

EMERGING METHODS FOR EARLY DETECTION OF FOREST FIRE

VIDEO ANALYSIS

| | |
|---------------------|--|
| Date | 7 Nov 2022 |
| Team ID | PNT2022TMID37312 |
| Project Name | Emerging Methods for Early Detection Of Forest Fire. |

```
#OPENCV For Video Processing
```

```
pip install twilio
```

```
Requirement already satisfied: twilio in c:\users\rakshana\anaconda3\envs\tensorflow\lib\site-packages (7.15.1)
Requirement already satisfied: pytz in c:\users\rakshana\anaconda3\envs\tensorflow\lib\site-packages (from twilio) (2022.6)
Requirement already satisfied: PyJWT<3.0.0,>=2.0.0 in c:\users\rakshana\anaconda3\envs\tensorflow\lib\site-packages (from twilio) (2.4.0)
Requirement already satisfied: requests>=2.0.0 in c:\users\rakshana\anaconda3\envs\tensorflow\lib\site-packages (from twilio) (2.28.1)
Requirement already satisfied: certifi>=2017.4.17 in c:\users\rakshana\anaconda3\envs\tensorflow\lib\site-packages (from requests>=2.0.0->twilio) (2022.9.24)
Requirement already satisfied: idna<4,>=2.5 in c:\users\rakshana\anaconda3\envs\tensorflow\lib\site-packages (from requests>=2.0.0->twilio) (3.4)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in c:\users\rakshana\anaconda3\envs\tensorflow\lib\site-packages (from requests>=2.0.0->twilio) (1.26.12)
Requirement already satisfied: charset-normalizer<3,>=2 in c:\users\rakshana\anaconda3\envs\tensorflow\lib\site-packages (from requests>=2.0.0->twilio) (2.0.4)
Note: you may need to restart the kernel to use updated packages.
```

```
pip install playsound
```

```
Requirement already satisfied: playsound in c:\users\rakshana\anaconda3\envs\tensorflow\lib\site-packages (1.3.0)
Note: you may need to restart the kernel to use updated packages.
```

```
#import opencv library
import cv2
#import numpy
import numpy as np
#import image function from keras
from keras.preprocessing import image
#import load_model from keras
from keras.models import load_model
#import client from twilio API
from twilio.rest import Client
#import playsound package
from playsound import playsound
```

```
#Load the saved model
model = load_model(r'forest1.h5')
#define video
video = cv2.VideoCapture('VideoCapture.mp4')
#define the features
name = ['forest','with forest']
```

Creating An Account in Twilio Service

```
account_sid='AC6be2d13a80de59f51a5fe3ba2bf9d6f1'
auth_token='00ac87e22f4bbc807a00a5ca30eedd1e'
client=Client(account_sid,auth_token)
message=client.messages \
.create(
    body='BULTAURUNAE FIIIRRRREEEEE!',
    from_='+14793912961',
    to='+917358579433'
)
print(message.sid)
```

SM2ac22f2b3a66197d64f3dfa122a9070e

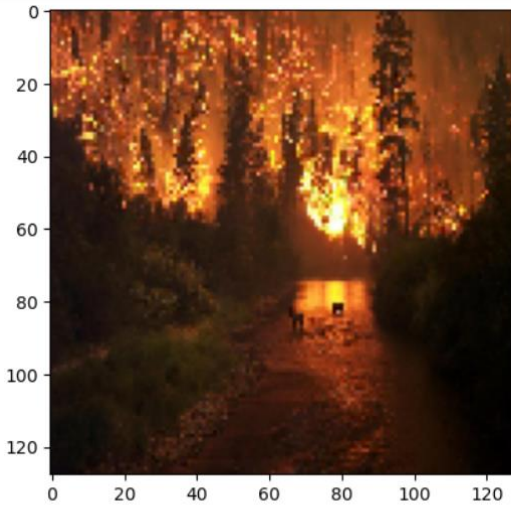
#Sending Alert Message

```
from keras.preprocessing import image
```

```
from matplotlib import pyplot as plt
#import load model from keras.model
from keras.models import load_model
#import image from keras
from tensorflow.keras.preprocessing import image
img1 = image.load_img(r'C:\Users\Rakshana\OneDrive\Desktop\MAIN_PROJECT\Dataset\Dataset\test_set\with fire\deerfire_high_res_edit.jpg')
Y = image.img_to_array(img1)
x = np.expand_dims(Y,axis=0)
val = model.predict(x)
plt.imshow(img1)
plt.show()
if val==1:
    print('Forest fire')
```

WARNING:tensorflow:6 out of the last 12 calls to <function Model.make_predict_function.<locals>.predict_function at 0x000001A5A40458B0> triggered tf.function retracing. Tracing is expensive and the excessive number of tracings could be due to (1) creating @tf.function repeatedly in a loop, (2) passing tensors with different shapes, (3) passing Python objects instead of tensors. For (1), please define your @tf.function outside of the loop. For (2), @tf.function has reduce_retracing=True option that can avoid unnecessary retracing. For (3), please refer to https://www.tensorflow.org/guide/function#controlling_retracing and https://www.tensorflow.org/api_docs/python/tf/function for more details.

1/1 [=====] - 0s 86ms/step



Forest fire

```
if val==1:
    print('Forest fire')
    from twilio.rest import Client
    print('Forest fire')
    account_sid='AC6be2d13a80de59f51a5fe3ba2bf9d6f1'
    auth_token='00ac87e22f4bbc807a00a5ca30eedd1e'
    client=Client(account_sid,auth_token)
    message=client.messages \
        .create(
            body='FIRE IN THE FOREST RUN! RUN! RUN!',from_='+14793912961',
            to='+917358579433')
    print(message.sid)
    print("Fire detected")
    print("SMS Sent!")
elif val==0:
    print('No Fire')
```

Forest fire
Forest fire
SM24519c08f2e36d0764adaa104992011d
Fire detected
SMS Sent!