

Project Development Phase Sprint – 3

Video Analysis

Date	11 November 2022
Team ID	PNT2022TMID42321
Project Name	Emerging Methods for Early Detection of Forest Fires
Maximum Marks	4 Marks

OpenCV For Video Processing

[Click here for openCV file \(Colab\)](#)

openCV.ipynb:

```
from google.colab import drive
drive.mount('/content/drive')
```

```
import cv2
import numpy as np
from google.colab.patches import cv2_imshow
from matplotlib import pyplot as plt
import librosa
from tensorflow.keras.preprocessing import image
from keras.models import load_model
```

```
# Create a VideoCapture object and read from input file
# If the input is the camera, pass 0 instead of the video file name
cap = cv2.VideoCapture('/content/drive/MyDrive/Dataset/forestfire.m
p4')
```

```

# Check if camera opened successfully
if (cap.isOpened()== False):
    print("Error opening video stream or file")

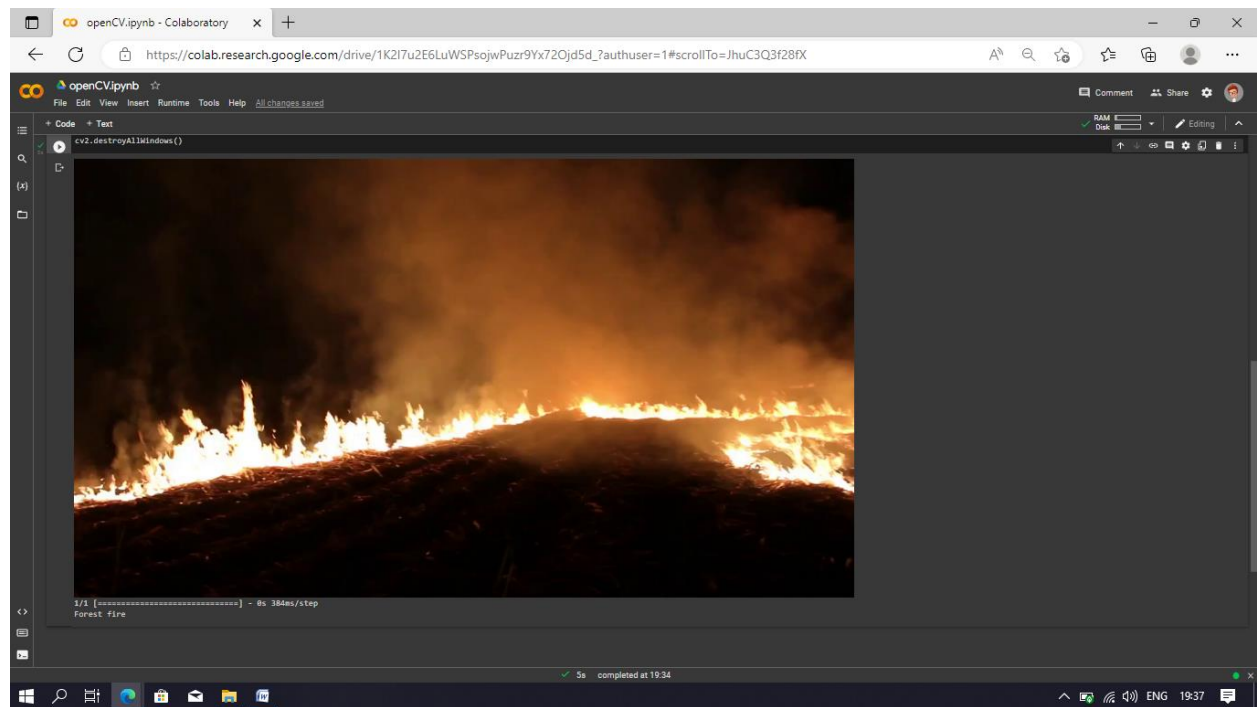
# Read until video is completed
while(cap.isOpened()):
    # Capture frame-by-frame
    ret, frame = cap.read()
    if ret == True:
        x=image.img_to_array(frame)
        res=cv2.resize(x,dsize=(64,64),interpolation=cv2.INTER_CUBIC)
        #expand the image shape
        x=np.expand_dims(res,axis=0)
        model=load_model("/content/drive/MyDrive/Dataset/forest.h5")
        cv2_imshow(frame)
        pred=model.predict(x)
        pred = int(pred[0][0])
        pred
        int(pred)
        if pred==0:
            print('Forest fire')
            break
        else:
            print("no danger")
            break

# When everything done, release the video capture object
cap.release()

# Closes all the frames
cv2.destroyAllWindows()

```

output:



```
1/1 [=====] - 0s 384ms/step
Forest fire
```

Creating An Account In Twilio Service

Login to Twilio & Buy a number:

The screenshot shows the Twilio console interface. The main heading is "Active Numbers". Below it, there are "Inventory Filters" and "Configuration Filters". A table lists active numbers. The first number is +1 479 397 4371, with a friendly name "(479) 397-4371 US, US". It has capabilities for Voice, SMS, MMS, and Fax. The active configuration shows webhooks for Voice and Messaging. A sidebar on the left contains navigation links. The top bar shows the user is logged in as "Akash" and has a trial account.

