SPRINT 1

SIMULATION OF SENSOR INTERFACING ARDUINO WITH PYTHON CODE

Date	18 NOVEMBER 2022
Team ID	PNT2022TMID47161
Project Name	Project – IoT based smart crop protection system for agriculture

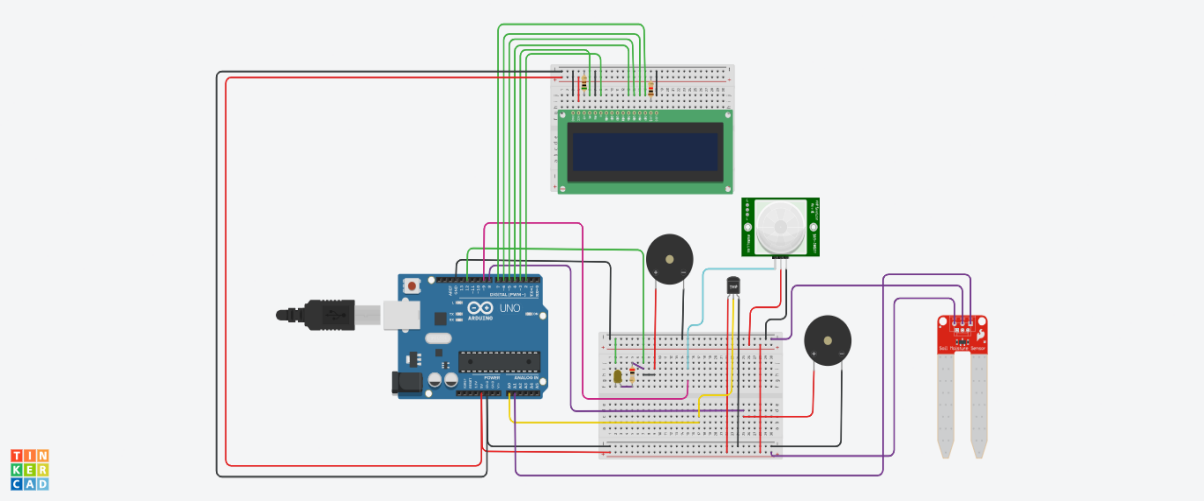
DESCRIPTION:

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

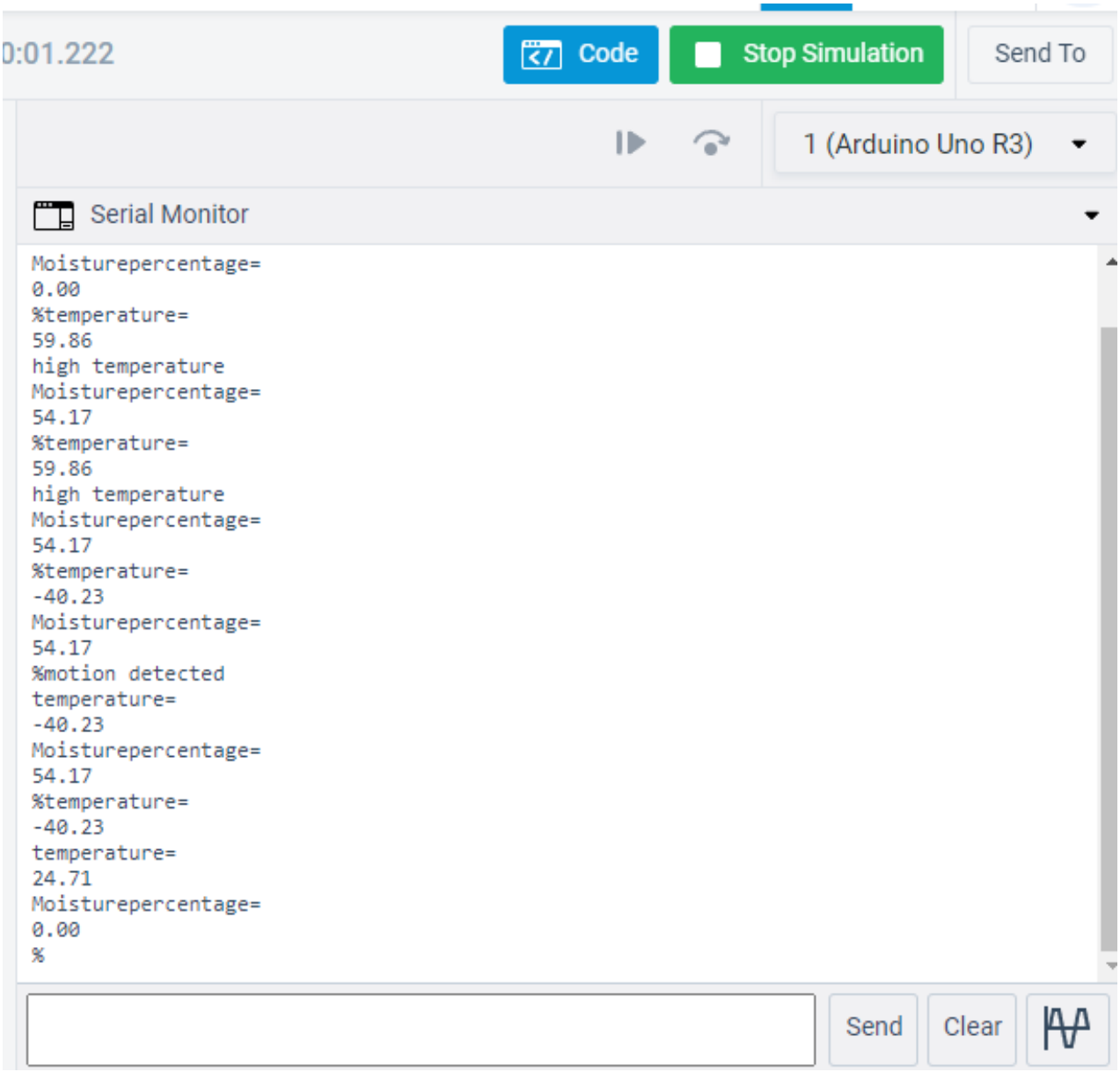
PYTHON CODE:

