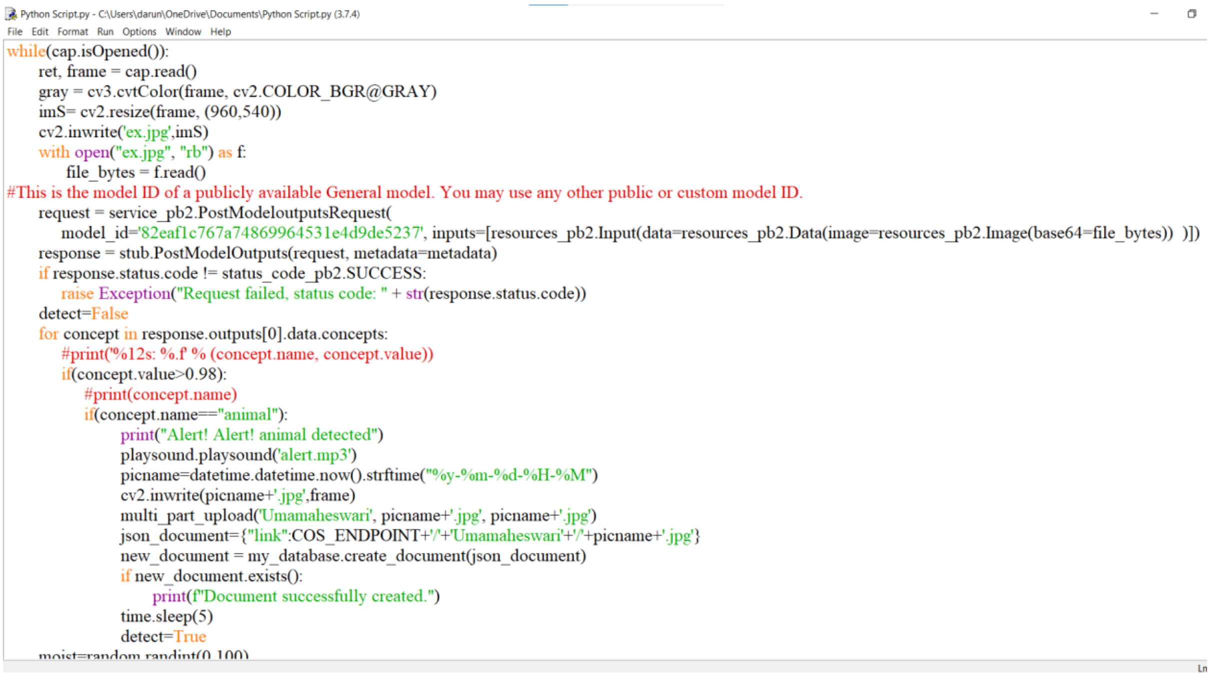
SPRINT-3

Date	07 November 2022
Team ID	PNT2022TMID31899
Project Name	IOT BASED CROP PROTECTION SYSTEM FOR AGRICULTURE

STEP 1:

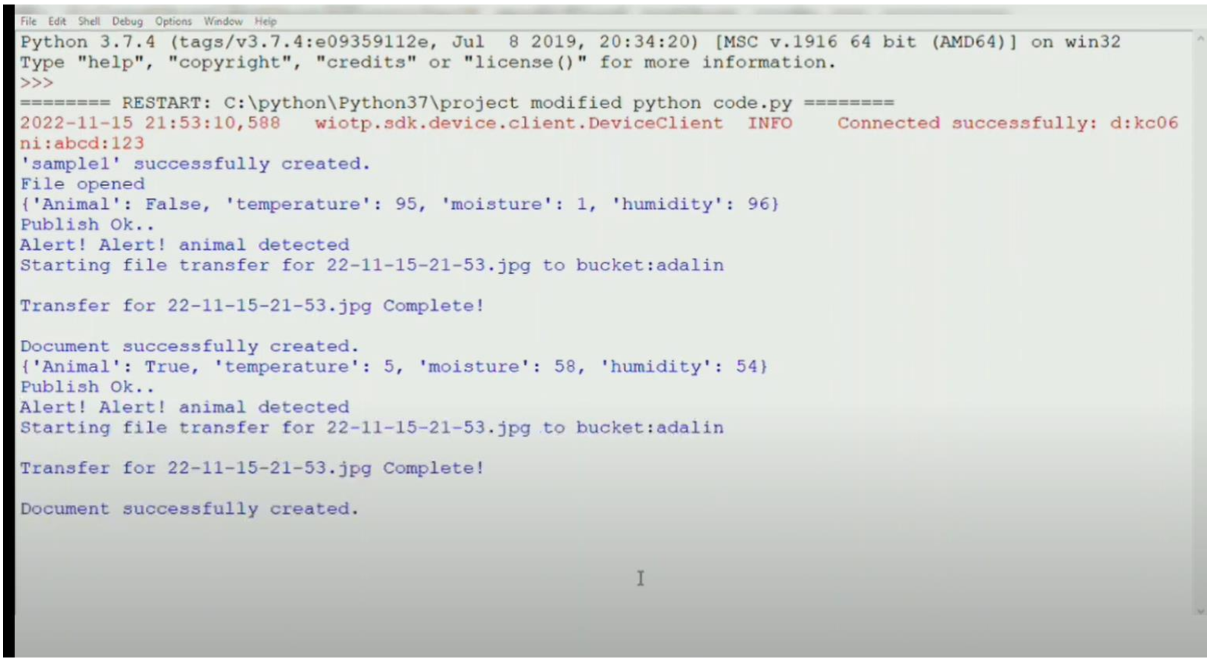
First open python code and run code, this capture the image in video and identify which animal or object are captured .


