SPRINT-2

Team Id	PNT2022TMID34170
Project Name	IoT Based Crop Protection System For Agriculture
Maximum Marks	8 Marks

Code :

```
import cv2

import numpy as np

import wiot.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 0620e202302b4508b90eab7efe7475e4'),)

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

COS_API_KEY_ID = "g5d4qO8EIgv4TWUCJj4hfEzgalqEjrDbE82AJDWlAOHo"

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

COS_RESOURCE_CRN = "crn:v1:bluemix:public:cloud-object-
storage:global:a/c2fa2836eaf3434bbc8b5b58fefff3f0:62e450fd-4c82-4153-ba41-ccb53adb8111::"

clientdb = cloudant("apikey-W2njldnwtjO16V53LAVUCqPwc2aHTLmlj1xXvtdGKJBn",
"88cc5f47c1a28afbfb8ad16161583f5a", url="https://d6c89f97-cf91-48b7-b14b-c99b2fe27c2f-
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
```

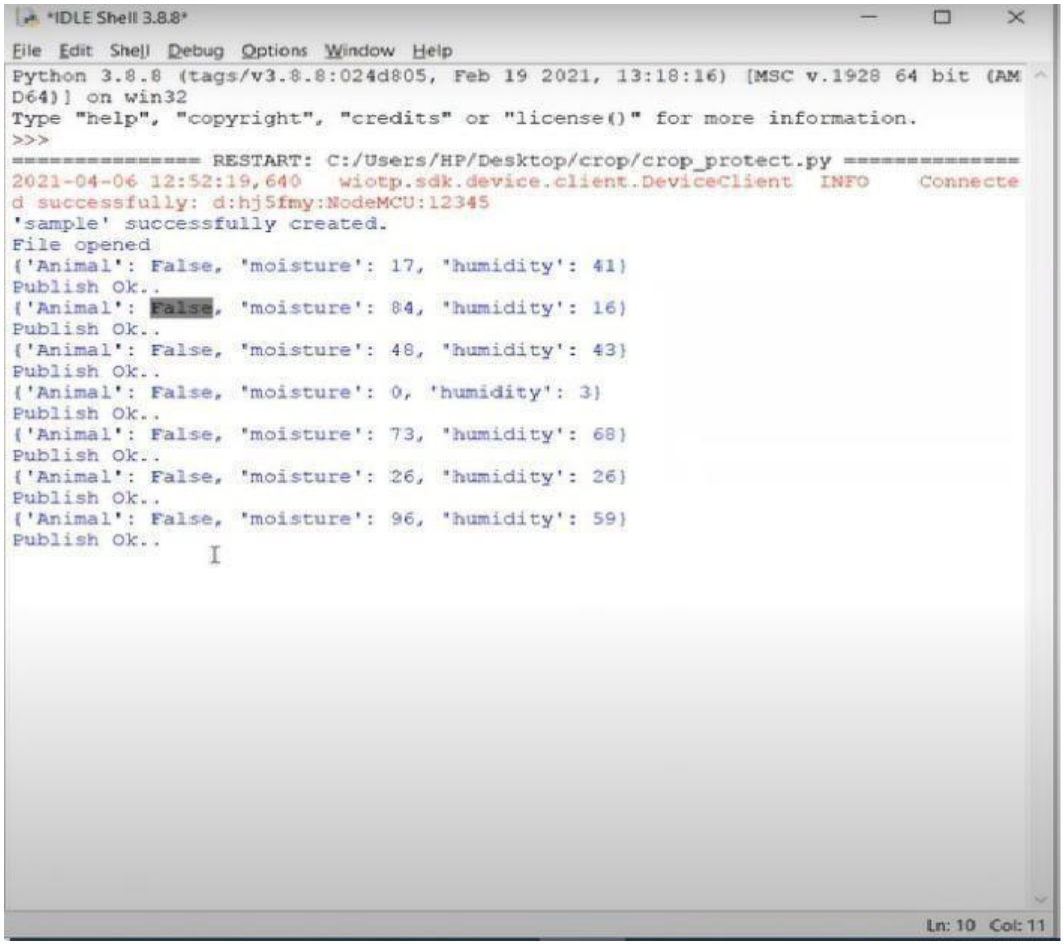
```
    to 15 MB file_threshold = 1024 *
    1024 * 15 #set the transfer
    threshold and chunk size
    transfer_config =
    ibm_boto3.s3.transfer.TransferC
    onfig(
    multipart_threshold=file_thresh
    old,
    multipart_chunksize=part_size
      )
    #the upload_fileobj method will automatically 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": "chytun",
        "typeId": "NodeMCU",
        "deviceId": "12345"
        },
    "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='e9359dbe6ee44dbc8842ebe97247b201',


inputs=[resources_pb2.Input(data=resources_pb2.Data(image=resources_pb2.Image(base64=file_byte
s
))

                                )])

    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('Dhakshesh',
          picname+'.jpg', picname+'.jpg')
          json_document={"link":COS_ENDPOINT+'/'+'Dhakshesh'+'/'+picname+'.jp
          g'} 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':humidit
  y} 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()
```

Output :


IDLE Shell 3.8.8
File Edit Shell Debug Options Window Help
Python 3.8.8 (tags/v3.8.8:024d805, Feb 19 2021, 13:18:16) [MSC v.1928 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
========== RESTART: C:/Users/HP/Desktop/crop/crop_protect.py ==========
2021-04-06 12:52:19,640 wiotp.sdk.device.client.DeviceClient INFO Connected successfully: d:hj5fmy:NodeMCU:12345
'sample' successfully created.
File opened
{'Animal': False, 'moisture': 17, 'humidity': 41}
Publish Ok..
{'Animal': False, 'moisture': 84, 'humidity': 16}
Publish Ok..
{'Animal': False, 'moisture': 48, 'humidity': 43}
Publish Ok..
{'Animal': False, 'moisture': 0, 'humidity': 3}
Publish Ok..
{'Animal': False, 'moisture': 73, 'humidity': 68}
Publish Ok..
{'Animal': False, 'moisture': 26, 'humidity': 26}
Publish Ok..
{'Animal': False, 'moisture': 96, 'humidity': 59}
Publish Ok..
Ln: 10 Col: 11