Video Analysis

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

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.mp4')
```

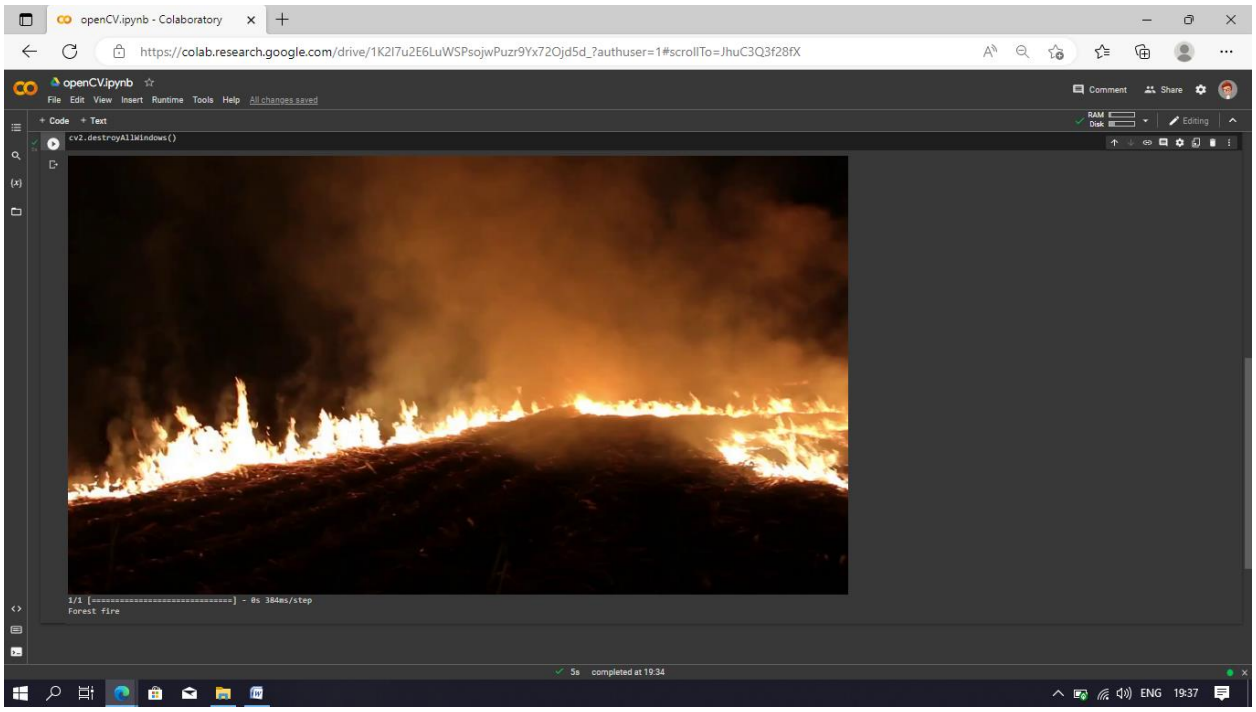
```
# Check if camera opened successfully
if (cap.isOpened()== False):
  print("Error opening video stream or file")

