

SPRINT 1

SIMULATION OF SENSOR INTERFACING ARDUINO WITH PYTHON CODE

Date	18 NOVEMBER 2022
Team ID	PNT2022TMID29726
Project Name	Project – IoT based smart crop protection system for agriculture

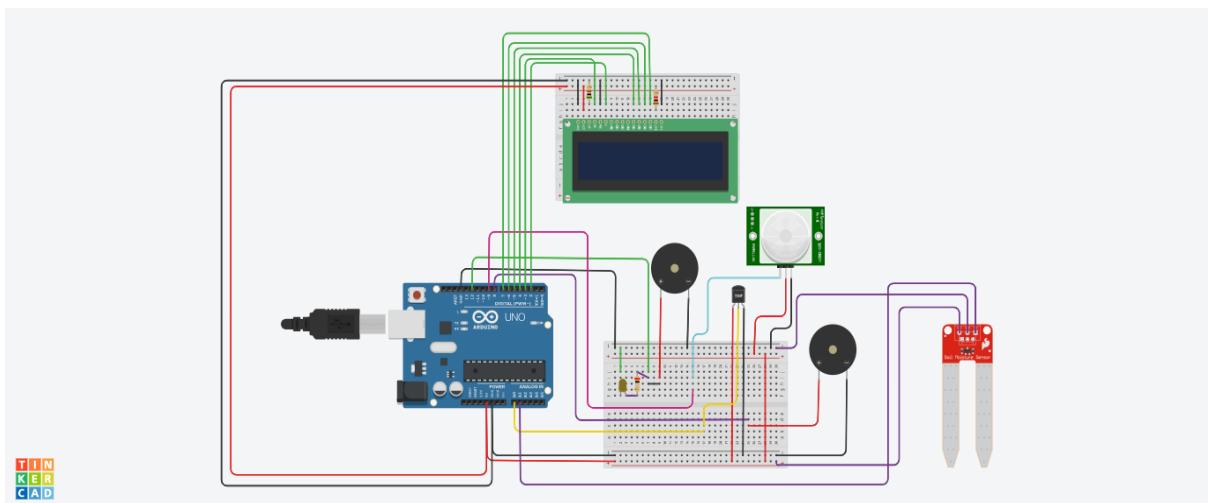
DESCRIPTION:

In the sprint 1 we are planning to virtually simulate the Arduino and sensors using tinkercad

PYTHON CODE:

```
int moistval;
float moistpercentage;
#include<LiquidCrystal.h>
LiquidCrystal lcd(3, 2, 4, 5, 6, 7); // Creates (rs, enable, d4, d5, d6, d7)
//buzzer
void setup()
{
    lcd.begin(16,2);
    pinMode(13, OUTPUT);
    pinMode(12, OUTPUT); //for pir sensor o/p buzzer
    pinMode(8, OUTPUT); //for temp sensor o/p buzzer
    pinMode(9, INPUT); //feeding i/p to arduino from pir sensor
    Serial.begin(9600);
    pinMode(13, OUTPUT);
}
void loop()
{
    //pir sensor
    int p=digitalRead(9);
    if(p)
    {
        lcd.clear();
        lcd.setCursor(0,0);
        lcd.print("motion alert");
        Serial.println("motion detected");
        tone(12,800); //if motion detected the buzzer will rung
        pinMode(13, HIGH);
        delay(500);
        lcd.clear();
        noTone(12);
        pinMode(13, LOW);
        delay(100);
    }
}
```

```
delay(100);
//temp sensor
double t=analogRead(A0);
double e=((t/1024)*5)-0.5)*100;
Serial.println("temperature=");
Serial.println(e);
lcd.setCursor(0,0);
lcd.print("TEMP");
lcd.setCursor(6,0);
lcd.print(e);
lcd.setCursor(10,0);
lcd.print("C");
if(e>40.00)
{
    lcd.setCursor(0,1);
    lcd.print("high temp");
    Serial.println("high temperature");
    tone(8,9000);//if temperature greater than 50 deg the buzzer will rung
    delay(500);
    noTone(8);
    delay(100);
}
delay(1000);
//moisture sensor
moistval=analogRead(A1);
moistpercentage=((moistval/539.00)*100);
Serial.println("Moisturepercentage=");
Serial.println(moistpercentage);
Serial.print("%");
lcd.setCursor(0,0);
lcd.print("MOIST");
lcd.setCursor(6,0);
lcd.print(moistpercentage);
lcd.setCursor(12,0);
lcd.print("%");
if(moistpercentage<10.00)
{
    lcd.setCursor(0,1);
    lcd.print("low moist");
    delay(500);
    lcd.clear();
}
delay(1000);
}
```



OUTPUT:

0:01.222

Code Stop Simulation Send To
1 (Arduino Uno R3)

