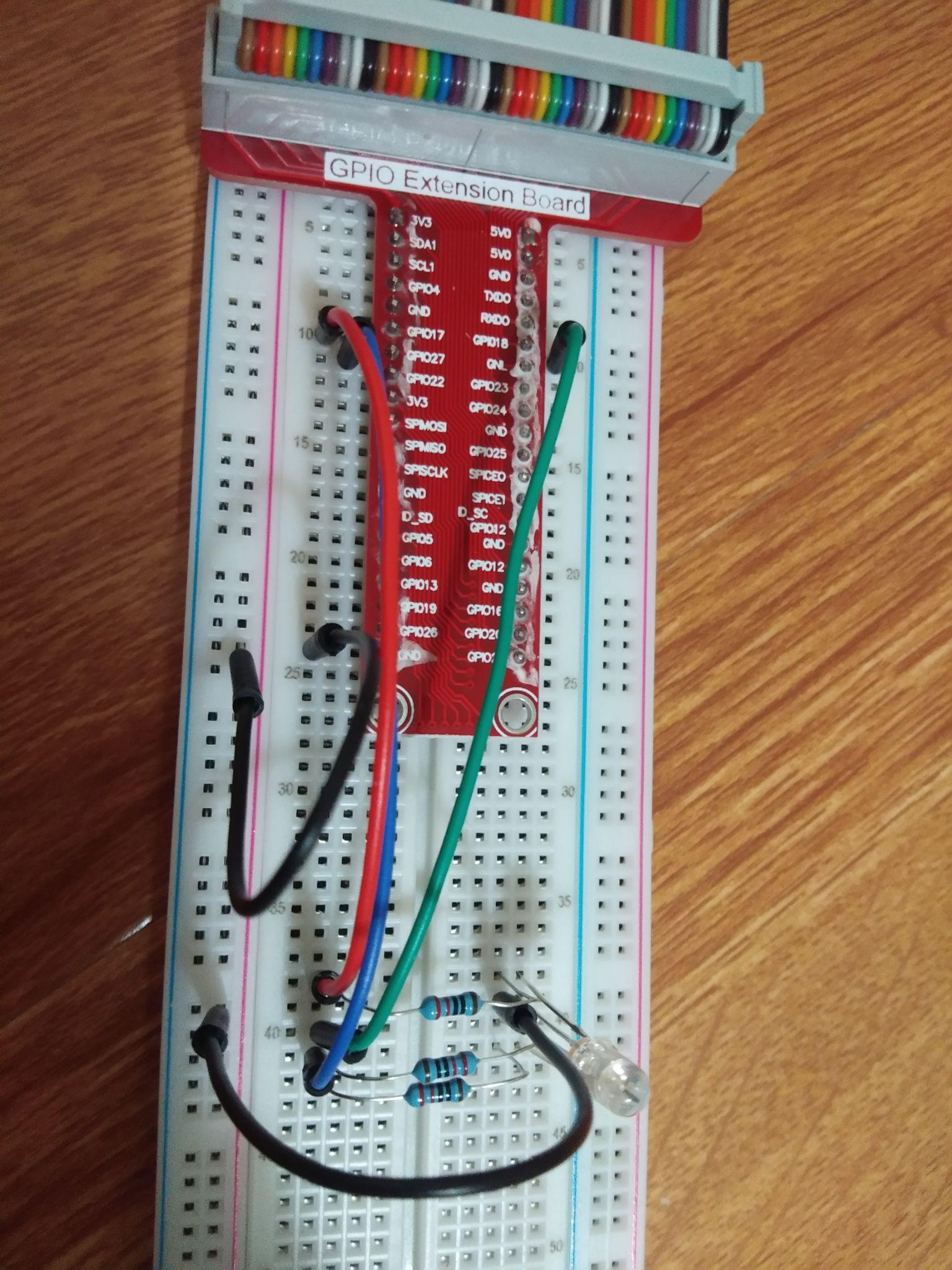
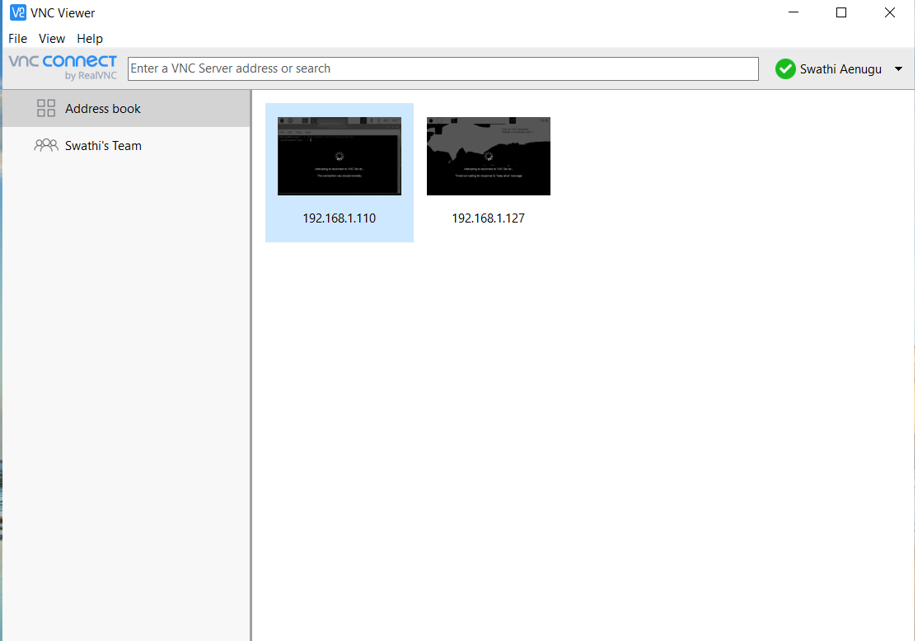
**Lab5 Fall GRB LED**

To make RGB LED blink different colors through raspberry pi,

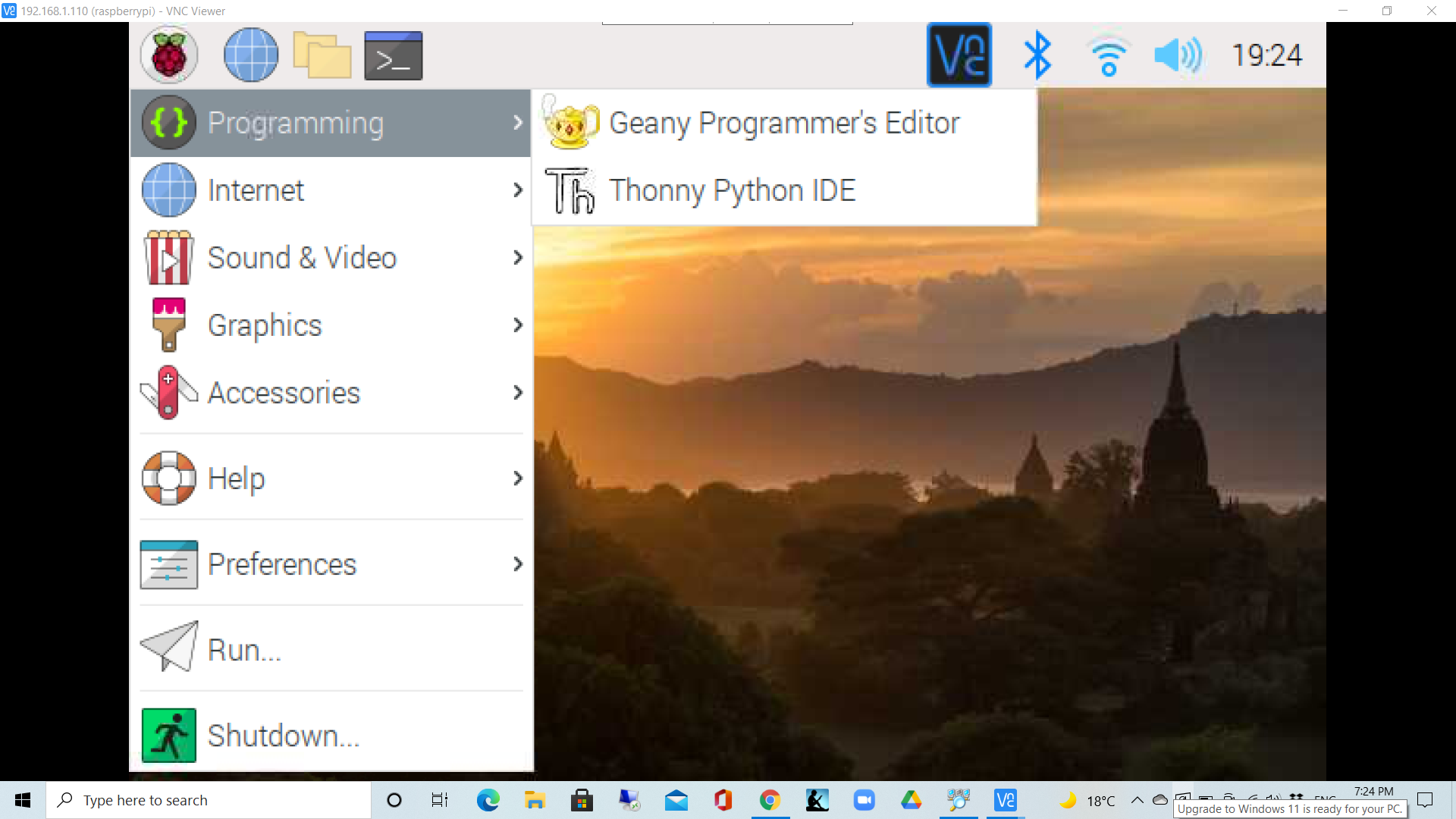
* Connect a LED with R, G and B pins connected through 220Ohm resistors and then to pins GPIO17, GPIO18 and GPIO27, ground pin to ground on the breadboard.
* Connect the GND of GPIO to ground on the breadboard.



* Now give power supply to Raspberry pi.
* Connect the pi through VNC viewer.



* Now open python and open a new file.



* Write the code to make RGB LED blink and save it with .py extension(RGB\_LED.py)

**Code:**

import RPi.GPIO as GPIO

import time

colors = [0xFF0000, 0x00FF00, 0x0000FF, 0xFFFF00, 0xFF00FF, 0x00FFFF]

pins = {'pin\_R':11, 'pin\_G':12, 'pin\_B':13} # pins is a dict data type

GPIO.setmode(GPIO.BOARD) # Numbers GPIOs by physical location

for i in pins:

GPIO.setup(pins[i], GPIO.OUT) # Set pins' mode is output

GPIO.output(pins[i], GPIO.HIGH) # Set pins to high(+3.3V) to switch on led

p\_R = GPIO.PWM(pins['pin\_R'], 2000) # set Frequency to 2KHz

p\_G = GPIO.PWM(pins['pin\_G'], 2000)

p\_B = GPIO.PWM(pins['pin\_B'], 5000)

p\_R.start(0) # Initial duty Cycle = 0(leds off)

p\_G.start(0)

p\_B.start(0)

def map(x, in\_min, in\_max, out\_min, out\_max):

return (x - in\_min) \* (out\_max - out\_min) / (in\_max - in\_min) + out\_min

def setColor(col): # For example : col = 0x112233

R\_val = (col & 0xFF0000) >> 16

G\_val = (col & 0x00FF00) >> 8

B\_val = (col & 0x0000FF) >> 0

R\_val = map(R\_val, 0, 255, 0, 100)

G\_val = map(G\_val, 0, 255, 0, 100)

B\_val = map(B\_val, 0, 255, 0, 100)

p\_R.ChangeDutyCycle(R\_val) # Change duty cycle

p\_G.ChangeDutyCycle(G\_val)

p\_B.ChangeDutyCycle(B\_val)

try:

while True:

for col in colors:

setColor(col)

time.sleep(0.5)

except KeyboardInterrupt:

p\_R.stop()

p\_G.stop()