# 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()
```

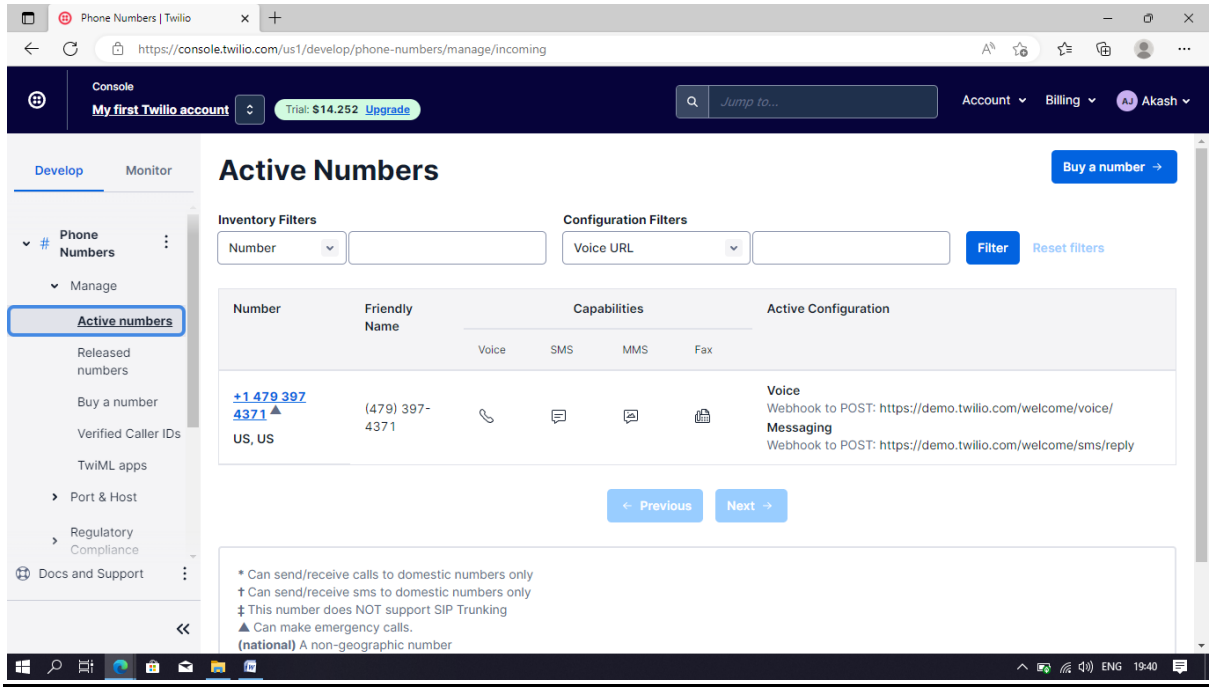
output:



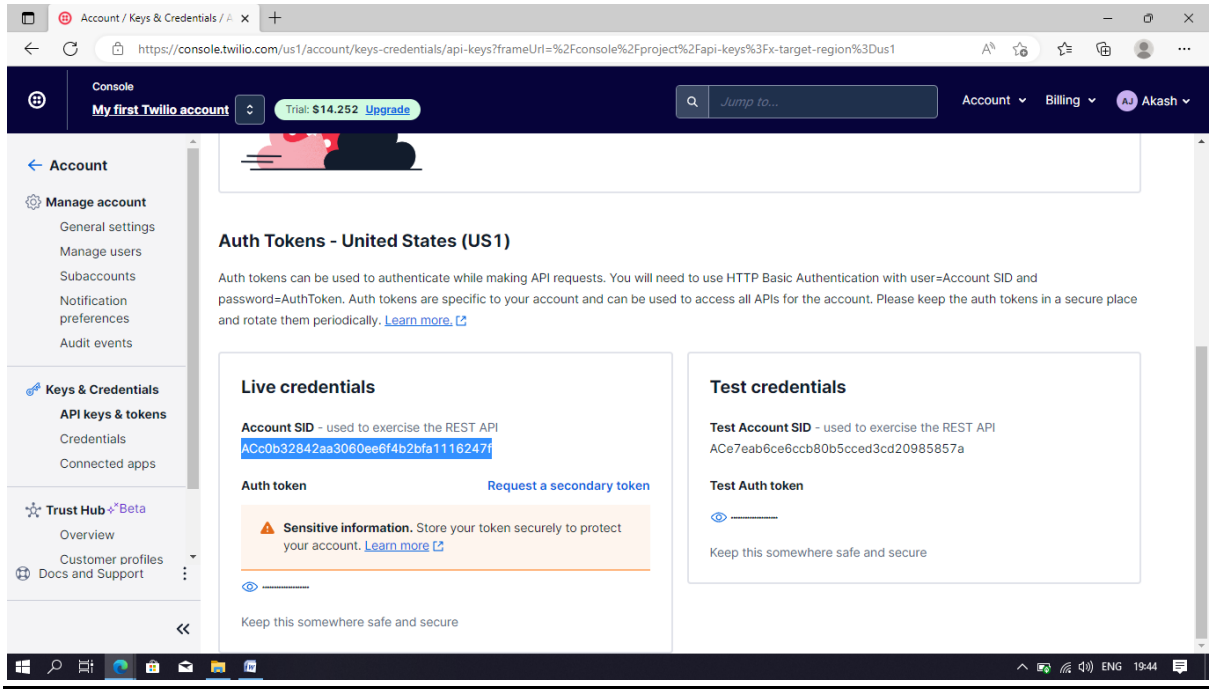

