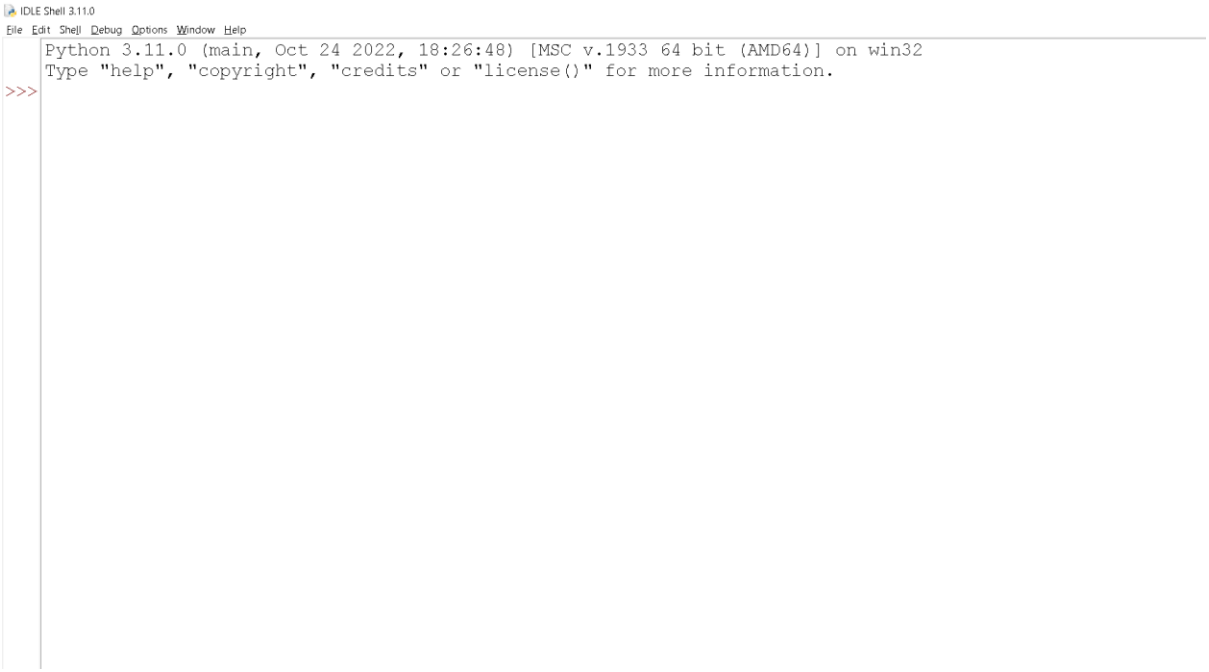
Team ID:PNT2022TMID32051

DEVELOP THE PYTHON SCRIPT



bhavya.python.py - C:\Users\MITHUN S\AppData\Local\Programs\Python\Python311\bhavya.python.py (3.11.0)

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```
import random
import ibmiot.application
import ibmiot.device
from time import sleep
import sys
#IBM Watson Device Credentials.
organization = "gtlwge"
deviceType = "NodeMCU"
deviceId = "12345"
authMethod = "use-token-auth"
authToken = "12345678"
def myCommandCallback(cmd):
 print("Command received: %s" % cmd.data['command'])
 status=cmd.data['command']
 if status=="sprinkler_on":
    print ("sprinkler is ON")
 else :
    print ("sprinkler is OFF")
 #print(cmd)


try:
 deviceOptions = {"org": organization, "type": deviceType, "id": deviceId, "auth-method": authMethod, "auth-token": authToken}
 deviceCli = ibmiotf.device.Client(deviceOptions)
except Exception as e:
    print("Caught exception connecting device: %s" % str(e))
sys.exit()
#Connecting to IBM watson.
deviceCli.connect()
while True:
#Getting values from sensors.
 temp_sensor = round( random.uniform(0,80),2)
 PH_sensor = round(random.uniform(1,14),3)
 camera = ["Detected","Not Detected","Not Detected","Not Detected","Not Detected",]
 camera_reading = random.choice(camera)
 flame = ["Detected","Not Detected","Not Detected","Not Detected","Not Detected",]
 flame_reading = random.choice(flame)
 moist_level = round(random.uniform(0,100),2)
 water_level = round(random.uniform(0,30),2)

#storing the sensor data to send in json format to cloud.

 temp_data = { 'Temperature' : temp_sensor }
 PH_data = { 'PH Level' : PH_sensor }
 camera_data = { 'Animal attack' : camera_reading}
 flame_data = { 'Flame' : flame_reading }
 moist_data = { 'Moisture Level' : moist_level}
 water_data = { 'Water Level' : water_level}