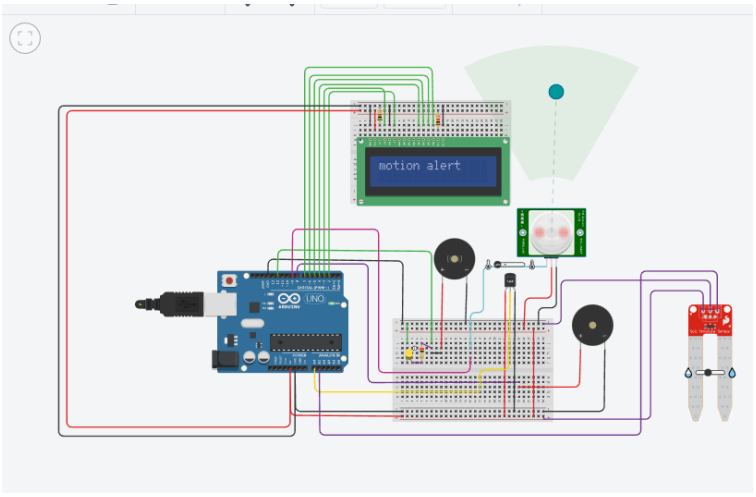
```
int moistval;
float moistpercentage;
#include<LiquidCrystal.h>
LiquidCrystal lcd(3, 2, 4, 5, 6, 7);// Creates (rs, enable, d4, d5, d6, d7)
//buzzer
void setup()
{
 lcd.begin(16,2);
 pinMode(13, OUTPUT);
 pinMode(12, OUTPUT); //for pir sensor o/p buzzer
 pinMode(8, OUTPUT);  //for temp sensor o/p 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 detetcted the buzzer will rung
  pinMode(13, HIGH);
  delay(500);
  lcd.clear();
  noTone(12);
  pinMode(13, LOW);
  delay(100);
 }
```