```
1/1 [==============================] - 0s 384ms/step
Forest fire
```

Creating An Account In Twilio Service

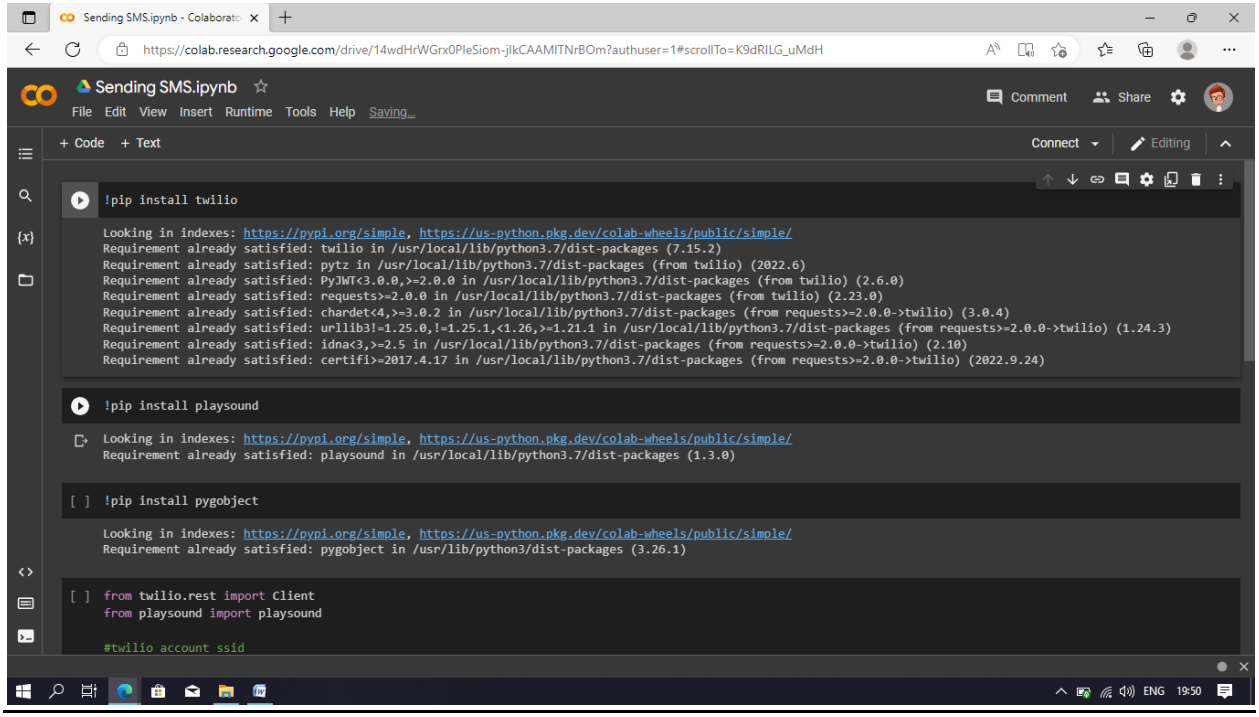
Login to Twilio & Buy a number:



Account SID and Authentication token:



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



```
!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
```

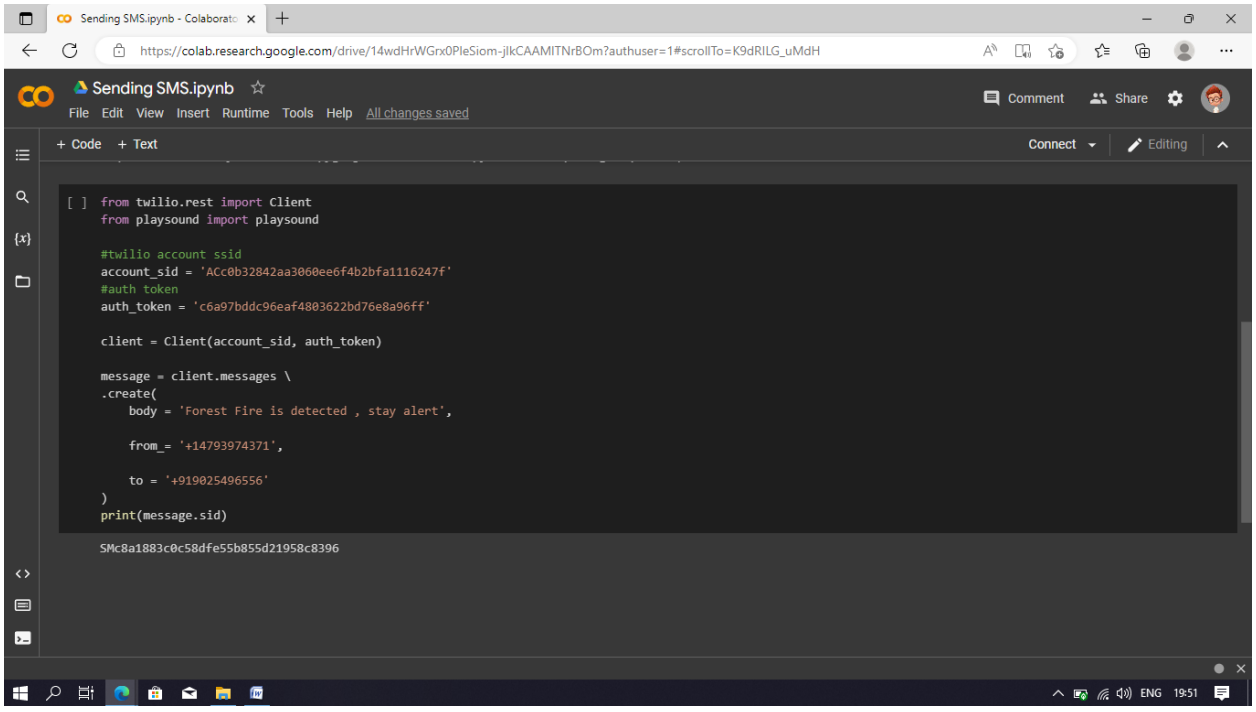
```
Looking in indexes: https://pypi.org/simple, https://us-python.pkg.dev/colab-wheels/public/simple/
Requirement already satisfied: playsound in /usr/local/lib/python3.7/dist-packages (1.3.0)
```

```
!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
```



```
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)
```

```
SMc8a1883c0c58dfe55b855d21958c8396
```

Screenshot of the SMS received: