Water Level Monitoring System

Project Title: Water Level Monitoring System

Project Lead: Bhakti Harale

Learning Objective:

• Simulate LDR and Thermistor workings.

• Use Tinkercad for electronics and Arduino projects.

Required Components:

1.Arduino UNO(virtual, in Tinkercad)

2.Breadboard (virtual)

3.Connecting Wires

4.Buzzer

5.Ultrasonic sensor

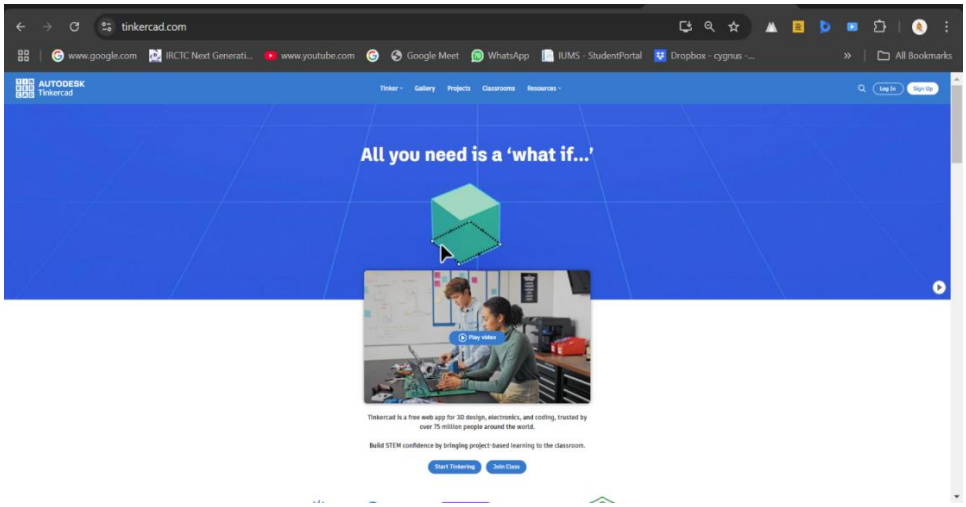
6.Led

7) LCD Display

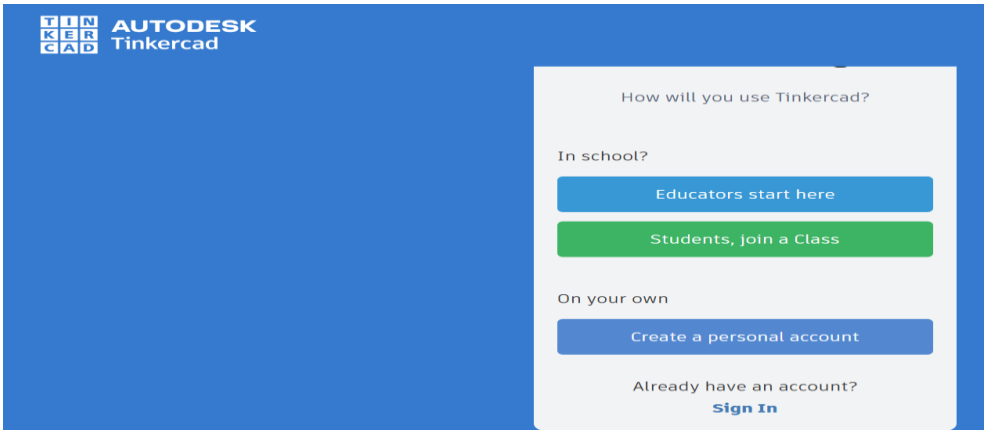
Step-by-Step Guide

Step 1: Set up Your Tinkercad Project

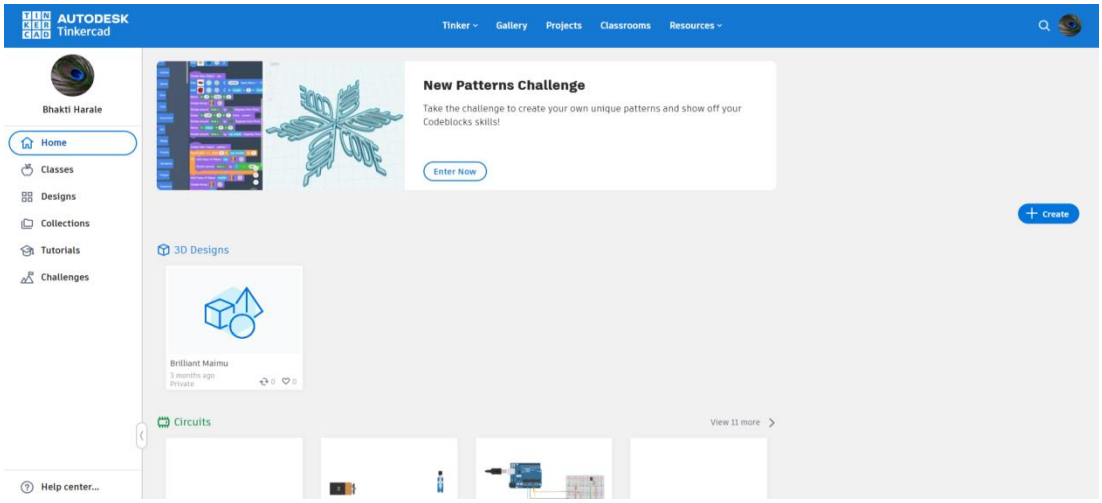
1.Open Tinkercad in your web browser. (www.tinkercad.com)



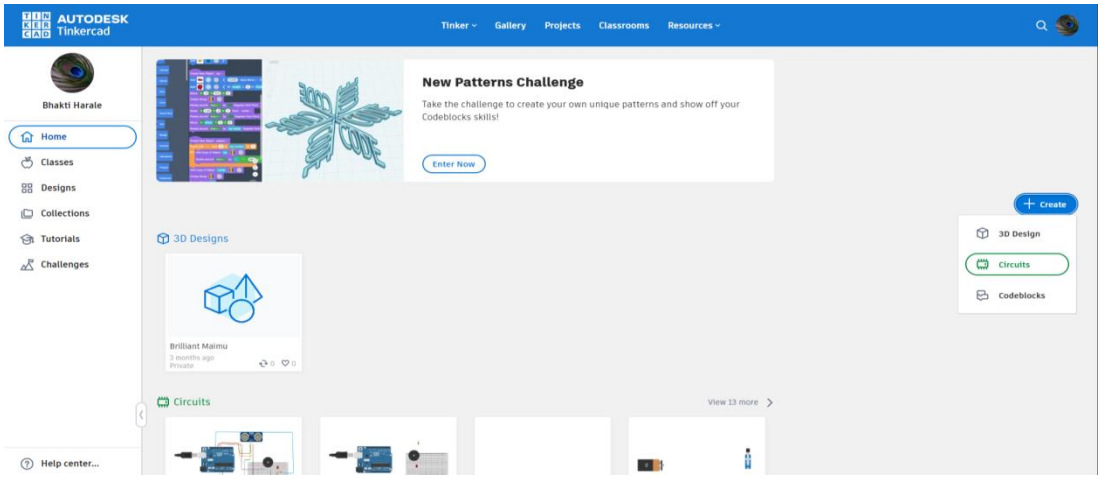
2.Create a free account or log in if you already have one.