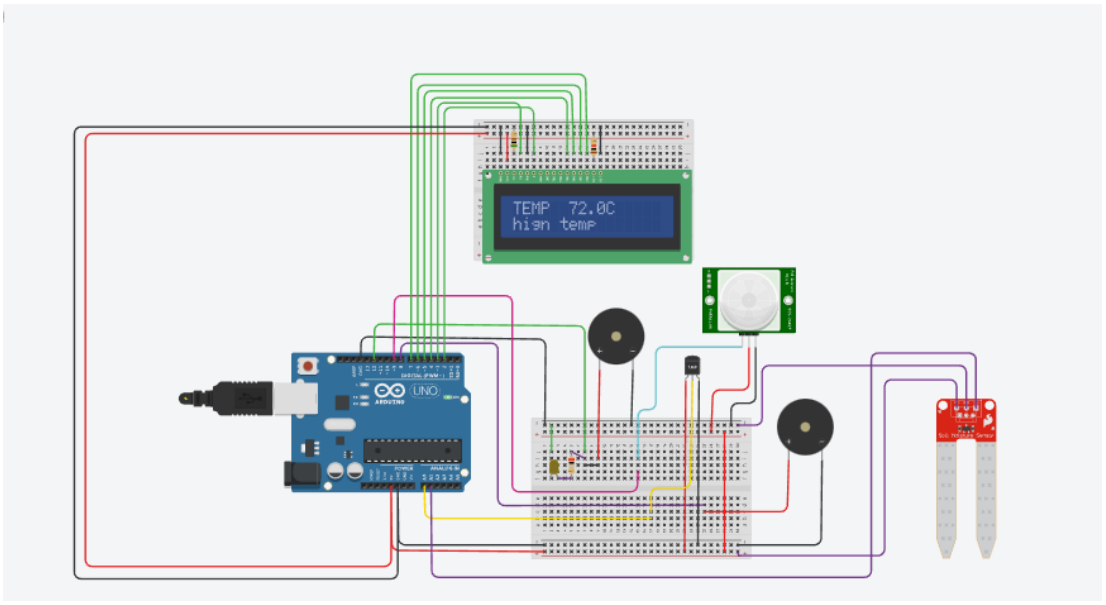
```
 delay(100);
 //temp sensor
 double t=analogRead(A0);
 double e=(((t/1024)*5)-0.5)*100;
 Serial.println("temperature=");
 Serial.println(e);
 lcd.setCursor(0,0);
 lcd.print("TEMP");
 lcd.setCursor(6,0);
 lcd.print(e);
 lcd.setCursor(10,0);
 lcd.print("C");
 if(e>40.00)
 {
   lcd.setCursor(0,1);
   lcd.print("hign 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);
}
```

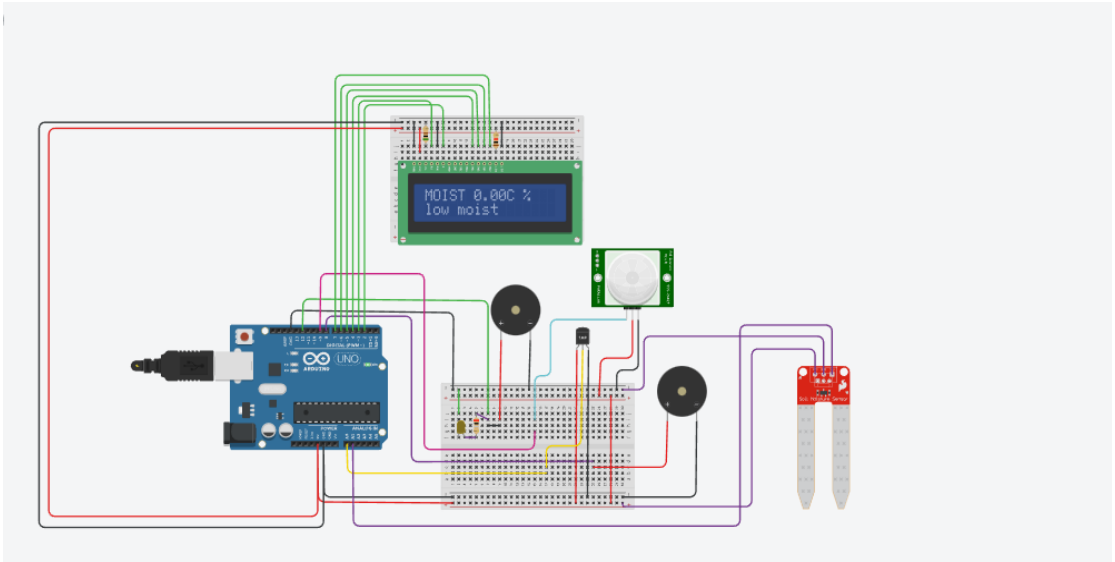


OUTPUT:


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