Number	Friendly Name	Capabilities				Active Configuration
		Voice	SMS	MMS	Fax	
+1 479 397 4371	(479) 397-4371 US, US	☎	💬	💬	📠	Voice Webhook to POST: https://demo.twilio.com/welcome/voice/ Messaging Webhook to POST: https://demo.twilio.com/welcome/sms/reply

Account SID and Authentication token:

The screenshot shows the Twilio console interface for "Auth Tokens - United States (US1)". It explains that auth tokens are used for API authentication. It provides two sets of credentials: "Live credentials" and "Test credentials". The live credentials include an Account SID and an Auth token. The test credentials include a Test Account SID and a Test Auth token. A warning box indicates that the auth token is sensitive information and should be stored securely.

Live credentials

Account SID - used to exercise the REST API
`ACc0b32842aa3060ee6f4b2bfa1116247f`

Auth token
`-----`

Sensitive information. Store your token securely to protect your account. [Learn more](#)

Keep this somewhere safe and secure

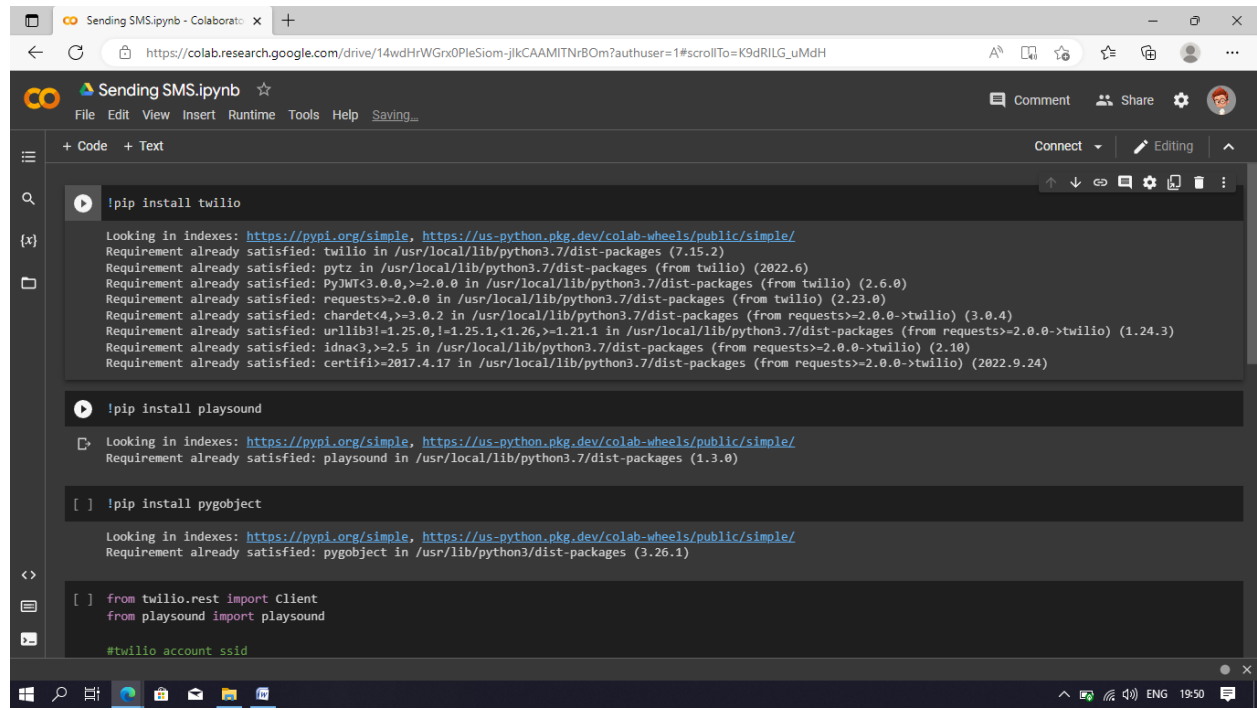
Test credentials

Test Account SID - used to exercise the REST API
`ACe7eab6ce6ccb80b5cccd3cd20985857a`

Test Auth token
`-----`

Keep this somewhere safe and secure

Task 1: Use API to send alert messages: (Sending SMS.ipynb)



The screenshot shows a Google Colab notebook interface. The top bar indicates the notebook is titled "Sending SMS.ipynb" and is in the "Editing" state. The left sidebar shows the notebook's structure with sections for "Code" and "Text". The main code area contains three cells:

```
!pip install twilio
```

