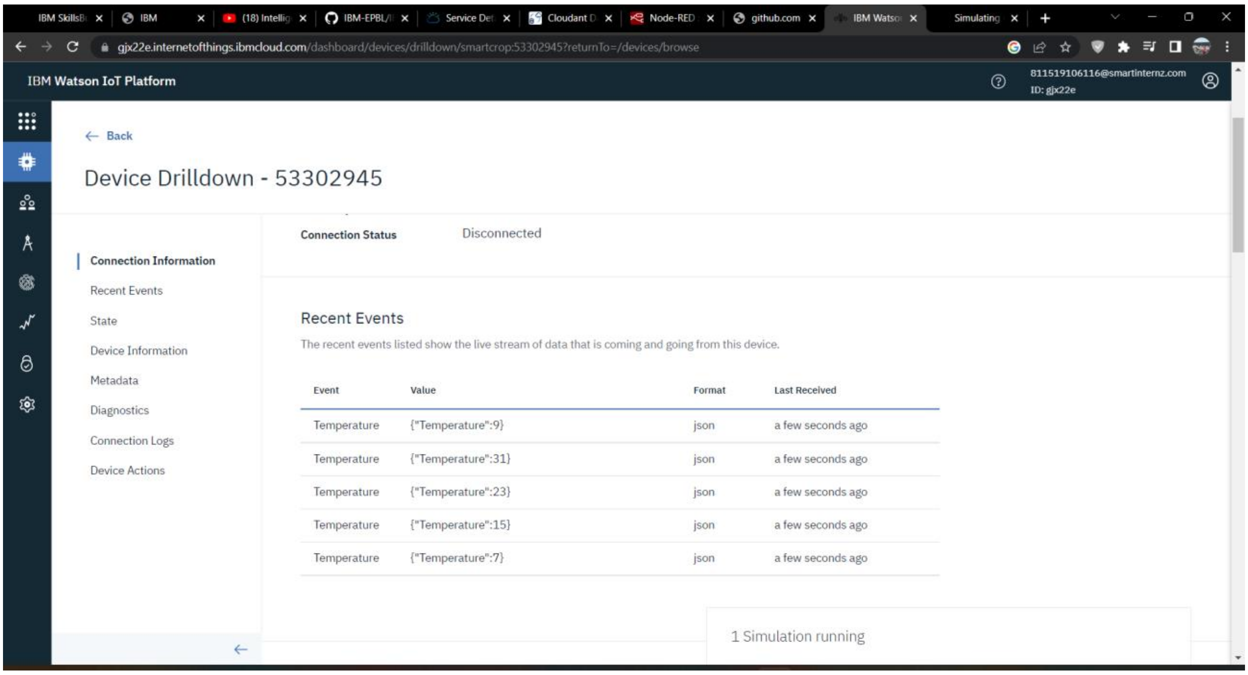
Project Development Phase
Sprint-3

Date	16 November 2022
Team ID	PNT2022TMID11064
Project Name	IOT BASED SMART CROP PROTECTION SYSTEM FOR AGRICULTURE

Python code:

```
import random
import ibmiotf.application
import ibmiotf.device
from time import sleep
import sys

organization = "gjx22e"
deviceType = "smartcrop"
deviceId = "53302945"
authMethod = "use-token-auth"
authToken = "987654321"
def myCommandCallback(cmd):
   print("%s" % cmd.data['command'])
   status=cmd.data['command']
   if status=="sprinkler_on":
      print ("sprinkler is turning ON")
   else :
      print ("sprinkler is turning OFF")

try:
   deviceOptions = {"org": organization, "type": deviceType, "id": deviceId, "auth-method": authMethod, "auth-token": authToken}
   deviceCli = ibmiotf.device.Client(deviceOptions)
except Exception as e:
   print("Exception detected in connecting device: %s" % str(e))
   sys.exit()


deviceCli.connect()

while True:
   temp = round( random.uniform(0,80),2)
   PH = round(random.uniform(1,14),3)
 moisture= round(random.uniform(0,100),2)
   water_level = round(random.uniform(0,30),2)
   temp_data = { 'Temp' : temp }
   PH_data = { 'PH value' : Ph }
   moist_data = { 'Moisture level' : moist_level}
   water_data = { 'Water level' : water_level}
   success = deviceCli.publishEvent("Temperature sensor", "json", temp_data, qos=0)
   sleep(1)
   if success:
      print ("... ...publish ok... ... ...")
      print ("Published Temp = %s C" % temp, "to IBM Watson")
      success = deviceCli.publishEvent("PH sensor", "json", PH_data, qos=0)
      sleep(1)
   if success:
      print ("Published PH value = %s" % Ph, "to IBM Watson")
      success = deviceCli.publishEvent("camera", "json", camera_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 ("")
   if (temp > 35):
      print("sprinkler-1 is ON")
      success = deviceCli.publishEvent("Alert1", "json",{ 'alert1' : "Temperature(%s) is high, sprinkerlers are turned
ON" %temp }, qos=0)
      sleep(1)
   if success:
      print( 'Published Alert1 : ', "Temperature(%s) is high, sprinkerlers are turned ON" %temp,"to IBM Watson")
      print("")
   else:
      print("sprinkler-1 is OFF")
      print("")
   if (Ph > 7.5 or Ph < 5.5):
      success = deviceCli.publishEvent("Alert2", "json",{ 'alert2' : "Fertilizer PH level(%s) is not safe,use other
fertilizer" %Ph } , qos=0)
      sleep(1)
   if success:
      print('Published Alert2 : ' , "Fertilizer PH level(%s) is not safe,use other fertilizer" %Ph,"to IBM Watson")
      print("")
deviceCli.commandCallback = myCommandCallback
deviceCli.disconnect()
```

OUTPUT IN IBM WATSON:



Device Drilldown - 53302945

Connection Status Disconnected

Recent Events

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
Temperature	{"Temperature":9}	json	a few seconds ago
Temperature	{"Temperature":31}	json	a few seconds ago
Temperature	{"Temperature":23}	json	a few seconds ago
Temperature	{"Temperature":15}	json	a few seconds ago
Temperature	{"Temperature":7}	json	a few seconds ago