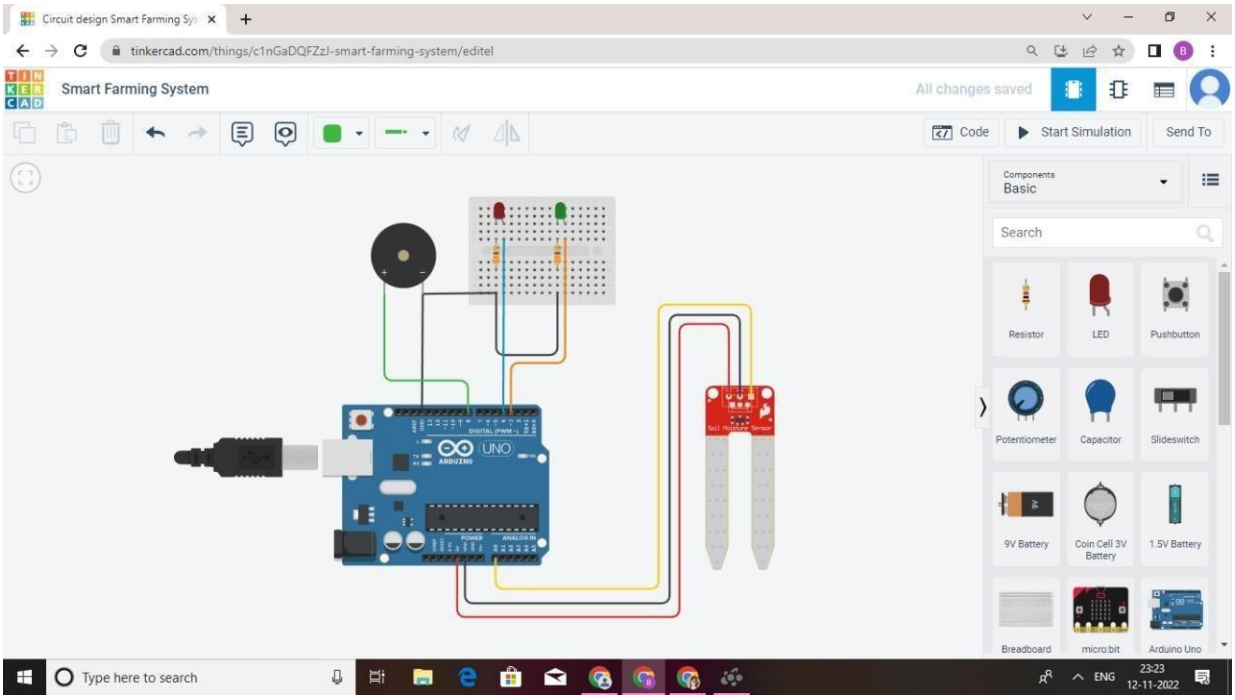
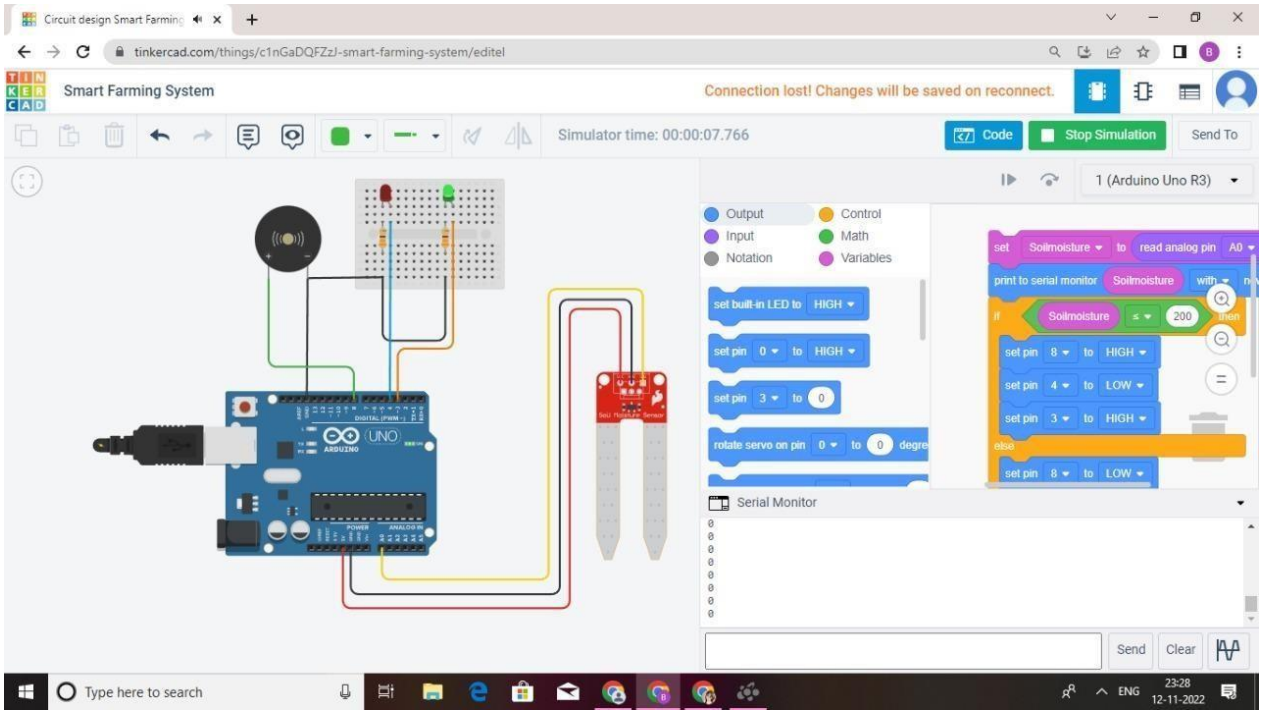
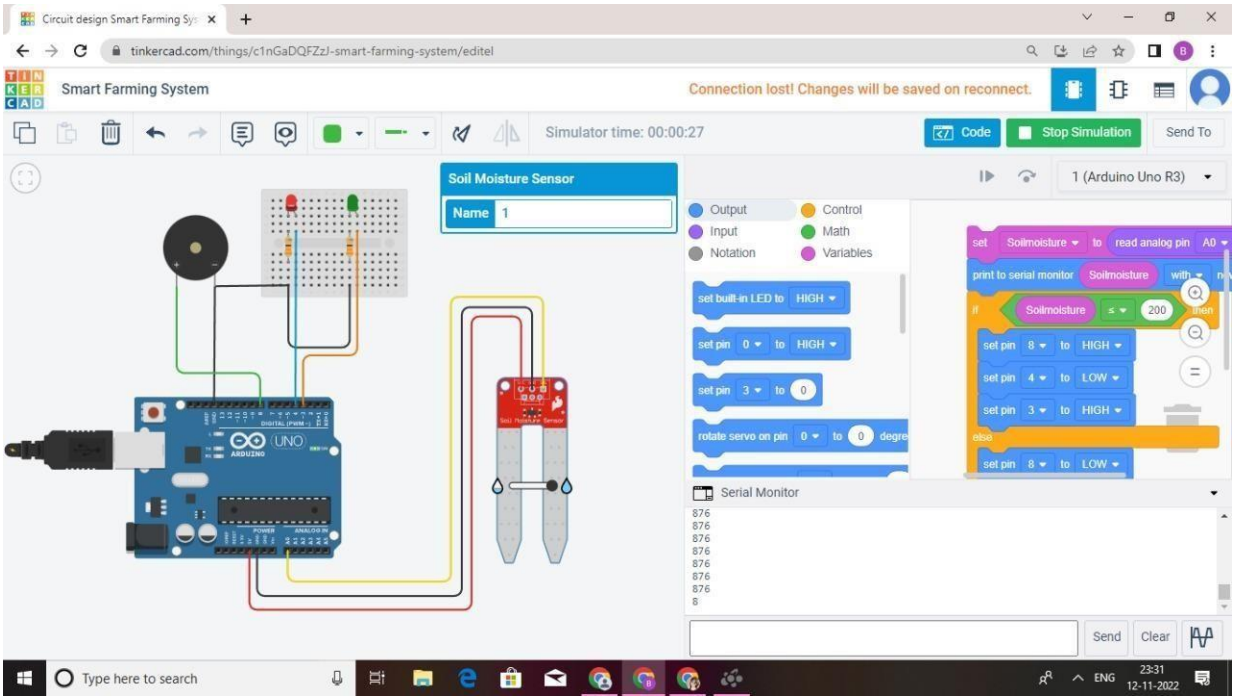
SPRINT 1

Date	29 October 2022
Team ID	PNT2022TMID30597
Project Name	Project – Smart Farmer - IoT Enabled Smart Farming Application

- Created Simulation by connecting the Sensors by using the Arduino.




Circuit design Smart Farming
tinkercad.com/things/c1nGaDQFZzJ-smart-farming-system/editel
Smart Farming System
Connection lost! Changes will be saved on reconnect.