Python Script.py - C:\Users\darun\OneDrive\Documents\Python Script.py (3.7.4)
File Edit Format Run Options Window Help
Ln

```
while(cap.isOpened()):
    ret, frame = cap.read()
    gray = cv3.cvtColor(frame, cv2.COLOR_BGR@GRAY)
    imS= cv2.resize(frame, (960,540))
    cv2.inwrite('ex.jpg',imS)
    with open("ex.jpg", "rb") as f:
        file_bytes = f.read()
#This is the model ID of a publicly available General model. You may use any other public or custom model ID.
    request = service_pb2.PostModeloutputsRequest(
      model_id='82eaf1c767a74869964531e4d9de5237', inputs=[resources_pb2.Input(data=resources_pb2.Data(image=resources_pb2.Image(base64=file_bytes))  )])
    response = stub.PostModelOutputs(request, metadata=metadata)
    if response.status.code != status_code_pb2.SUCCESS:
      raise Exception("Request failed, status code: " + str(response.status.code))
    detect=False
    for concept in response.outputs[0].data.concepts:
      #print('%12s: %.f' % (concept.name, concept.value))
      if(concept.value>0.98):
        #print(concept.name)
        if(concept.name=="animal"):
            print("Alert! Alert! animal detected")
            playsound.playsound('alert.mp3')
            picname=datetime.datetime.now().strftime("%y-%m-%d-%H-%M")
            cv2.inwrite(picname+'.jpg',frame)
            multi_part_upload('Umamaheswari', picname+'.jpg', picname+'.jpg')
            json_document={"link":COS_ENDPOINT+'/'+'Umamaheswari'+'/'+picname+'.jpg'}
            new_document = my_database.create_document(json_document)
            if new_document.exists():
               print(f"Document successfully created.")
            time.sleep(5)
            detect=True
    moist=random.randint(0,100)
```

STEP 2:

It shows the detected animal or object name which is represented by square with the name of the animal or object.



```
Python 3.7.4 (tags/v3.7.4:e09359112e, Jul  8 2019, 20:34:20) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
======== RESTART: C:\python\Python37\project modified python code.py ========
2022-11-15 21:53:10,588   wiotp.sdk.device.client.DeviceClient  INFO    Connected successfully: d:kc06
ni:abcd:123
'sample1' successfully created.
File opened
{'Animal': False, 'temperature': 95, 'moisture': 1, 'humidity': 96}
Publish Ok..
Alert! Alert! animal detected
Starting file transfer for 22-11-15-21-53.jpg to bucket:adalin

Transfer for 22-11-15-21-53.jpg Complete!

Document successfully created.
{'Animal': True, 'temperature': 5, 'moisture': 58, 'humidity': 54}
Publish Ok..
Alert! Alert! animal detected
Starting file transfer for 22-11-15-21-53.jpg to bucket:adalin

Transfer for 22-11-15-21-53.jpg Complete!

Document successfully created.
```

