

Security Alert

OBJECTIVE:

Security alert alarm by motion detection sensor for restricted areas.

TECHNOLOGY PACK:

- . PYTHON**
- . JUPYTER NOTEBOOK**
- . CV2**
- . PYDUB**
- . WINSOUND**

WORKFLOW:

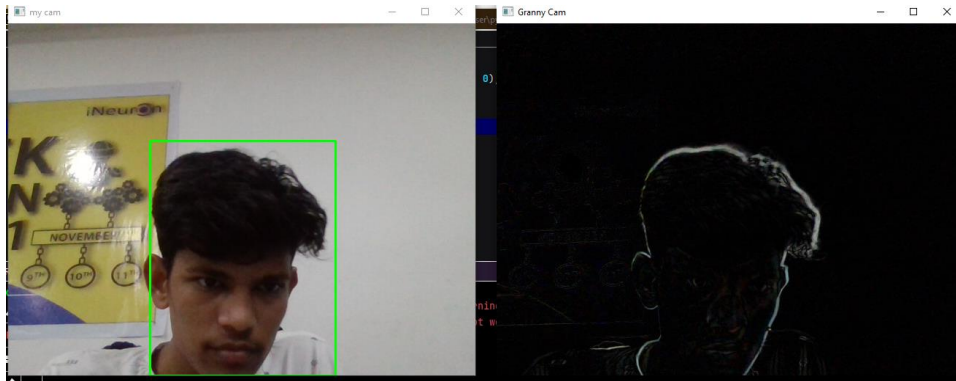
- Create an environment and download required modules.**
- By using the cv2 module capture the motion picture as 2 frames continuously by opening the camera.**
- Compare the two obtained frames by using “absdiff()” function of cv2 module.**
- If there is difference between the two frames, then buzz the alarm.**

- Finally show the obtained output by using “imshow()” function of cv2 module.

CODE:

```
import cv2
import pydub
import winsound
cam = cv2.VideoCapture(0)
while cam.isOpened():
    ret, frame1 = cam.read()
    ret, frame2 = cam.read()
    diff = cv2.absdiff(frame1, frame2)
    gray = cv2.cvtColor(diff, cv2.COLOR_RGB2GRAY)
    blur = cv2.GaussianBlur(gray, (5, 5), 0)
    _, thresh = cv2.threshold(blur, 20, 255,
cv2.THRESH_BINARY)
    dilated = cv2.dilate(thresh, None, iterations=3)
    contours, _ = cv2.findContours(dilated, cv2.RETR_TREE,
cv2.CHAIN_APPROX_SIMPLE)
    # cv2.drawContours(frame1, contours, -1, (0, 255, 0), 2)
    for c in contours:
        if cv2.contourArea(c) < 5000:
            continue
        x, y, w, h = cv2.boundingRect(c)
        cv2.rectangle(frame1, (x, y), (x+w, y+h), (0, 255,
0), 2)
        #pydub.PlaySound('alert wav', pydub.SND_ASYNC)
        winsound.Beep(500, 200)
    if cv2.waitKey(10) == ord('q'):
        break
    cv2.imshow('my cam', frame1)
```

EXPECTED OUTPUT:



Advantages:

- We can easily detect the trespassing at restricted areas.
- We can easily reduce robberies in banks or museums, etc.

Conclusion:

We will get security alert notification when someone enters in front of camera.