Looking in indexes: <https://pypi.org/simple>, <https://us-python.pkg.dev/colab-wheels/public/simple/>
Requirement already satisfied: twilio in /usr/local/lib/python3.7/dist-packages (7.15.2)
Requirement already satisfied: pytz in /usr/local/lib/python3.7/dist-packages (from twilio) (2022.6)
Requirement already satisfied: PyJWT<3.0.0,>=2.0.0 in /usr/local/lib/python3.7/dist-packages (from twilio) (2.6.0)
Requirement already satisfied: requests>=2.0.0 in /usr/local/lib/python3.7/dist-packages (from twilio) (2.23.0)
Requirement already satisfied: chardet<4,>=3.0.2 in /usr/local/lib/python3.7/dist-packages (from requests>=2.0.0->twilio) (3.0.4)
Requirement already satisfied: urllib3!<1.25.0,!<1.25.1,<1.26,>=1.21.1 in /usr/local/lib/python3.7/dist-packages (from requests>=2.0.0->twilio) (1.24.3)
Requirement already satisfied: idna<3,>=2.5 in /usr/local/lib/python3.7/dist-packages (from requests>=2.0.0->twilio) (2.10)
Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.7/dist-packages (from requests>=2.0.0->twilio) (2022.9.24)

```
!pip install playsound
```

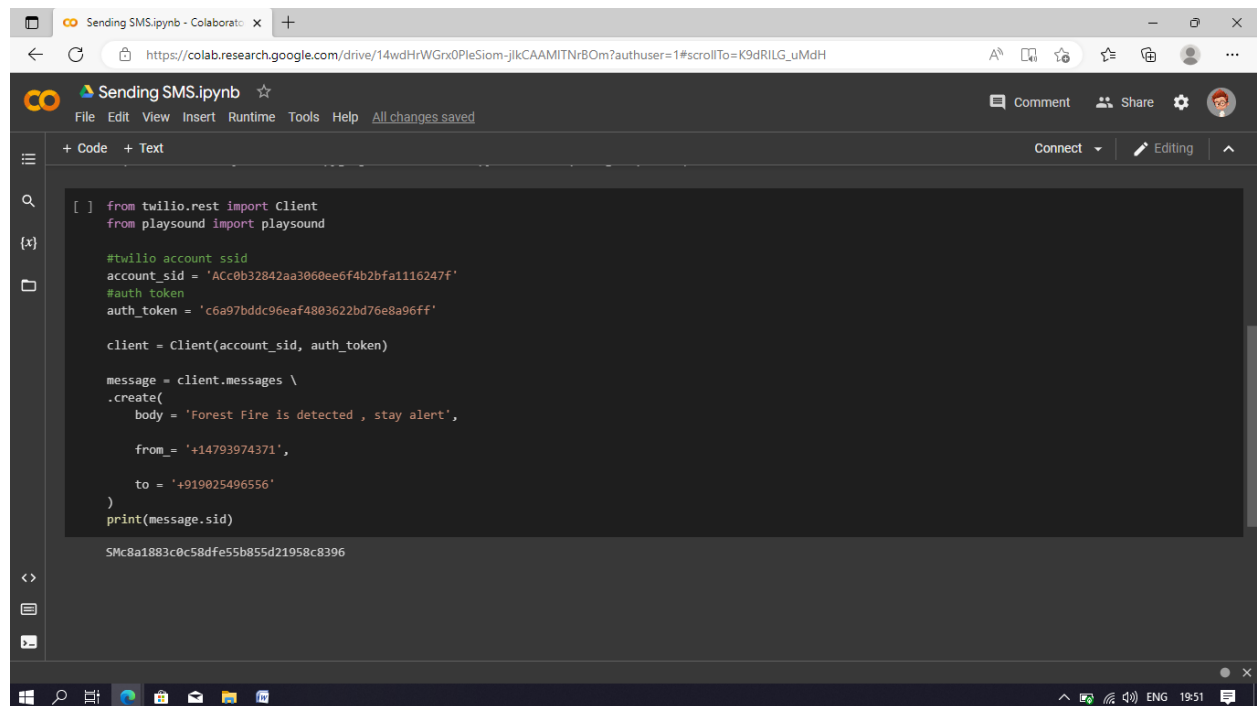
Looking in indexes: <https://pypi.org/simple>, <https://us-python.pkg.dev/colab-wheels/public/simple/>
Requirement already satisfied: playsound in /usr/local/lib/python3.7/dist-packages (1.3.0)

```
[ ] !pip install pygobject
```

Looking in indexes: <https://pypi.org/simple>, <https://us-python.pkg.dev/colab-wheels/public/simple/>
Requirement already satisfied: pygobject in /usr/lib/python3/dist-packages (3.26.1)

```
[ ] from twilio.rest import Client
    from playsound import playsound

#twilio account ssid
```



The screenshot shows the same Google Colab notebook interface, now with the code for sending an SMS message. The code is as follows:

```
[ ] from twilio.rest import Client
    from playsound import playsound

#twilio account ssid
account_sid = 'Acc0b32842aa3060ee6f4b2bfa1116247f'
#auth token
auth_token = 'c6a97bddc96eaf4803622bd76e8a96ff'

client = Client(account_sid, auth_token)

message = client.messages \
    .create(
        body = 'Forest Fire is detected , stay alert',
        from_ = '+14793974371',
        to = '+919025496556'
    )
print(message.sid)

SMc8a1883c8c58dfe55b855d21958c8396
```

Screenshot of the SMS received:

