

## SPRINT 1

### Connect Sensors and Ardunio with Python code

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Project Title	SmartFarmer - IoT Enabled Smart Farming Application

#### Python Code:

```
import wiotp.sdk.device
```

```
import time
```

```
import os
```

```
import datetime
```

```
import random
```

```
myConfig = {
```

```
    "identity": {
```

```
        "orgId": "q9u3me",
```

```
        "typeId": "abimaneu",
```

```
        "deviceId": "1234"
```

```
    },
```

```
    "auth": {
```

```
        "token": "123456789"
```

```
    }
```

```
}
```

```
client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
```

```
client.connect ()
```

```

def myCommandCallback (cmd) :

    print ("Message received from IBM IoT Platform: %s" % cmd.data['command'])

    m=cmd.data['command']

    if(m=="motoron"):

        print ("Motor is switched on")

    elif(m=="motoroff"):

        print ("Motor is switched OFF")

    print (" ")

while True:

    soil=random.randint (0, 100)

    temp=random.randint (-20, 125)

    hum=random.randint (0, 100)

    myData={'soil moisture': soil, 'temperature':temp, 'humidity':hum,}

    client.publishEvent (eventId="status", msgFormat="json", data=myData, qos=0 ,

onPublish=None)

    print ("Published data Successfully: %s", myData)

    time.sleep (2)

    client.commandCallback = myCommandCallback

client.disconnect ()

```

## C++ for Arduino UNO:

```
#include "Arduino.h"

#include "dht.h"

#include "SoilMoisture.h"

#define dht_apin A0

const int sensor_pin = A1;

dht DHT; int c=0; void setup()

{

pinMode(2, INPUT);

pinMode(9, OUTPUT);

}

void loop()

{

if (digitalRead(2) == HIGH)

{

digitalWrite(3, HIGH);

digitalWrite(3, LOW);

}

Serial.begin(9600); delay(1000);

DHT.read11(dht_apin); //temprature float h=DHT.humidity;

float t=DHT.temperature; delay(5000); Serial.begin(9600);

float moisture_percentage; int sensor_analog;

sensor_analog = analogRead(sensor_pin);

moisture_percentage = ( 100 - ( (sensor_analog/1023.00) * 100 ) );
```

```

float m=moisture_percentage; delay(1000);

if(m<40)//pump
{
while(m<40)
{
digitalWrite(pin_out,HIGH); //open pump
sensor_analog = analogRead(sensor_pin);
moisture_percentage = ( 100 - ( (sensor_analog/1023.00) * 100 ) );
m=moisture_percentage; delay(1000);
}
digitalWrite(pin_out,LOW); //closepump
}

if(c>=0)
{
mySerial.begin(9600); delay(15000); Serial.begin(9600); delay(1000);
Serial.print("\r"); delay(1000);
Serial.print((String)"update-
">+(String)"Temperature="+t+(String)"Humidity="+h+(String
)"Moisture="+m); delay(1000);
}
}

```