5.Access an image through a Pi web cam

python Copy code

```python
from picamera import PiCamera
from time import sleep
import datetime

# Create a PiCamera object
camera = PiCamera()

# Start the camera preview
camera.start_preview()

# Get the current date and time
current_date = datetime.datetime.now().strftime('%Y-%m-%d_%H-%M-%S')

# Wait for a few seconds before capturing to allow the camera to adjust
sleep(3)

# Capture an image and save it with the current date and time as the filename
camera.capture('/home/pi/Desktop/MCASyllabus/images/{}.jpg'.format(current_date))

# Stop the camera preview
camera.stop_preview()

# Print a message indicating that the image has been captured
print("Image captured")
```

6.Control a light source using web page.

Python Script (`app.py`):

python Copy code

```python
import RFL.GPIO as GPIO
import time
import datetime
from flask import Flask, render_template

led = 13

GPIO.setmode(GPIO.BOARD)
GPIO.setwarnings(False)
GPIO.setup(led, GPIO.OUT, initial=0)

app = Flask(__name__)

@app.route('/')
def hello_world():
    return render_template('web.html')

@app.route("/redledon")
def redledon():
    GPIO.output(led, GPIO.LOW)
    now = datetime.datetime.now()
    timeString = now.strftime("%Y-%m-%d %H:%M:%S")
    templateData = {
        'status': 'ON',
        'time': timeString
    }
    return render_template('web.html', templateData=templateData)

@app.route("/redledoff")
def redledoff():
    GPIO.output(led, GPIO.HIGH)
    now = datetime.datetime.now()
    timeString = now.strftime("%Y-%m-%d %H:%M:%S")
    templateData = {
        'status': 'OFF',
        'time': timeString
    }
    return render_template('web.html', templateData=templateData)

if __name__ == "__main__":
    app.run(debug=True, port=4000, host='192.168.0.71')
```

Program - 6

1. Write code in P6.py
2. Create "template" folder
   → Inside create "web.html"
3. Prompt "Ipconfig" → last Paragraph no. address in IP.
4. In P6.py update name (web.html) 3 times.
5. Paste IP in P6.py with port
6. Paste IP with Port in web.html (inside Action tag) 2 times.
7. Run P6.py
   - (Control & link)
8. Paste link in same System in Browser

Raspberry PI Remote Control

Light Status: ON, Last Modified: 2024-02-25 15:30:45

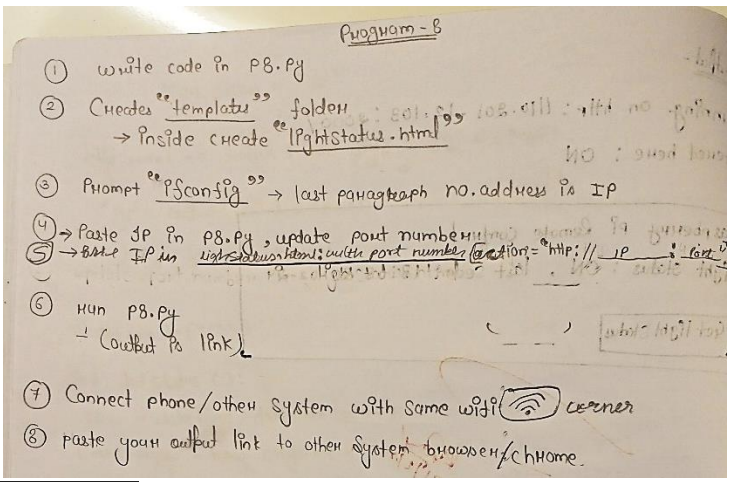
Red LED On

Red LED Off

```html
<html>
    <head>
        <title>Raspberry PI Remote Control</title>
    </head>

    <body>
        <h1>Raspberry PI Remote Control</h1>
        <h2>Light Status: {{ templateData.status }}, Last Modified: {{ templateData.time }}</h2>

        <form action="http://192.168.0.71:4000/redledon" method="get">
            <input type="submit" value="Red LED On">
        </form>
        <form action="http://192.168.0.71:4000/redledoff" method="get">
            <input type="submit" value="Red LED Off">
        </form>

    </body>
</html>
```

8.Get the status of a bulb at a remote place (on the LAN) through web.

```python
import time
import RPI.GPIO as gpio
from flask import Flask, render_template
import datetime

app = Flask(__name__)

gpio.setwarnings(False)
gpio.setmode(gpio.BOARD)

led = 11  # Pin connected to LED
switch1 = 13  # Pin connected to switch

gpio.setup(led, gpio.OUT, initial=1)
gpio.setup(switch1, gpio.IN)


def glow_led(event):
    print("Entered Here")
    global light_status
    if event == switch1 and light_status == "OFF":
        gpio.output(led, False)
        light_status = "ON"
    elif event == switch1 and light_status == "ON":
        gpio.output(led, True)
        light_status = "OFF"


@app.route("/")
def led_status():
    global light_status
    now = datetime.datetime.now()
    time_string = now.strftime("%H:%M %d-%m-%Y")
    template_data = {
        'status': light_status,
        'time': time_string
    }
    return render_template('lightstatus.html', **template_data)


gpio.add_event_detect(switch1, gpio.RISING, callback=glow_led, bouncetime=100)

if __name__ == "__main__":
    app.run(debug=True, port=4000, host='169.254.185.235')
```



HTML Template (`lightstatus.html`):

html Copy code

```html
<html>
<head>
    <title>Raspberry PI Remote Light Status</title>
</head>
<body>
    <h1>Raspberry PI Remote Control</h1>
    <h2>Light Status: {{ status }}, Last Seen: {{ time }}</h2>
    <form action="http://169.254.185.235:4000">
        <input type="submit" value="Get Light Status">
    </form>
</body>
</html>
```