Python code :

```
import cv2

import numpy as np

import wiotp.sdk.device

import playsound

import random

import time

import datetime

import ibm_boto3

from ibm_botocore.client import Config, ClientError

#CloudantDB

from cloudant.client import Cloudant

from cloudant.error import CloudantException

from cloudant.result import Result, ResultByKey

from clarifai_grpc.channel.clarifai_channel import ClarifaiChannel

from clarifai_grpc.grpc.api import service_pb2_grpc

stub = service_pb2_grpc.V2Stub(clarifaiChannel.get.grpc_channel())

from clarifai_grpc.grpc.api import service_pb2, resource_pb2

from clarifai_grpc.grpc.api.status import status_code_pb2

#This is how you authenticate

metadata = (('authorization', 'key 5797d941-433e-436a-a480-680d9080a990'),)

COS_ENDPOINT = "https://s3.tok.ap.cloud-object-storage.appdomain.cloud"

COS_API_KEY_ID = "v9n8Zn4r5VpcMVz_HyRY0DrS13jSzph2IEFioVj4-vmT"

COS_AUTH_ENDPOINT = "https://iam.cloud.ibm.com/identity/token"

COS_RESOURCE_CRN = "crn:v1:bluemix:public:cloud-
object  storage:global:a/3f060ee770d94e20a88f49f3da641d6d:f301cab2-2e94-48a1-
a8a05b4968527c54::"

clientdb = cloudant("apikey-_pIeLXPoaPpnOZ7SMoVKd6tZdsjf54X9LwkFEWB1a0T6",

"0165dca6-1176-4aa5-b0fe-81473e50e35d", url="https://47643860-3553-4211-
ba2a  d8e26dd17c08-bluemix.cloudantnosqldb.appdomain.cloud")

clientdb.connect()

#Create resource
```

```
cos = ibm_boto3.resource("s3", ibm_api_key_id=COS_API_KEY_ID,
ibm_service_instance_id=COS_RESOURCE_CRN, ibm_auth_endpoint=COS_AUTH_ENDPOINT,
config=Config(signature_version="oauth"), endpoint_url=COS_ENDPOINT )

def  multi_part_upload(bucket_name, item_name, file_path):

    try:

        print("Starting file transfer for {0} to bucket: {1}\n".format(item_name, bucket_name))

        #set 5 MB chunks

        part_size = 1024 * 1024 * 5

        #set threadhold to 15 MB

        file_threshold = 1024 * 1024 * 15

        #set the transfer threshold and chunk size

        transfer_config = ibm_boto3.s3.transfer.TransferConfig(

                        multipart_threshold=file_threshold,

                        multipart_chunksize=part_size

        )

        #the upload_fileobj method will automatically execute a multi-part upload

        #in 5 MB chunks size

        with open(file_path, "rb") as file_data:

            cos.Object(bucket_name, item_name).upload_fileobj(

                Fileobj=file_data,

                Config=transfer_config

            )

        print("Transfer for {0} Complete!\n".format(item_name))

    except ClientError as be:

         print("CLIENT ERROR: {0}\n".format(be))

    except Exception as e:

         print("Unable to complete multi-part upload: {0}".format(e))



def myCommandCallback(cmd):

    print("Command received: %s" % cmd.data)

    command=cmd.data['command']
    print(command)
    if(commamd=="lighton"):
        print('lighton')
    elif(command=="lightoff"):
        print('lightoff')
    elif(command=="motoron"):
        print('motoron')
    elif(command=="motoroff"):
        print('motoroff')
myConfig = {
     "identity": {
          "orgId": "ebf2oy",
          "typeId": "Humidity",
          "deviceId": "123456"
     },
     "auth": {
           "token": "12345678"
     }
}
client = wiot.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
client.connect()

database_name = "sample"
my_database = clientdb.create_database(database_name)
if my_dtabase.exists():
   print(f"'(database_name)' successfully created.")
cap=cv2.VideoCapture("garden.mp4")
if(cap.isOpened()==True):
     print('File opened')
else:
     print('File not found')
```

```
while(cap.isOpened()):
    ret, frame = cap.read()
    gray = cv3.cvtColor(frame, cv2.COLOR_BGR@GRAY)
    imS= cv2.resize(frame, (960,540))
    cv2.inwrite('ex.jpg',imS)
    with open("ex.jpg", "rb") as f:
        file_bytes = f.read()
#This is the model ID of a publicly available General model. You may use any other public or custom model ID.
    request = service_pb2.PostModeloutputsRequest(
        model_id='82eaf1c767a74869964531e4d9de5237',
inputs=[resources_pb2.Input(data=resources_pb2.Data(image=resources_pb2.Image(base64=file_bytes))  )])
    response = stub.PostModelOutputs(request, metadata=metadata)
    if response.status.code != status_code_pb2.SUCCESS:
        raise Exception("Request failed, status code: " + str(response.status.code))
    detect=False
    for concept in response.outputs[0].data.concepts:
        #print('%12s: %.f' % (concept.name, concept.value))
        if(concept.value>0.98):
            #print(concept.name)
            if(concept.name=="animal"):
                print("Alert! Alert! animal detected")
                playsound.playsound('alert.mp3')
                picname=datetime.datetime.now().strftime("%y-%m-%d-%H-%M")
                cv2.inwrite(picname+'.jpg',frame)
                multi_part_upload('Umamaheswari', picname+'.jpg', picname+'.jpg')
                json_document={"link":COS_ENDPOINT+'/'+'Umamaheswari'+'/'+picname+'.jpg'}
                new_document = my_database.create_document(json_document)
                if new_document.exists():
                    print(f"Document successfully created.")
            time.sleep(5)

            detect=True

    moist=random.randint(0,100)

    humidity=random.randint(0,100)

    myData={'Animal':detect,'moisture':moist,'humidity':humidity}

    print(myData)

    if(humidity!=None):

        client.publishEvent(eventId="status",msgFormat="json", daya=myData, qos=0,
onPublish=None)

        print("Publish Ok..")

    client.commandCallback = myCommandCallback

    cv2.imshow('frame',imS)

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

        break

client.disconnect()

cap.release()

cv2.destroyAllWindows()
```