

FINAL OUTPUTS

Team ID	PNT2022TMID40891
Project Name	IoT Based Smart Crop Protection System For Agriculture

PYTHON CODE:

```
Python 3.7.0 Shell
File Edit Shell Debug Options Window Help
Python 3.7.0 (tags/v3.7.0:1bf9cc5093, Jun 27 2018, 04:59:51) [MSC v.1914 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\Jagan R\Desktop\7.py =====
2022-11-09 18:50:18,527 ibmiotf.device.Client INFO Connected successfully: d:awb990:Bhoobalan:12345
.....publish ok.....
Published Temperature = 49.61 C to IBM Watson
Published PH Level = 1.239 to IBM Watson
Published Animal attack Not Detected to IBM Watson
Published Flame Not Detected to IBM Watson
Published Moisture Level = 2.33 to IBM Watson
Published Water Level = 4.01 cm to IBM Watson

sprinkler-1 is ON
Published alert1 : Temperature(49.61) is high, sprinklerlers are turned ON to IBM Watson
Published alert2 : Fertilizer PH level(1.239) is not safe,use other fertilizer to IBM Watson

sprinkler-2 is OFF

Motor-1 is ON
Published alert5 : Moisture level(2.33) is low, Irrigation started to IBM Watson

Motor-2 of OFF

.....publish ok.....
Published Temperature = 76.1 C to IBM Watson
Published PH Level = 10.527 to IBM Watson
Published Animal attack Not Detected to IBM Watson
Published Flame Not Detected to IBM Watson
Published Moisture Level = 11.38 to IBM Watson
```

IBM WATSON IOT PLATFORM:

The screenshot shows the IBM Watson IoT Platform interface. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. A sidebar on the left contains icons for different device types. The main area displays a table of simulated events:

Event	Value	Format	Last Received
Water sensor	{"Water Level":13.13}	json	a few seconds ago
Moisture sen...	{"Moisture Level":32.83}	json	a few seconds ago
Flame sensor	{"Flame":"Detected"}	json	a few seconds ago
camera	{"Animal attack":"Not Detected"}	json	a few seconds ago
PH sensor	{"PH Level":12.587}	json	a few seconds ago

At the bottom, it indicates '1 Simulation running' and 'Items per page 50 | 1-1 of 1 item'.

WOKMI:

The screenshot shows the Wokwi IoT platform interface. The top navigation bar includes 'SAVE', 'SHARE', and 'Docs'. The main area displays a code editor with the following code:

```
1 #include <Wire.h> //Includes the library for connections
2 #include <ESP32Servo.h> //Includes the library for Servo motor
3 #include <LiquidCrystal_I2C.h> //Includes the library for LED
4 #include <DHTesp.h> //Includes the library for DHT22 sensor
5
6 // WiFi libraries:
7 #include <WiFi.h>
8 #include <WiFiClient.h>
9 #include <PubSubClient.h>
10
11 #define ORG "oqy2ad" // Organization ID of IBM Cloud
12 #define DEVICE_TYPE "ESP32"
13 #define DEVICE_ID "NodeMCU"
14 #define TOKEN "123456789"
15
16 // Publishing Event in Watson IoT platform:
17 char server[] = ORG ".messaging.internetofthings.ibmcloud.com"; // oqy2ad
18 char pubTopic[] = "iot-2/evt/status1/fmt/json";
19 char subTopic[] = "iot-2/cmd/command/fmt/String";
20 char authMethod[] = "use-token-auth";
21 char token[] = TOKEN;
22 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
23
24 const char *ssid = "Wokwi-GUEST";
25 const char *password = "";
```

The right side of the interface shows a simulation of the hardware. The simulation area displays the following data:

- Temperature: 40.30 degrees
- Moisture: 27.00 %
- Measured distance: 30.04
- Soil Moisture: 32%
- High Temperature or Low humid condition
- Water Fully Flows

TINKERCAD:

