

SPRINT-2

Team Id	PNT2022TMID20342
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 = "g5d4qO8Elgv4TWUCJj4hfEzgalqEjrDbE82AJDWIAOHo"
```

```
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.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": "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.imwrite('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_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.imwrite(picname+'.jpg',frame)

multi_part_upload('Dhakshesh', picname+'.jpg', picname+'.jpg')

json_document={"link":COS_ENDPOINT+'/'+'+Dhakshesh'++'/'+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

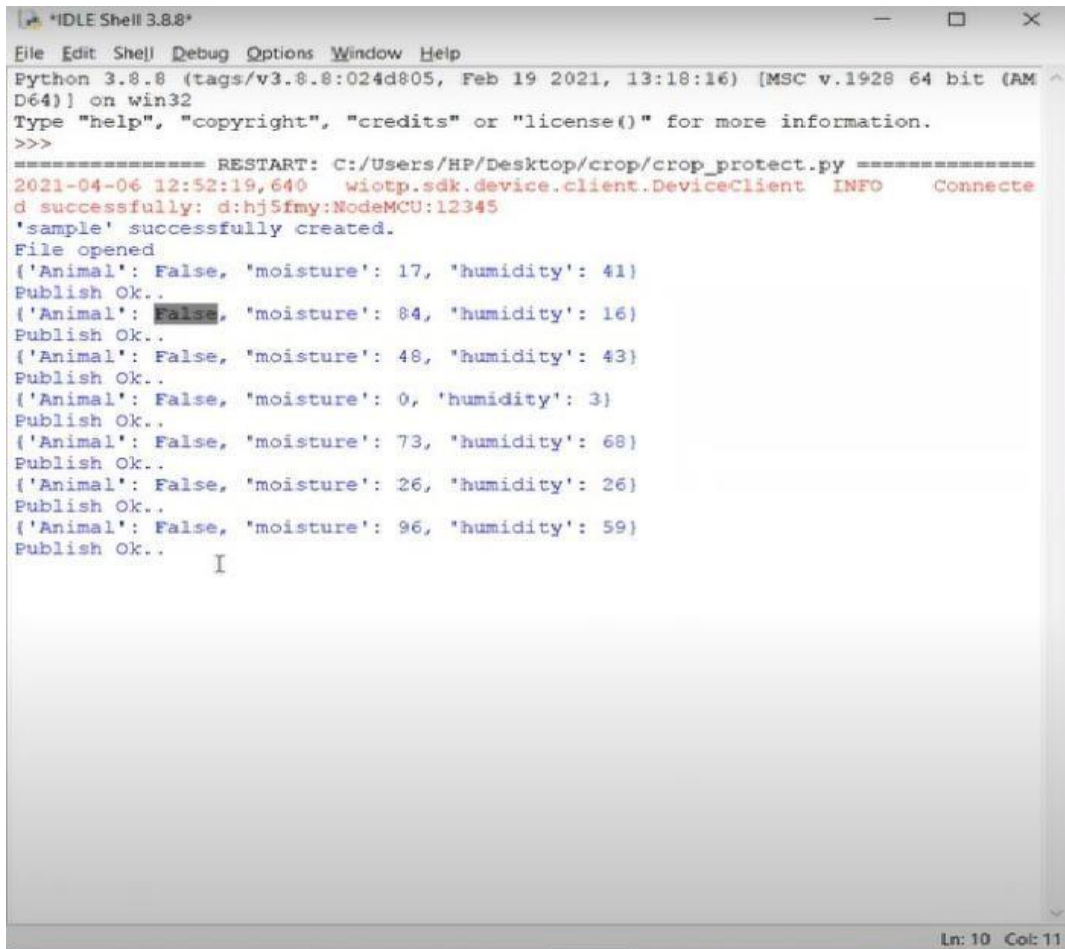
client.disconnect()

cap.release()

cv2.destroyAllWindows()

```

Output :



```
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 Connecte
d 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..
I
```