CAMERA.py

```
from picamera import PiCamera
import time
import datetime

camera = PiCamera()
camera.resolution = (1920, 1080)
camera.vflip = True
camera.start_preview()

time.sleep(2)

Cd = datetime.datetime.now().strftime("%d-%m-%y %H:%M:%S")
camera.capture("/home/pi/desktop/" + Cd + ".jpg")
camera.stop_preview()
print("done")
```

Program 6

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

led = 13

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

app = Flask(__name__, template_folder='template')

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

@app.route('/redledon')
def redledon():
    gpio.output(led, gpio.HIGH)
    now = datetime.datetime.now()
    timestring = now.strftime("%Y-%m-%d-%H-%M")
    templateData = {
```

```
        'status': 'ON',
        'time': timestring
    }
    return render_template('web.html', **templateData)

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

if __name__ == '__main__':
    try:
        app.run(debug=False, port=4000, host='127.0.0.1')
    finally:
        gpio.cleanup()
```

Web.html

```
<html>
<body>
    <h1>Remote control of LED BULB</h1>
    <h2>Light status: {{status}}, Last Modified: {{time}}</h2>
    <form action='http://127.0.0.1:4000/redledon' method='get'>
        <input type="submit" value="Turn On">
    </form>
    <form action='http://127.0.0.1:4000/redledoff' method='get'>
        <input type="submit" value="Turn Off">
    </form>
</body>
</html>
```

Program 7

```
import signal
import sys
import datetime
import RPi.GPIO as GPIO
from flask import Flask, render_template

Button_GPIO = 37
LED_GPIO = 13
last_led_state = 0

def signal_handler(sig, frame):
    GPIO.cleanup()
    sys.exit(0)

def button_pressed_callback(channel):
    global last_led_state
    GPIO.output(LED_GPIO, not last_led_state)
    last_led_state = not last_led_state
    print("LED", last_led_state)

app = Flask(__name__, template_folder='template')

@app.route('/')
def relaystatus():
    now = datetime.datetime.now()
    timestring = now.strftime("%H:%M %d-%m-%Y")
    templateData = {
        'status': last_led_state,
        'time': timestring
    }

    return render_template('light.html', **templateData)

if __name__ == '__main__':
    GPIO.setmode(GPIO.BOARD)
    GPIO.setwarnings(False)
    GPIO.setup(Button_GPIO, GPIO.IN, pull_up_down=GPIO.PUD_UP)
    GPIO.setup(LED_GPIO, GPIO.OUT)
    GPIO.add_event_detect(Button_GPIO, GPIO.FALLING,
callback=button_pressed_callback, bouncetime=200)
```

```
    app.run(debug=False, port=4002, host='127.0.0.1')

    signal.signal(signal.SIGINT, signal_handler)
    signal.pause()
```

Light.html

```
<html>
<body>
    <title>LED STATUS</title>
    <h1>GET LED STATUS</h1>
    <h2>Light Status: {{status}}, Last Seen: {{time}}</h2>
    <form action="http://127.0.0.1:4002" method="GET">
        <input type="submit" value="Get Status">
    </form>
</body>
</html>
```

Program 8

```
import signal
import sys
import RPi.GPIO as GPIO
import datetime
import time
from flask import Flask, render_template

flame1 = 37
led1 = 13
last_led_status = 0

def signal_handler(sig, frame):
    GPIO.cleanup()
    sys.exit(0)

def flame_detected_callback(channel):
    global last_led_status
    GPIO.output(led1, 1)
    last_led_status = 1
    print("LED:", last_led_status)
    time.sleep(4)
    GPIO.output(led1, 0)
```

```
    last_led_status = 0
    print("LED", last_led_status)

app = Flask(__name__, template_folder='template')

@app.route('/')
def flamestatus():
    now = datetime.datetime.now()
    timestring = now.strftime('%H:%M:%d-%m-%Y')
    templateData = {
        'status': last_led_status,
        'time': timestring
    }
    return render_template('flame.html', **templateData)

if __name__ == '__main__':
    GPIO.setwarnings(False)
    GPIO.setmode(GPIO.BOARD)
    GPIO.setup(flame1, GPIO.IN, pull_up_down=GPIO.PUD_UP)
    GPIO.setup(led1, GPIO.OUT)
    GPIO.add_event_detect(flame1, GPIO.FALLING, callback=flame_detected_callback,
bouncetime=200)
    app.run(debug=False, port=4000, host='172.16.7.137')
    signal.signal(signal.SIGINT, signal_handler)
    signal.pause()
```

Flame.html

```
<html>
<body>
<title>Fire Detection</title>
<h1>Remote Control Status of Fire Detection</h1>
<h2>Fire Status:{{status}}, Last Seen:{{time}}</h2>
<meta http-equiv='refresh' content='3;url=http://172.16.7.137:4002/' />
</body>
</html>
```