

## Experiment no :- 9

Aim :- write an application using Raspberry-pi / beagleboard to control the operation of hardware simulated lift elevator

software-hardware modules :-

- Raspbian os
- Raspberry Pi board module
- push buttons
- seven segment display
- LEDs
- monitor.

Algorithm :-

- Import GPIO & time libraries
- set GPIO mode as per board
- declare 4 push buttons pins of stationary part.
- declare 4 LED pins at each floor for detection of door close & open.
- declare 4 push button pins of moving part
- declare 7 pins of 7 segment display
- set the push button pins as I/P.
- set 7 segment display pins & LED pins as O/P.
- store value of each digit of 7 segment display in variables.
- In while loop, if 'Button-one' is pressed then lift at floor 1 & LED at floor 1 get on for 5 sec then gets off.
- Person enters in lift & press push buttons of any one floor in moving lift.

- 7 segment display displays floor no of destination.

observation :-

# interfacing lift elevator module with Raspberry - Pi 3

import RPi.GPIO as GPIO

import time

Floor button0 = 37

Floor button1 = 35

Floor button2 = 33

Floor button3 = 19

Lift button0 = 15

Lift button1 = 11

Lift button2 = 38

Lift button3 = 36

# GPIO setup for LEDs

Floor LED0 = 16

Floor LED1 = 13

Floor LED2 = 7

Floor LED3 = 40

# GPIO setup for 7 seg display

seg A pin = 18

seg B pin = 22

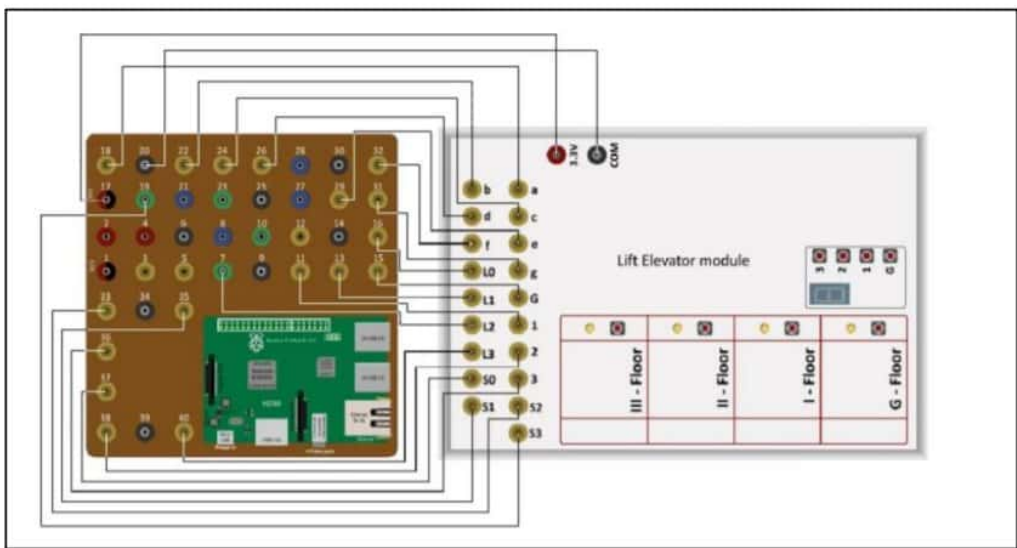
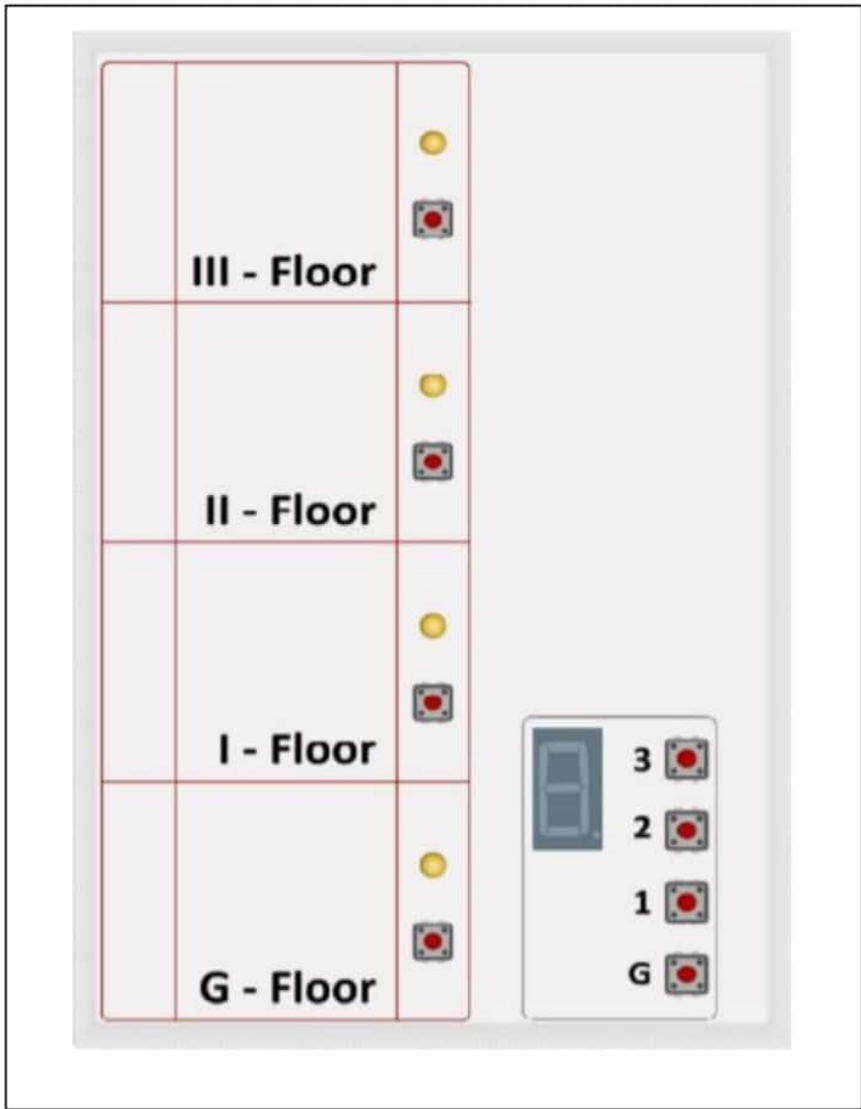
seg C pin = 24