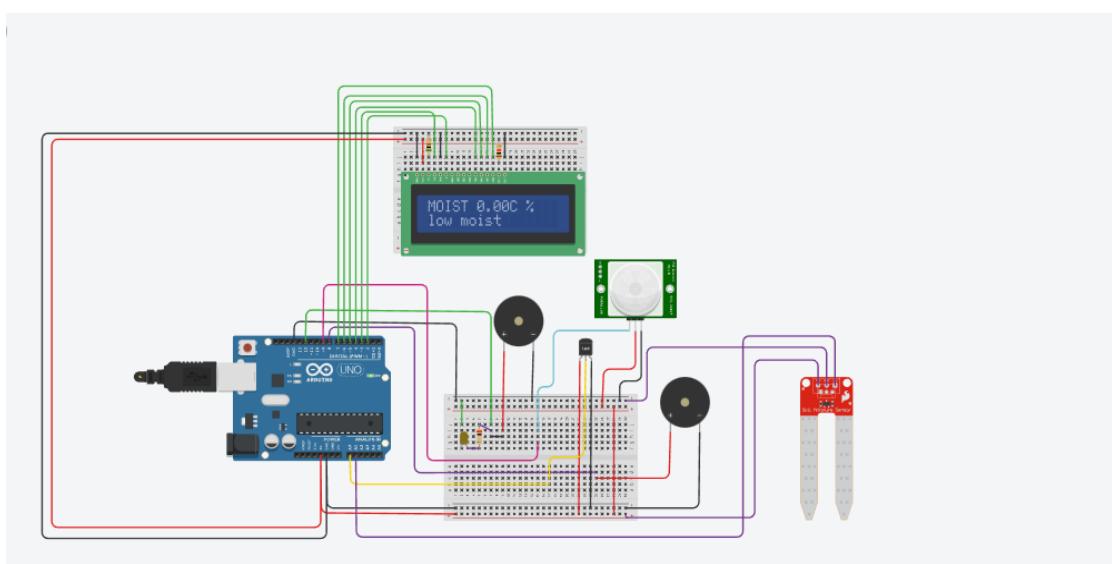
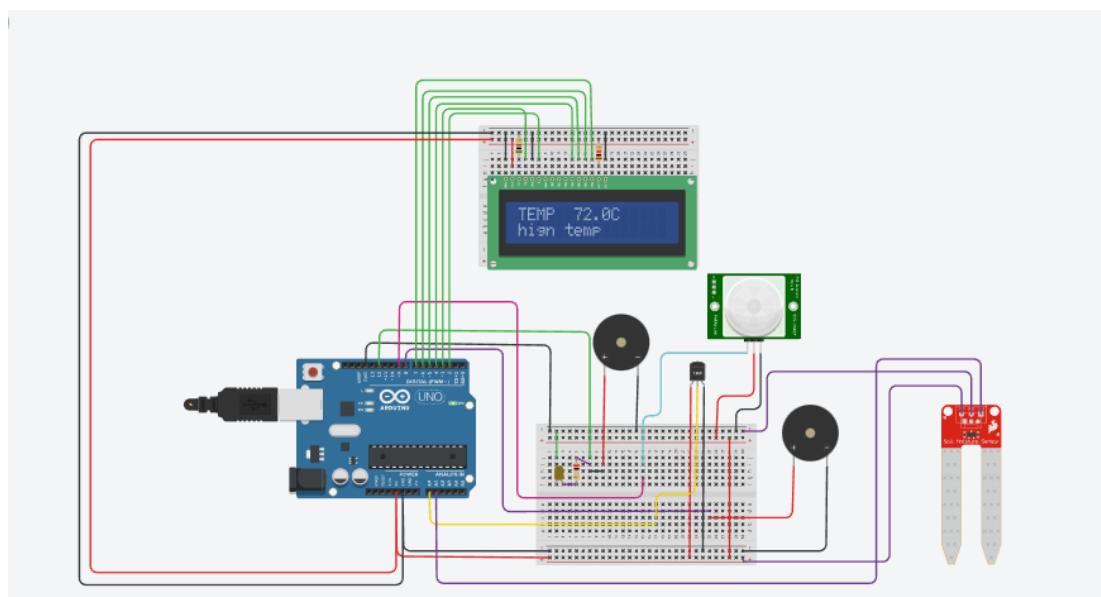
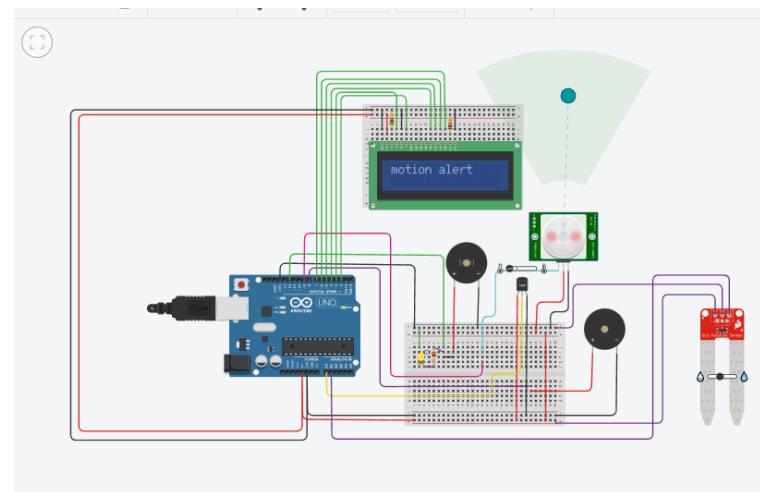
Serial Monitor

```

Moisturepercentage=
0.00
%temperature=
59.86
high temperature
Moisturepercentage=
54.17
%temperature=
59.86
high temperature
Moisturepercentage=
54.17
%temperature=
-40.23
Moisturepercentage=
54.17
%motion detected
temperature=
-40.23
Moisturepercentage=
54.17
%temperature=
-40.23
temperature=
24.71
Moisturepercentage=
0.00
%

```

Send Clear



Tinkercad link : <https://www.tinkercad.com/things/cV3aSIn5tqV-homeauto/editel>