PROJECT DEVELOPMENT PHASE

Sprint-2

Date	10 November 2022
Team ID	PNT2022TMID17351
Project Name	IOT BASED CROP PROTECTION SYSTEM FOR AGRICULTURE

```python
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())
```

```python
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
```

```python
        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)
```

```python
    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.")
```

```python
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_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))
```

```python
        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+'.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:

```
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 (AM
D64)] 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
```