import cv2  
import numpy as np  
import winsound  
import smtplib  
import threading  
import pyttsx3  
  
engine = pyttsx3.init()  
voices = engine.getProperty('voices')  
engine.setProperty('voice',voices[1].id)  
  
Fire\_reported = 0  
Alarm\_Status = False  
Email\_Status = False  
def play\_audio():  
 winsound.PlaySound('alert.wav', winsound.SND\_ASYNC)  
  
def talk(text):  
 engine.say(text)  
 engine.runAndWait()  
  
def send\_mail\_function():  
  
 recipientEmail = "fire department mail"  
 recipientEmail = recipientEmail.lower()  
  
 try:  
 server = smtplib.SMTP('smtp.gmail.com', 587)  
 server.ehlo()  
 server.starttls()  
 server.login("usermail", 'password)  
 server.sendmail('usermail, recipientEmail, "Warning A Fire Accident has been reported on ABC Company")  
 print("sent to {}".format(recipientEmail))  
 server.close()  
 except Exception as e:  
 print(e)  
  
video = cv2.VideoCapture(0)  
while True:  
 ret, frame = video.read()  
 frame = cv2.resize(frame, (1000,600))  
 blur = cv2.GaussianBlur(frame, (15,15), 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)  
  
 size = cv2.countNonZero(mask)  
  
 if int(size) > 15000:  
 Fire\_reported = Fire\_reported + 1  
  
 if Fire\_reported >= 1:  
 if Alarm\_Status == False:  
 play\_audio()  
 Alarm\_Status = True  
 if Email\_Status == False:  
 talk('warning!')  
 talk('A fire spark detected in section 13')  
 talk('An email is sent to the fire department')  
 threading.Thread(target=send\_mail\_function).start()  
 Email\_Status = True  
  
  
 if ret == False:  
 break  
 cv2.imshow("Cam", output)  
 if cv2.waitKey(1) & 0xFF == ord("q"):  
 break  
  
cv2.destroyWindow()  
video.release()