seg D pin = 26

seg E pin = 29

seg F pin = 32

seg G pin = 31



```
GPIO.setmode(GPIO.BOARD)
```

```
GPIO.setwarnings(False)
```

```
GPIO.setup(Floorbutton0, GPIO.IN)
```

```
GPIO.setup(Floorbutton1, GPIO.IN)
```

```
GPIO.setup(Floorbutton2, GPIO.IN)
```

```
GPIO.setup(Floorbutton3, GPIO.IN)
```

```
GPIO.setup(Liftbutton0, GPIO.IN)
```

```
GPIO.setup(Liftbutton1, GPIO.IN)
```

```
GPIO.setup(Liftbutton2, GPIO.IN)
```

```
GPIO.setup(Liftbutton3, GPIO.IN)
```

```
GPIO.setup(segAPin, GPIO.OUT)
```

```
GPIO.setup(segBPin, GPIO.OUT)
```

```
GPIO.setup(segCPin, GPIO.OUT)
```

```
GPIO.setup(segDPin, GPIO.OUT)
```

```
GPIO.setup(segEPin, GPIO.OUT)
```

```
GPIO.setup(segFPin, GPIO.OUT)
```

```
GPIO.setup(segGPin, GPIO.OUT)
```

```
digitclk = [0, 0, 0, 0, 0, 0, 0]
```

```
digit0 = [1, 1, 1, 1, 1, 0]
```

```
digit1 = [0, 1, 1, 0, 0, 0]
```

```
digit2 = [1, 1, 0, 1, 1, 0]
```

```
digit3 = [1, 1, 1, 1, 0, 0, 1]
```

```
gpin = [18, 22, 24, 26, 29, 32, 31]
```

```
def digdisp(digit):
```

```
for x in range(0, 7):
```

```
GPIO.output(gpin[x], digitclk[x])
```

```
for n in range (0, 7):  
    GPIO.output (gpioIn [4], digit [x])
```

```
while True :  
    if (GPIO.input (floorButton) == True):  
        GPIO.output (floorLed, 0, 1)  
        print '0'
```

```
    digdisp (digit0)  
    time.sleep (1)  
    GPIO.output (floorLed0, 1)  
    time.sleep (3)
```

```
while True :  
    if (GPIO.input (liftButton) == True):  
        print 'floor ONF :'  
        digdisp (digit0)  
        time.sleep (1)  
        digdisp (digit1)  
        time.sleep (2)  
        break
```

```
elif (GPIO.input (liftButton2) == True):  
    print 'floor Two'  
    digdisp (digit0)  
    time.sleep (1)  
    digdisp (digit1)  
    time.sleep (1)  
    digdisp (digit2)  
    time.sleep (2)  
    break
```

```
elif (GPIO.input(Liftbutton3) == True) :  
    print 'floor Three'  
    digdisp (digit0)  
    time.sleep(1)  
    digdisp (digit1)  
    time.sleep(1)  
    digdisp (digit2)  
    time.sleep(1)  
    digdisp (digit3)  
    time.sleep(2)  
    break
```

```
elif (GPIO.input (floorbutton 1) == True) :  
    GPIO.output (floorled, 1)  
    print '1'  
    digdisp (digit0)  
    time.sleep(1)  
    digdisp (digit1)  
    time.sleep(1)  
    time.sleep(4)
```

```
GPIO.output (floorled, 0)
```

```
while True :
```

```
if (GPIO.input (liftbutton0) == True) :
```

```
    print 'floor ZERO'  
    digdisp (digit2)  
    time.sleep(1)  
    digdisp (digit1)  
    time.sleep(1)  
    digdisp (digit0)  
    time.sleep(2)
```

break

```
elif (GPIO.input (liftbutton1) = True):
```

```
print 'floor one'
```

```
digdisp (digit2)
```

```
time.sleep (1)
```

```
digdisp (digit1)
```

```
time.sleep (2)
```

```
break
```

```
elif (GPIO.input (liftbutton 2) = True):
```

```
print 'floor Two'
```

```
digdisp (digit2)
```

```
time.sleep (2)
```

```
break
```

```
else:
```

```
time.sleep (3)
```

```
digdisp (digit0)
```

```
GPIO.output (floorled1, 0)
```

```
GPIO.output (floorled 2, 0)
```

```
GPIO.output (floorled 3, 0)
```

```
GPIO.output (floorbed 0, 0)
```

Conclusion :-

Hence, successfully implemented control operation of lift elevator module by using Raspberry Pi.