Task #01

Om Kinage

EC22B1111

Project 1: code:

#include <LiquidCrystal.h>

// Initialize the LCD display:

LiquidCrystal lcd(12, 11, 5, 4, 3, 2);

// Initialize the sensor pins:

int lightSensor = A0;

int moistureSensor = A1;

int temperatureSensor = A2;

void setup()

{

// Set the ambient light sensor as input

pinMode(lightSensor, INPUT);

pinMode(moistureSensor, INPUT);

pinMode(temperatureSensor, INPUT);

// Initialize the LCD display (16x2):

lcd.begin(16, 2);

}

void loop()

{

// Read the ambient light sensor value:

int lightValue = analogRead(lightSensor);

// Check if the light is bright enough:

if (lightValue > 200)

{

// Read the soil moisture & temperature sensor value

int moistureValue = analogRead(moistureSensor);

int temperatureValue = analogRead(temperatureSensor);

// Set cursor to first column and first row of LCD display:

lcd.setCursor(0, 0);

//Print Moisture value on first line of LCD display:

lcd.print("Moisture: ");

lcd.print(moistureValue);

// Set cursor to first column and second row of LCD display:

lcd.setCursor(0, 1);

//Print Temperature value on first line of LCD display:

lcd.print("Temperature: ");

lcd.print(temperatureValue);

}

else if(lightValue <= 200)

{

// Set cursor to first column and first row:

lcd.setCursor(0, 0);

lcd.print("not\_enough\_light");

delay(1000);

//Clear the LCD screen:(after some time delay)

lcd.clear();

}

}  
  
Tinkercad link: ( <https://www.tinkercad.com/things/jzUkemimsYF> )

Project 2: code:

#include "LiquidCrystal.h" //Library of lcd

LiquidCrystal lcd(10,9,8,7,6,5); //pin of lcd

int val;

void setup()

{

Serial.begin(9600);

lcd.begin(16,2);

lcd.setCursor(0,0);

lcd.print(" PIR Sensor ");

pinMode(13,INPUT); // pir sensor output pin connected

}

void loop()

{

val = digitalRead(13); // pir sensor output pin connected

Serial.println(val); // see the value in serial monitor in Arduino IDE

//delay(100);

if(val == 1 )

{

lcd.setCursor(0,1);

lcd.print(" DETECTED ");

delay(2000);

}

else

{

lcd.setCursor(0,1);

lcd.print(" NOT DETECTED ");

}

}

**Tinkercad link:** (<https://www.tinkercad.com/things/9PnY97JaRa6> )

**Project 3: code:**

//Force and flex sensor pin(analog i/p):

int forceSensorPin = A0;

int flexSensorPin = A1;

//Tilt sensor pin and buzzer(digital i/p):

int tiltSensorPin = 2;

int buzzerPin = 3;

void setup()

{

// Set tilt sensor pin as input:

pinMode(tiltSensorPin, INPUT);

// Set buzzer pin as output:

pinMode(buzzerPin, OUTPUT);

Serial.begin(9600);

}

void loop()

{

int forceValue = analogRead(forceSensorPin); // Read force sensor value

int flexValue = analogRead(flexSensorPin); // Read flex sensor value

int tiltValue = digitalRead(tiltSensorPin); // Read tilt sensor value

// Check if the tilt sensor is activated or not:

if (tiltValue == HIGH)

{

// Activate the piezo buzzer with a frequency of 1000 Hz

tone(buzzerPin, 1000);

}

else

{

// Deactivate the piezo buzzer

noTone(buzzerPin);

}

delay(100);

// Print the sensor values

Serial.print("Force: ");

Serial.print(forceValue);

Serial.print(" Flex: ");

Serial.print(flexValue-990);

Serial.print(" Tilt: ");

Serial.println(tiltValue);

}

**Tinkercad link** (<https://www.tinkercad.com/things/jYvDIY8iGqZ> )