# publishing Sensor data to IBM Watson for every 5-10 seconds.
 success = deviceCli.publishEvent("Temperature sensor", "json", temp_data, qos=0)
 sleep(1)
 if success:
    print (" ........................publish ok.............................. ")
 print ("Published Temperature = %s C" % temp_sensor, "to IBM Watson")

 success = deviceCli.publishEvent("PH sensor", "json", PH_data, qos=0)
```


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```
# publishing Sensor data to IBM Watson for every 5-10 seconds.
 success = deviceCli.publishEvent("Temperature sensor", "json", temp_data, qos=0)
 sleep(1)
 if success:
    print (" ........................publish ok.............................. ")
 print ("Published Temperature = %s C" % temp_sensor, "to IBM Watson")

 success = deviceCli.publishEvent("PH sensor", "json", PH_data, qos=0)
 sleep(1)
 if success:
    print ("Published PH Level = %s" % PH_sensor, "to IBM Watson")

 success = deviceCli.publishEvent("camera", "json", camera_data, qos=0)
 sleep(1)
 if success:
    print ("Published Animal attack %s " % camera_reading, "to IBM Watson")
 success = deviceCli.publishEvent("Flame sensor", "json", flame_data, qos=0)
 sleep(1)
 if success:
    print ("Published Flame %s " % flame_reading, "to IBM Watson")

 success = deviceCli.publishEvent("Moisture sensor", "json", moist_data, qos=0)
 sleep(1)
 if success:
     print ("Published Moisture Level = %s " % moist_level, "to IBM Watson")

 success = deviceCli.publishEvent("Water sensor", "json", water_data, qos=0)
 sleep(1)
 if success:
    print ("Published Water Level = %s cm" % water_level, "to IBM Watson")
 print ("")
 #Automation to control sprinklers by present temperature an to send alert message to IBM Watson.

 if (temp_sensor > 35):
    print("sprinkler-1 is ON")
 success = deviceCli.publishEvent("Alert1", "json",{ 'alert1' : "Temperature(%s) is high, sprinkerlers are turned ON" %temp_sensor }
, qos=0)
 sleep(1)
 if success:
    print( 'Published alert1 : ', "Temperature(%s) is high, sprinkerlers are turned ON" %temp_sensor,"to IBM Watson")
 print("")
else:
 print("sprinkler-1 is OFF")
 print("")

 #To send alert message if farmer uses the unsafe fertilizer to crops.

 if (PH_sensor > 7.5 or PH_sensor < 5.5):
    success = deviceCli.publishEvent("Alert2", "json",{ 'alert2' : "Fertilizer PH level(%s) is not safe,use other fertilizer" %PH_sensor } ,
qos=0)
 sleep(1)
 if success:
    print('Published alert2 : ' , "Fertilizer PH level(%s) is not safe,use other fertilizer" %PH_sensor,"to IBM Watson")
 print("")

 #To send alert message to farmer that animal attack on crops.

 if(camera_reading == "Detected"):
```


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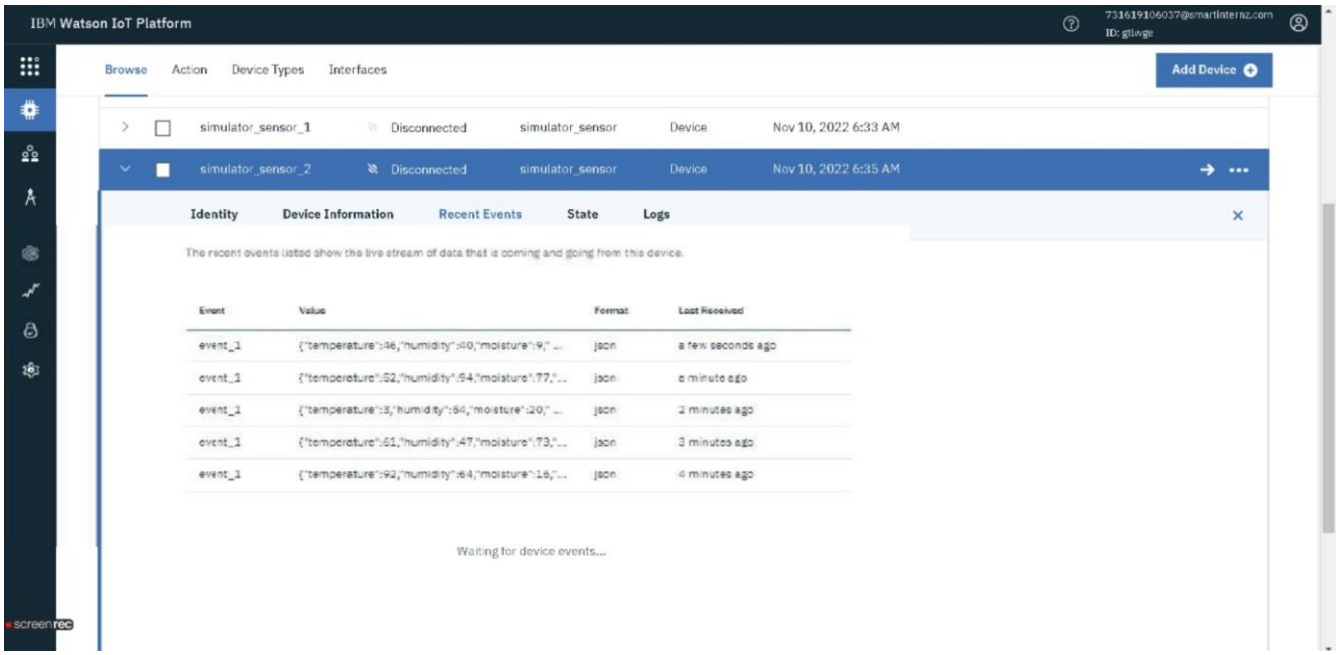
success = deviceCli.publishEvent("Alert1", "json",{ 'alert1' : "Temperature(%s) is high, sprinklerers are turned ON" %temp_sensor }
, qos=0)
sleep(1)
if success:
print(' Published alert1 : ', "Temperature(%s) is high, sprinklerers are turned ON" %temp_sensor,"to IBM Watson")
print("")
else:
print("sprinkler-1 is OFF")
print("")
#To send alert message if farmer uses the unsafe fertilizer to crops.
if (PH_sensor > 7.5 or PH_sensor < 5.5):
success = deviceCli.publishEvent("Alert2", "json",{ 'alert2' : "Fertilizer PH level(%s) is not safe,use other fertilizer" %PH_sensor } ,
qos=0)
sleep(1)
if success:
print('Published alert2 : ' , "Fertilizer PH level(%s) is not safe,use other fertilizer" %PH_sensor,"to IBM Watson")
print("")
#To send alert message to farmer that animal attack on crops.
if (camera_reading == "Detected"):
success = deviceCli.publishEvent("Alert3", "json", { 'alert3' : "Animal attack on crops detected" }, qos=0)
sleep(1)
if success:
print('Published alert3 : ' , "Animal attack on crops detected","to IBM Watson","to IBM Watson")
print("")
#To send alert message if flame detected on crop land and turn ON the splinkers to take immediate action.
if (flame_reading == "Detected"):
print("sprinkler-2 is ON")
success = deviceCli.publishEvent("Alert4", "json", { 'alert4' : "Flame is detected crops are in danger,sprinklers turned ON" }, qos=0)
sleep(1)
if success:
print(' Published alert4 : ' , "Flame is detected crops are in danger,sprinklers turned ON","to IBM Watson")
#To send alert message if Moisture level is LOW and to Turn ON Motor-1 for irrigation.
if (moist_level < 20):
print("Motor-1 is ON")
success = deviceCli.publishEvent("Alert5", "json", { 'alert5' : "Moisture level(%s) is low, Irrigation started" %moist_level } , qos=0)
sleep(1)
if success:
print('Published alert5 : ' , "Moisture level(%s) is low, Irrigation started" %moist_level,"to IBM Watson")
print("")
#To send alert message if Water level is HIGH and to Turn ON Motor-2 to take water out.
if (water_level > 20):
print("Motor-2 is ON")
success = deviceCli.publishEvent("Alert6", "json", { 'alert6' : "Water level(%s) is high, so motor is ON to take water out "
%water_level } , qos=0)
sleep(1)
if success:
print('Published alert6 : ' , "water level(%s) is high, so motor is ON to take water out " %water_level,"to IBM Watson")
print("")
#command recived by farmer
deviceCli.commandCallback = myCommandCallback
# Disconnect the device and application from the cloud
deviceCli.disconnect()
screenrec


IBM Watson IoT Platform
731619106037@smartinternz.com
ID: gtiwge
Browse
Action
Device Types
Interfaces
Add Device
simulator_sensor_1
Disconnected
simulator_sensor
Device
Nov 10, 2022 6:33 AM
simulator_sensor_2
Disconnected
simulator_sensor
Device
Nov 10, 2022 6:35 AM
Identity
Device Information
Recent Events
State
Logs
The recent events listed show the live stream of data that is coming and going from this device.
Event
Value
Format
Last Received
event_1
{"temperature":96,"humidity":60,"moisture":9," ...
json
a few seconds ago
event_1
{"temperature":52,"humidity":94,"moisture":77,"...
json
a minute ago
event_1
{"temperature":3,"humidity":84,"moisture":20," ...
json
2 minutes ago
event_1
{"temperature":61,"humidity":47,"moisture":73,"...
json
3 minutes ago
event_1
{"temperature":92,"humidity":64,"moisture":16,"...
json
4 minutes ago
Waiting for device events...
screenrec