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Assignment No: 9

Aim :- Write an application using Rasbery-Pi / beagal board to control operation of hardware simulated lift / elevator.

Software hardware modules :-
- Rasbian os
- Rasberry Pi board module.
- Push button.
- Seven Segment display
- Led's
- monitor

Algorithm :-
- Import gpio & time libraries
- Set GPIO mode as per board
- declare & push button pins of stationary part.
- declare & LED pins at each floor for detection of door close & open.
- declare & push button pins of moving part.
- declare 7 pins of 7 segement display.
- Set the push button pins as i/p
- Set 7 segement display pins & LED pins as o/p
- Store value to each digit of 7 segement display.
- In while loop, if Button one is pressed then lift at floor 1 & LED at floor 1 glo on for 5 sec then gets off.

- 7 segment display displays floor no of destination.

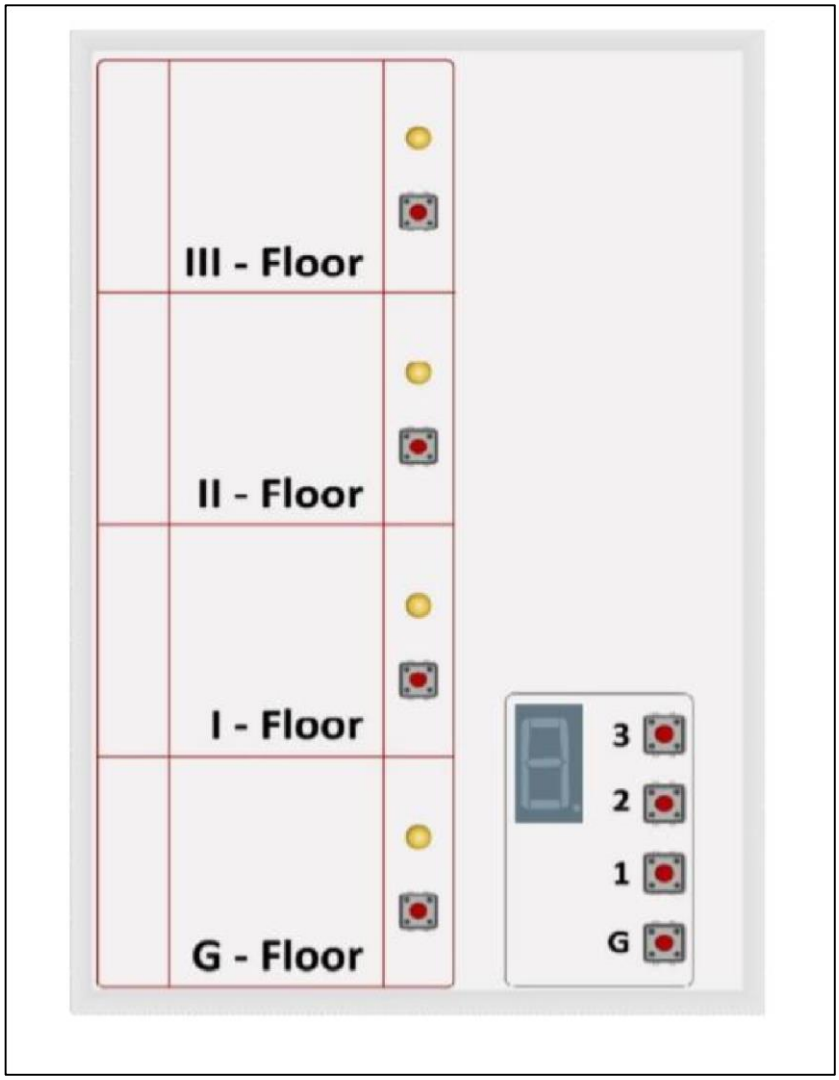
observation :-

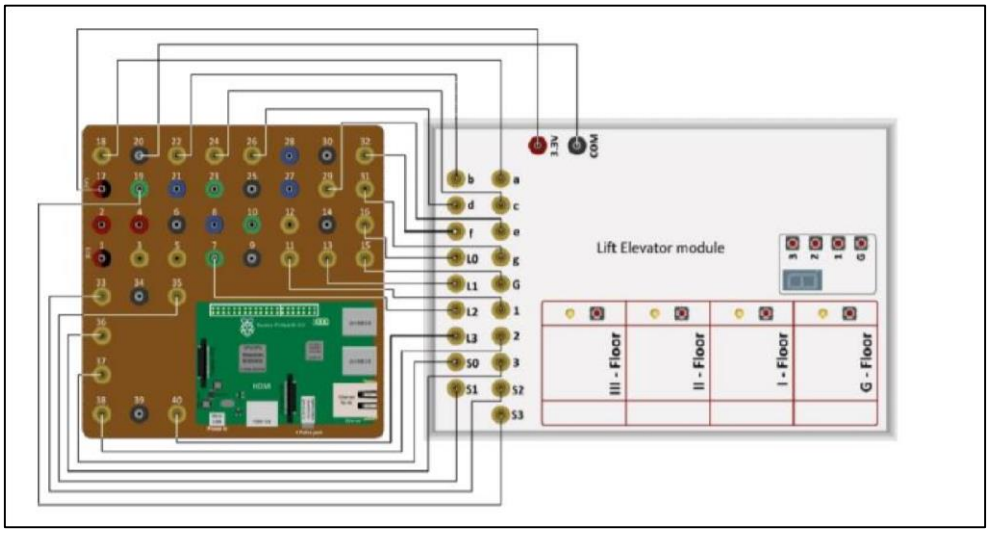
```
# interfacing lift elevator module with Raspberry-Pi-3
  import RPi.GPIO as GPIO
  import time
  FloorButton0 = 37
  FloorButton1 = 35
  FloorButton2 = 33
  FloorButton3 = 19

  LiftButton0 = 15
  LiftButton1 = 11
  LiftButton2 = 38
  LiftButton3 = 36

# GPIO setup for LEDs
   FloorLed0 = 16
   FloorLed1 = 13
   FloorLed2 = 7
   FloorLed3 = 40

# GPIO setup for 7 seg display
   SegAPin = 18
   SegBpin = 22
   SegCPin = 24
   SegDpin = 26
   SegEpin = 29
   SegFpin = 32
   SegGpin = 31
```


III - Floor
II - Floor
I - Floor
G - Floor
3
2
1
G


3.3V
COM
Lift Elevator module
III - Floor
II - Floor
I - Floor
G - Floor

```
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)

digitclr = [0,0,0,0,0,0,0]
digit0 = [1,1,1,1,1,1,0]
digit1 = [0,1,1,0,0,0,0]
digit2 = [1,1,0,1,1,0,1]
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], digitclr[x]
```

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

while True:
if (GPIO.input (floorButton0) = True):
GPIO.output (FloorLed, 0, 1)
print '0'

digdisp (digit0)
time.sleep(1)
GPIO.output (floorled 0, 0)
time.sleep (3)

while True:
if (GPIO.input(liftbutton) == True):
print 'floor' ONE:
digdisp (digit 0)
time.sleep (1)
digdisp (digit1)
time.sleep(2)
break

elif (GPIO.input(litebutton2) == True):
print 'floor Two'
digdisp (digit0)
time.sleep (1)
digdisp (digit 1)
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(9)

GPIO.output(floor Led 1,0)

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 (floorled 0,0)
```

Conclusion :-

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