Simulator time: 00:00:07.766
Code
Stop Simulation
Send To
1 (Arduino Uno R3)
Output
Control
Input
Math
Notation
Variables
set built-in LED to HIGH
set pin 0 to HIGH
set pin 3 to 0
rotate servo on pin 0 to 0 degre
set Soilmoisture to read analog pin A0
print to serial monitor Soilmoisture with
if Soilmoisture ≤ 200 then
set pin 8 to HIGH
set pin 4 to LOW
set pin 3 to HIGH
else
set pin 8 to LOW
Serial Monitor
Send
Clear
Type here to search
ENG
23-28
12-11-2022




```
#include <ESP8266WiFi.h>
#include <WiFiClient.h>
#include <PubSubClient.h>
#include "DHT.h"

const char* ssid = "SMART-G";
const char* password = "10112019";

#define DHTPIN D6
#define G D0
#define DHTTYPE DHT11
DHT dht(DHTPIN, DHTTYPE);

#define ID "y13urg"
#define DEVICE_TYPE "ESP8266"
#define DEVICE_ID "TEST"
#define TOKEN "TEST-12345"

char server[] = ID
".messaging.internetofthings.ibmcloud.c
om";
```

```
char publish_Topic1[] = "iot-
2/evt/Data1/fmt/json";
char publish_Topic2[] = "iot-
2/evt/Data2/fmt/json";
char publish_Topic3[] = "iot-
2/evt/Data2/fmt/json";
char publish_Topic4[] = "iot-
2/evt/Data2/fmt/json";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ID ":"
DEVICE_TYPE ":" DEVICE_ID;

WiFiClient wifiClient;
PubSubClient client(server, 1883, NULL,
wifiClient);

void setup() {
  pinMode(D0,OUTPUT);
  digitalWrite(D0,HIGH);
    Serial.begin(115200);
    dht.begin();
    Serial.println();
    WiFi.begin(ssid, password);
    while (WiFi.status() !=
WL_CONNECTED) {
      delay(500);
      Serial.print(".");
    }
    Serial.println("");
    Serial.println(WiFi.localIP());

    if (!client.connected()) {
        Serial.print("Reconnecting
client to ");
        Serial.println(server);
        while
(!client.connect(clientId, authMethod,
token)) {
            Serial.print(".");
            delay(500);
        }
        Serial.println("Connected TO
IBM IoT cloud!");
    }
}
```

```
long previous_message = 0;
void loop() {
    client.loop();
    long current = millis();
    if (current - previous_message >
3000) {
        previous_message = current;
         float hum =
dht.readHumidity();
         float temp =
dht.readTemperature();
         float MOI =
map(analogRead(A0), 0, 1023, 100, 0);
         float bi =
map(digitalRead(D1), 0, 1, 100, 0);
         if (isnan(hum) || isnan(temp)
){
    Serial.println(F("Failed to read
from DHT sensor!"));
    return;
  }

  Serial.print("Temperature: ");
  Serial.print(temp);
  Serial.print("°C");
  Serial.print(" Humidity: ");
  Serial.print(hum);
  Serial.print("%");
  Serial.print("SOIL MOITURE: ");
  Serial.print(MOI);
  Serial.print("ANIMAL AND BIRD: ");
  Serial.print(bi);
  if(MOI<=10)
  {
      digitalWrite(D0,LOW);
      delay(100);
      digitalWrite(D0,HIGH);
    }
    else
    {
      digitalWrite(D0,HIGH);
    }


       String payload =
"{\"d\":{\"Name\":\"" DEVICE_ID "\"";
```

```
              payload +=
",\"Temperature\":";
              payload += temp;
              payload += "}}";

        Serial.print("Sending payload:
");
        Serial.println(payload);

        if
(client.publish(publish_Topic1, (char*)
payload.c_str())) {
            Serial.println("Published
successfully");
        } else {
            Serial.println("Failed");
        }
        String payload1 =
"{\"d\":{\"Name\":\"" DEVICE_ID "\"";
              payload1 +=
",\"Humidity\":";
              payload1 += hum;
              payload1 += "}}";
              Serial.print("Sending
payload: ");
              Serial.println(payload1);
              Serial.println('\n');

         if
(client.publish(publish_Topic2, (char*)
payload1.c_str())) {
            Serial.println("Published
successfully");
        } else {
            Serial.println("Failed");
        }


       String payload3 =
"{\"d\":{\"Name\":\"" DEVICE_ID "\"";
              payload3 +=
",\"Moiture\":";
              payload3 += MOI;
              payload3 += "}}";

        Serial.print("Sending payload:
");
```

```
        Serial.println(payload3);

        if
(client.publish(publish_Topic3, (char*)
payload3.c_str())) {
            Serial.println("Published
successfully");
        } else {
            Serial.println("Failed");
        }



String payload4 = "{\"d\":{\"Name\":\""
DEVICE_ID "\"";
              payload4 +=
",\"Animal&Bird\":";
              payload4 += bi;
              payload4 += "}}";

        Serial.print("Sending payload:
");
        Serial.println(payload4);

        if
(client.publish(publish_Topic4, (char*)
payload4.c_str())) {
            Serial.println("Published
successfully");
        } else {
            Serial.println("Failed");
        }









    }
}
```