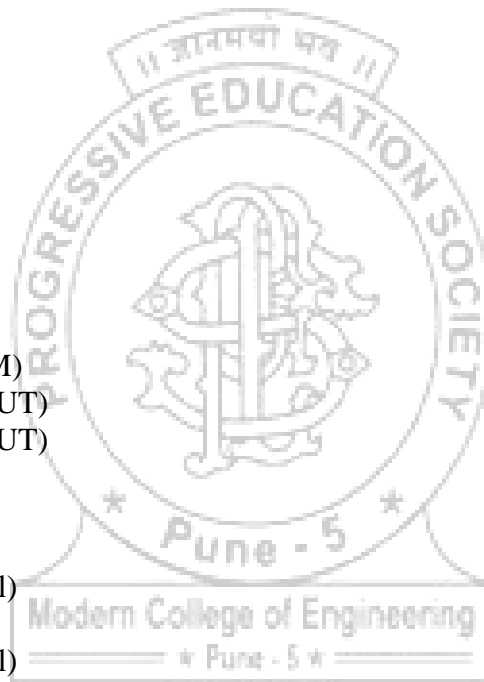
TRUE = 1

dev1 = 12
dev2 = 4

GPIO.setmode(GPIO.BCM)
GPIO.setup(dev1,GPIO.OUT)
GPIO.setup(dev2,GPIO.OUT)

def devstate(dev,val):
    if dev==1:
        GPIO.output(dev1,val)
    if dev==2:
        GPIO.output(dev2,val)

try:
    while TRUE:
        devstate(1,1)
        print("Device 1 buzzer is ON")
        time.sleep(1)
        devstate(1,0)
        print("relay 1 buzzer is OFF")
        time.sleep(1)
        devstate(2,1)
        print("Device 2 relay is ON")
        time.sleep(1)
        devstate(2,0)
        print("Device 2 relay is OFF")
        time.sleep(1)
```



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```
# If CTRL+C is pressed the main loop is broken
except KeyboardInterrupt:
    RUNNING = False
    print ("\nQuitting")
# Actions under 'finally' will always be called
finally:
    # Stop and finish cleanly so the pins
    # are available to be used again
    GPIO.cleanup()
```

Output:

```
19
20
21
22 try:
23     while True:
24         devState(1,1)
25         print("Device 1 buzzer ON")
26         time.sleep(2)
27         devState(1,0)
28         print("Device 1 buzzer OFF")
29         time.sleep(2)
30         devState(2,1)
31         print("Device 2 relay ON")
32         time.sleep(2)
33         devState(2,0)
34         print("Device 2 relay OFF")
35         time.sleep(2)
36
37 # If CTRL+C is pressed the main loop is broken:

Shell

>>> %Run -c SEDITOR CONTENT
<string>:11: RuntimeWarning: This channel is already in use, continuing anyway. Use GPIO.setwarnings(False) to disable warnings.
<string>:12: RuntimeWarning: This channel is already in use, continuing anyway. Use GPIO.setwarnings(False) to disable warnings.
Device 1 buzzer ON
Device 1 buzzer OFF
Device 2 relay ON
Device 2 relay OFF
Device 1 buzzer ON
Device 1 buzzer OFF
Device 2 relay ON

root@23@raspberrypi:~/Pictures
File Edit Tabs Help
Reading state information... Done
scrot is already the newest version (1.8.1-1).
scrot set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 217 not upgraded.
root@23@raspberrypi:~# scrot /home/pi/directory_name/1.png
scrot: Saving to file /home/pi/directory_name/1.png failed: No such file or directory
root@23@raspberrypi:~# scrot /home/pi/Pictures/1.png
scrot: Saving to file /home/pi/Pictures/1.png failed: No such file or directory
root@23@raspberrypi:~# scrot /home/Pictures/1.png
scrot: Saving to file /home/Pictures/1.png failed: No such file or directory
root@23@raspberrypi:~# ls
2024-10-07-101742_1928x1080_scrot.png  Desktop  Pictures  Videos
Downloads  Music  Templates
root@23@raspberrypi:~# cd Pictures
root@23@raspberrypi:~/Pictures# scrot 1.png
root@23@raspberrypi:~/Pictures# scrot
root@23@raspberrypi:~/Pictures# scrot -d 5.2.png
root@23@raspberrypi:~/Pictures# scrot
root@23@raspberrypi:~/Pictures# gvim
root@23@raspberrypi:~/Pictures# gvim led.png
root@23@raspberrypi:~/Pictures# gvim relaybuzzer.png
```

Observations: