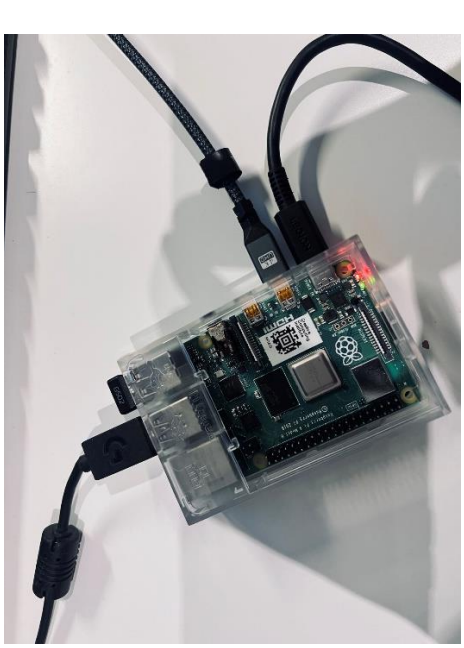
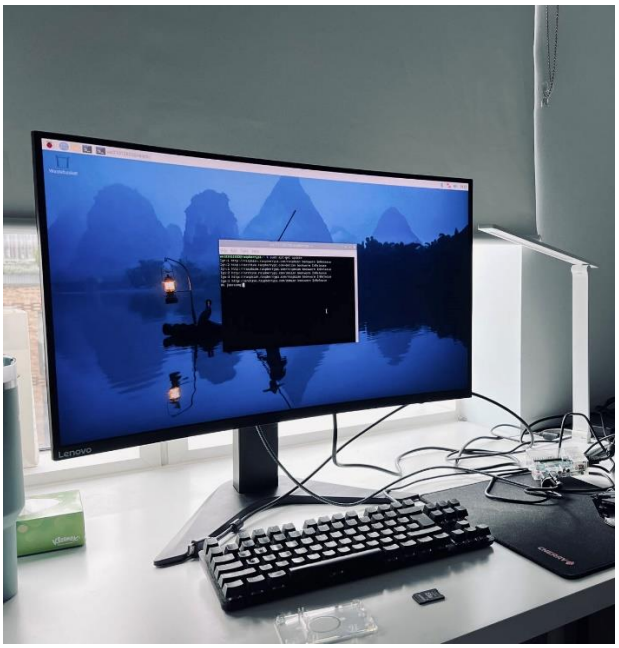
9.30-10.6

At this stage I firstly travelled to the school to consult with Chris and borrowed a Raspberry Pi for my research project. During the initial research phase of the Raspberry Pi, I encountered some technical difficulties. I was unable to successfully connect the Raspberry Pi to my computer due to the lack of an external display screen and problems with the network settings. In order to solve this problem, I acquired an external display screen, thus facilitating the work of setting up the Raspberry Pi.

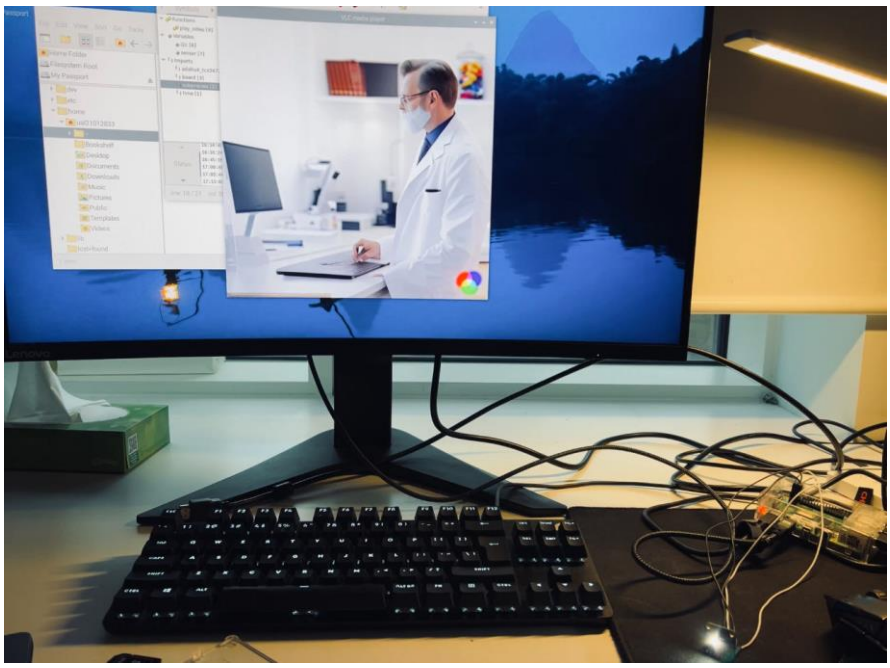
After burning the SD card and completing the basic configuration, I began attempting to write Python code on the Raspberry Pi to read data from the RGB colour sensor. However, while configuring the required Python environment, I encountered a permissions issue where the terminal prompted me that I did not have the permissions to perform the operation in question. After searching the internet, I learnt that I needed to configure a virtual environment on the Raspberry Pi where I could gain access to download the required libraries.

After successfully configuring the RGB colour sensor, I copied a video file to the Raspberry Pi to test it. I set the video to play automatically when the RGB colour sensor is triggered. After a series of attempts, I successfully implemented this feature. After reporting my results and progress on the Raspberry Pi configuration to Yadira, I started working on my thesis.



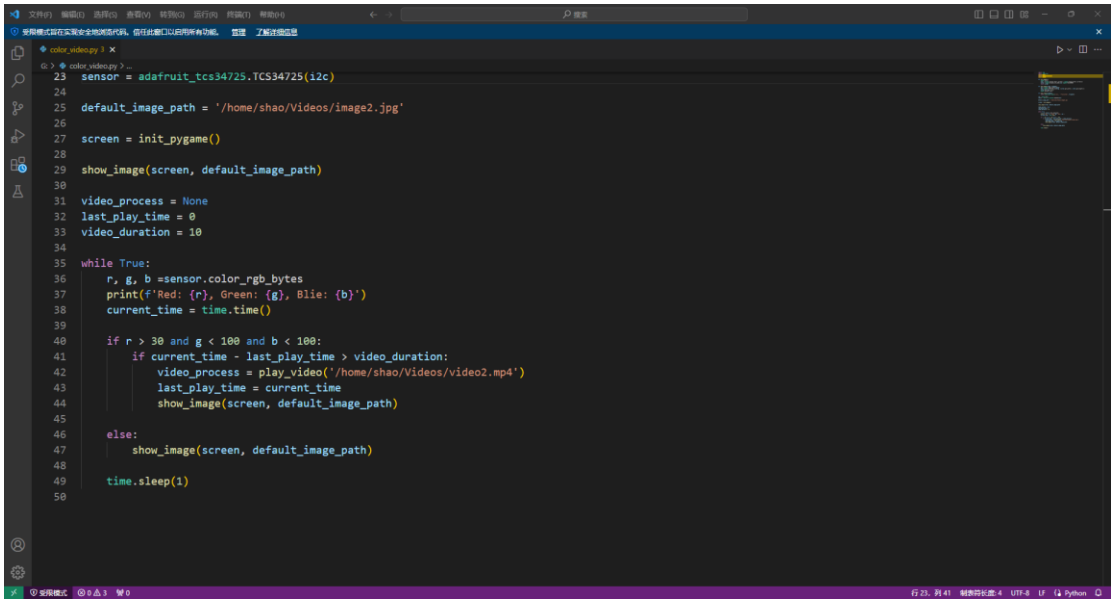


Raspberry Pi Setting



Video

```python
import time
import subprocess
import board
import adafruit_tcs34725
import pygame

def init_pygame():
    pygame.init()
    size = (pygame.display.Info().current_w, pygame.display.Info().current_h)
    screen = pygame.display.set_mode(size, pygame.FULLSCREEN)
    return screen

def show_image(screen, filepath):
    img = pygame.image.load(filepath)
    img = pygame.transform.scale(img, (screen.get_width(), screen.get_height()))
    screen.blit(img, (0,0))
    pygame.display.flip()

def play_video(filepath):
    return subprocess.Popen(['cvlc', '--fullscreen', filepath])

i2c = board.I2C()
sensor = adafruit_tcs34725.TCS34725(i2c)

default_image_path = '/home/shao/Videos/image2.jpg'

screen = init_pygame()

show_image(screen, default_image_path)

video_process = None
last_play_time = 0
video_duration = 10
```



```python
sensor = adafruit_tcs34725.TCS34725(i2c)

default_image_path = '/home/shao/Videos/image2.jpg'

screen = init_pygame()

show_image(screen, default_image_path)

video_process = None
last_play_time = 0
video_duration = 10

while True:
    r, g, b =sensor.color_rgb_bytes
    print(f'Red: {r}, Green: {g}, Blie: {b}')
    current_time = time.time()

    if r > 30 and g < 100 and b < 100:
        if current_time - last_play_time > video_duration:
            video_process = play_video('/home/shao/Videos/video2.mp4')
            last_play_time = current_time
            show_image(screen, default_image_path)

    else:
        show_image(screen, default_image_path)

    time.sleep(1)
```

Raspberry pi color sensor code