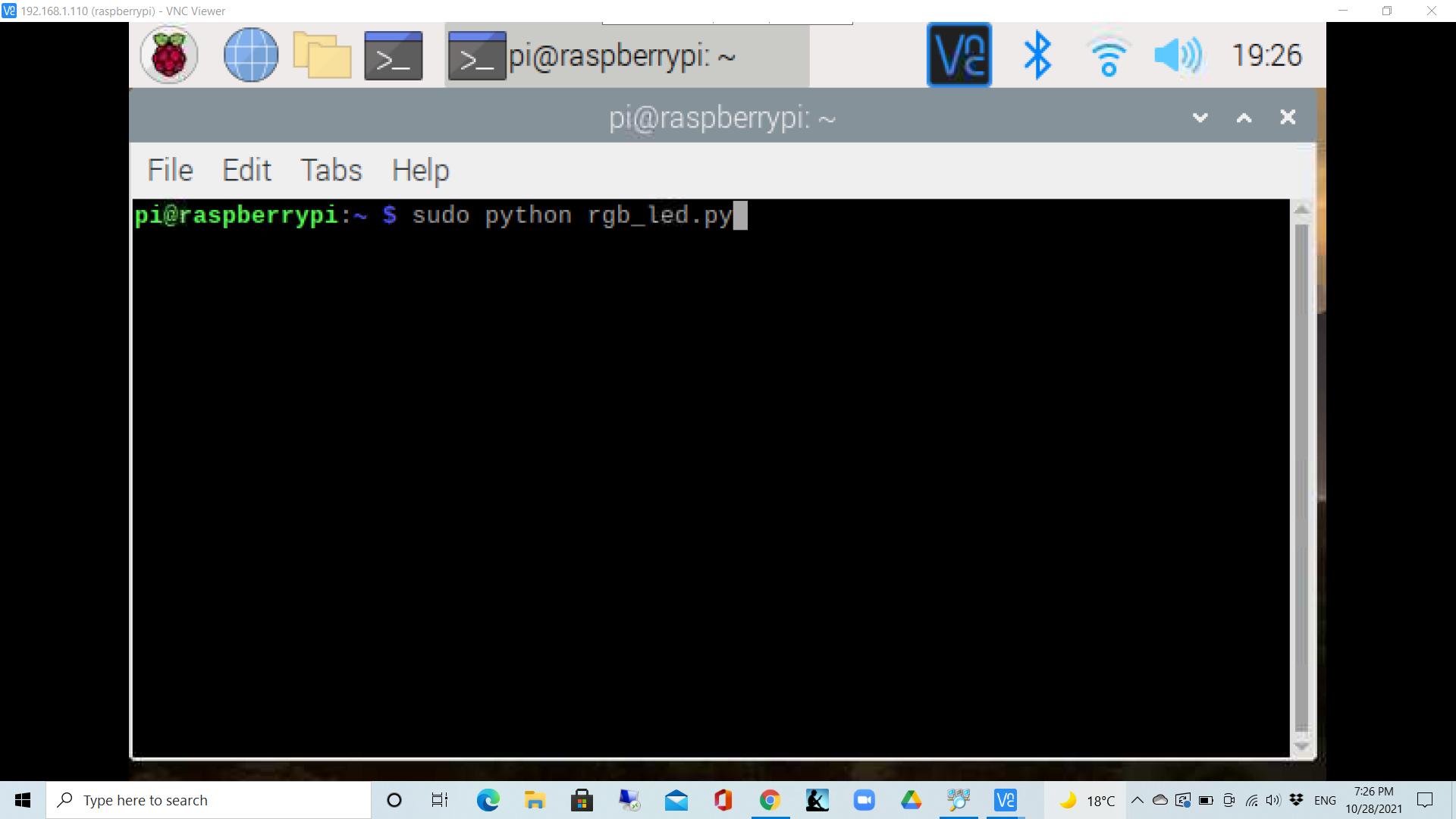
p\_B.stop()

for i in pins:

GPIO.output(pins[i], GPIO.HIGH) # Turn off all leds

GPIO.cleanup()

* Now to make the RGB LED blink, run the program
* Sudo python rgb\_led.py



* Now RGB LED starts blinking
* To stop the RGB LED blink, press ctrl+C

**OUTPUT:**  
Link for output video:

<https://drive.google.com/file/d/1365HBRU7Ot5zJnpRY5tmyediaWMFztAD/view?usp=sharing>