SPRINT 1

Detection of fire accident due to gas leakage using OpenCV.

Code:

```
import cv2
import numpy as np
import smtplib

import threading

Alarm_Status = False
Email_Status = False
Fire_Reported = 0

video = cv2.VideoCapture(0) # If you want to use webcam use Index like 0,1.

while True:
   (grabbed, frame) = video.read()
   if not grabbed:
      break

   frame = cv2.resize(frame, (960, 540))

   blur = cv2.GaussianBlur(frame, (21, 21), 0)
   hsv = cv2.cvtColor(blur, cv2.COLOR_BGR2HSV)

   lower = [18, 50, 50]
   upper = [35, 255, 255]
   lower = np.array(lower, dtype="uint8")
   upper = np.array(upper, dtype="uint8")

   mask = cv2.inRange(hsv, lower, upper)

   output = cv2.bitwise_and(frame, hsv, mask=mask)

   no_red = cv2.countNonZero(mask)

   if int(no_red) > 15000:
      Fire_Reported = Fire_Reported + 1

   cv2.imshow("output", output)

   if cv2.waitKey(1) & 0xFF == ord('q'):
```

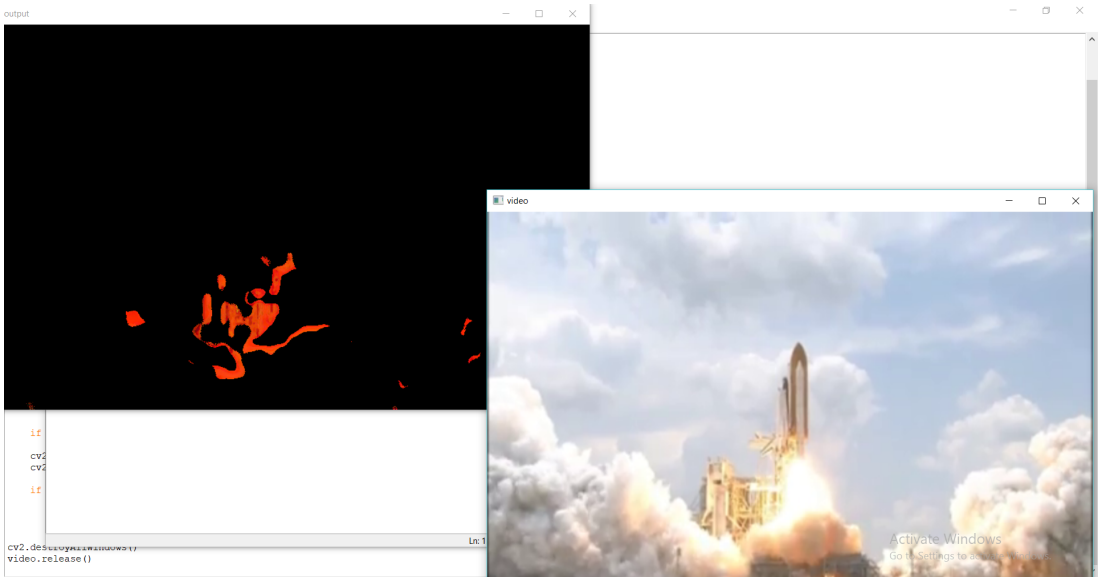
```
        break

cv2.destroyAllWindows()
video.release()
```

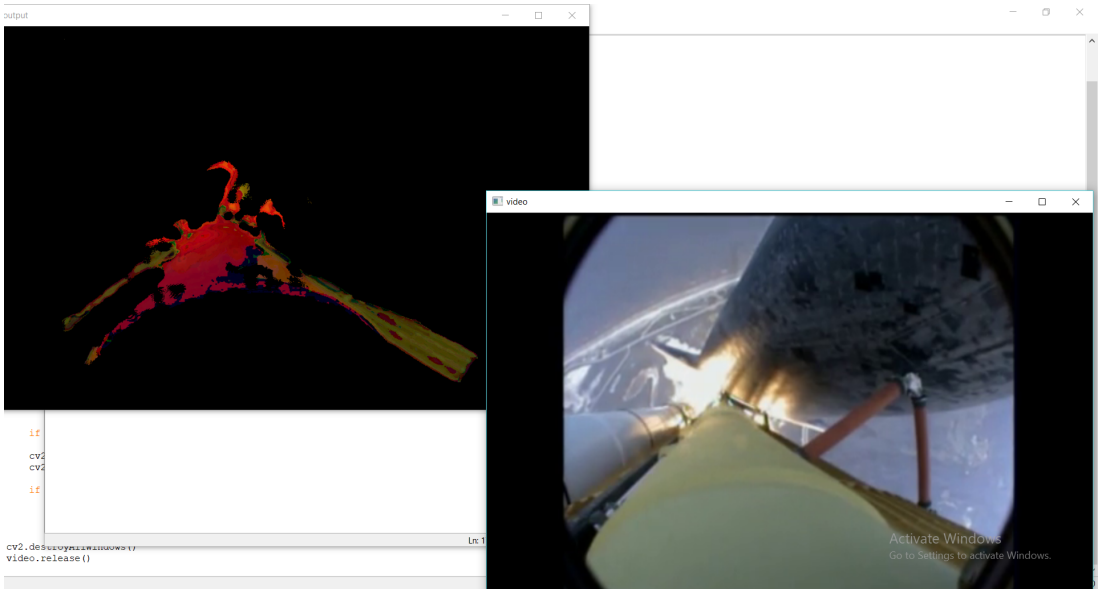
OUTPUT:

On right down , original input video and on the left top , OpenCV output video.

Output 1: (Detection Of Fire In Video Input)



Output 2: (Detection Of Fire In Video Input)



Output 3: (Detection Of Fire In Live Video)