PROJECT DEVELOPMENT PHASE

TEAM ID	PNT2022TMID34905
PROJECT TITLE	IOT BASED SMART CROP PROTECTION SYSTEM FOR AGRICULTURE

SPRINT 1

SIMULATION CREATION:

iot.py - C:\Users\agaram\Desktop\ECE 5\c\iot.py (3.7.3)

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```
import random
import ibmiotf.application
import ibmiotf.device
import time
import sys
#IBM Watson Device Credentials.
organization = "k94ajl"
deviceType = "iotpjtdevicetype"
deviceId = "11121315"
authMethod = "token"
authToken = ")_QozcIqyZG9QSg9Pe"
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)
 camera = ["Detected","Not Detected","Not Detected","Not Detected","Not Detected","Not Detected",]
 camera_reading = random.choice(camera)
 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 }
 camera_data = { 'Animal attack' : camera_reading}
 moist_data = { 'Moisture Level' : moist_level}
```

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```
 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("camera", "json", camera_data, qos=0)
 sleep(1)
 if success:
    print ("Published Animal attack %s " % camera_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 ("")


 #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 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)
```

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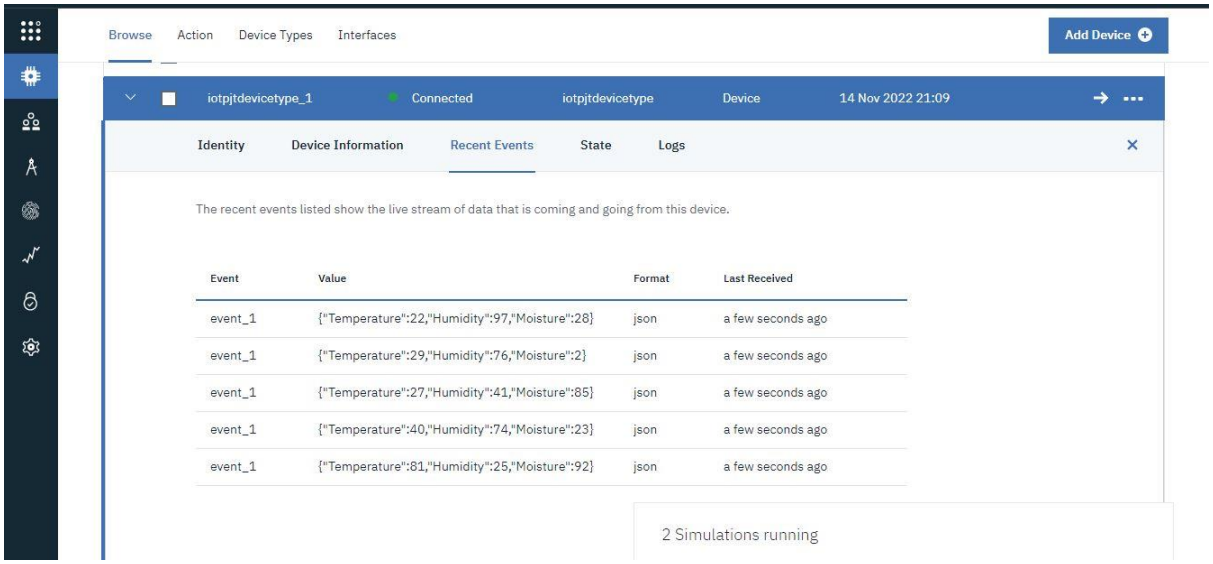
```
 if success:
     print ("Published Moisture Level = %s " % moist_level, "to IBM Watson")

 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 ("")


 #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 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()
```

OUTPUT:


Browse
Action
Device Types
Interfaces
Add Device
iotpjtdevicetype_1
Connected
iotpjtdevicetype
Device
14 Nov 2022 21:09
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":22,"Humidity":97,"Moisture":28}
json
a few seconds ago
event_1
{"Temperature":29,"Humidity":76,"Moisture":2}
json
a few seconds ago
event_1
{"Temperature":27,"Humidity":41,"Moisture":85}
json
a few seconds ago
event_1
{"Temperature":40,"Humidity":74,"Moisture":23}
json
a few seconds ago
event_1
{"Temperature":81,"Humidity":25,"Moisture":92}
json
a few seconds ago
2 Simulations running