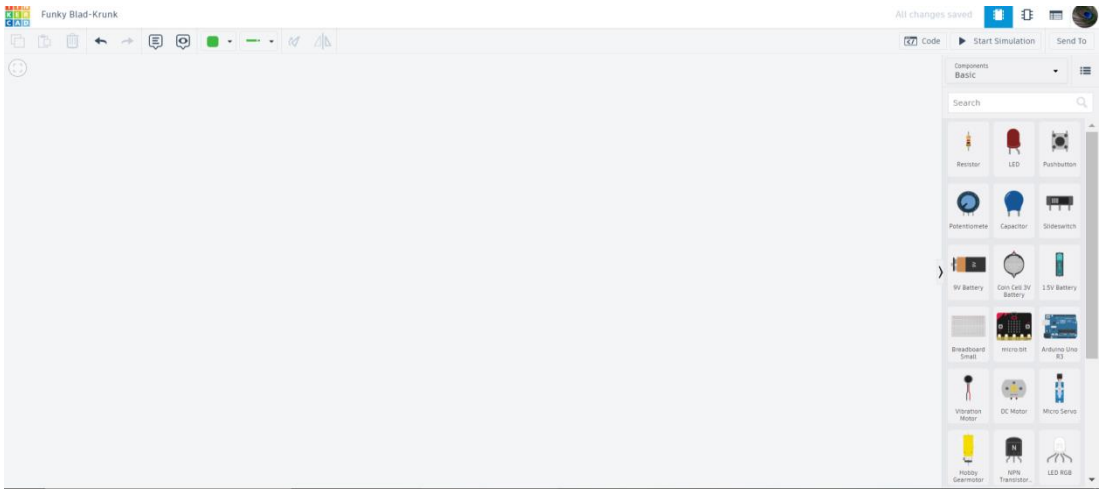


3.Select "**Circuits**" from the Tinkercad dashboard.

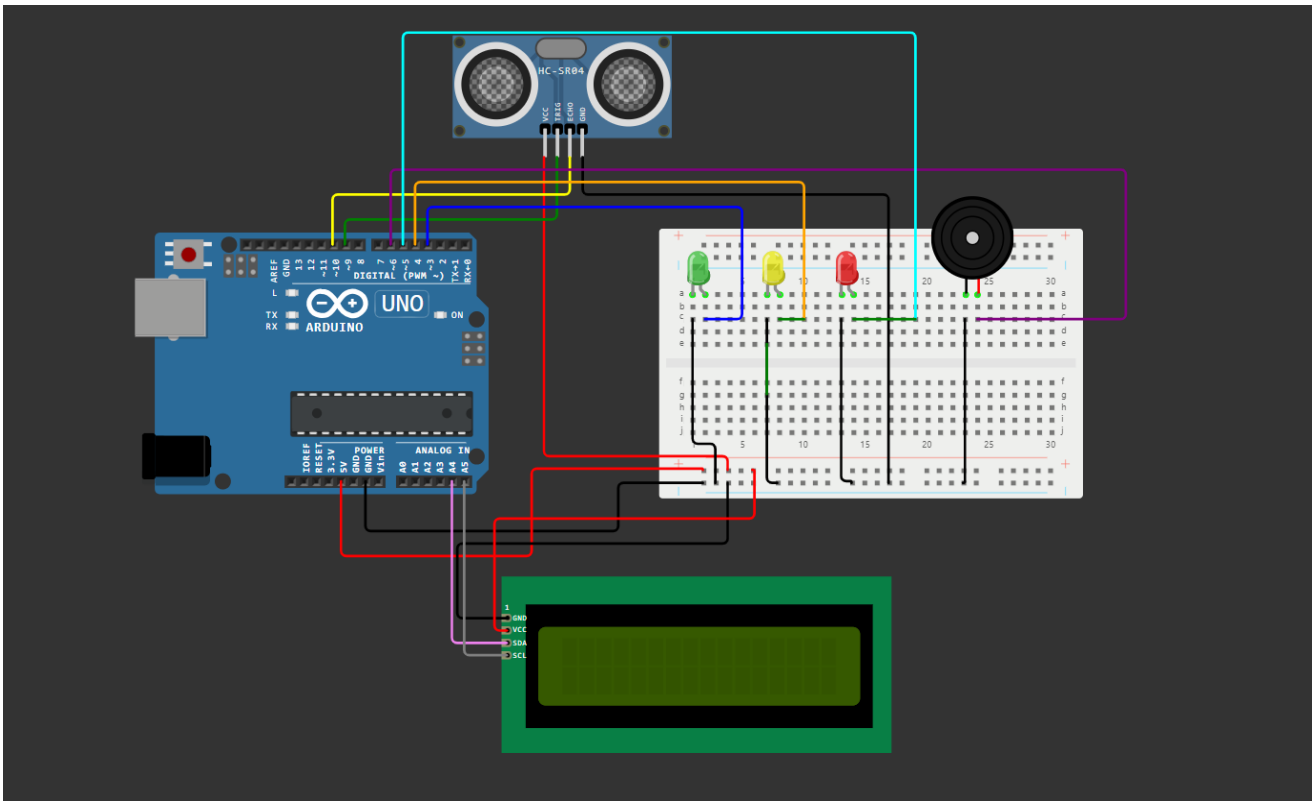


4.Click "**Create New Circuit**" to start a new project.





Circuit Diagram:



Code:

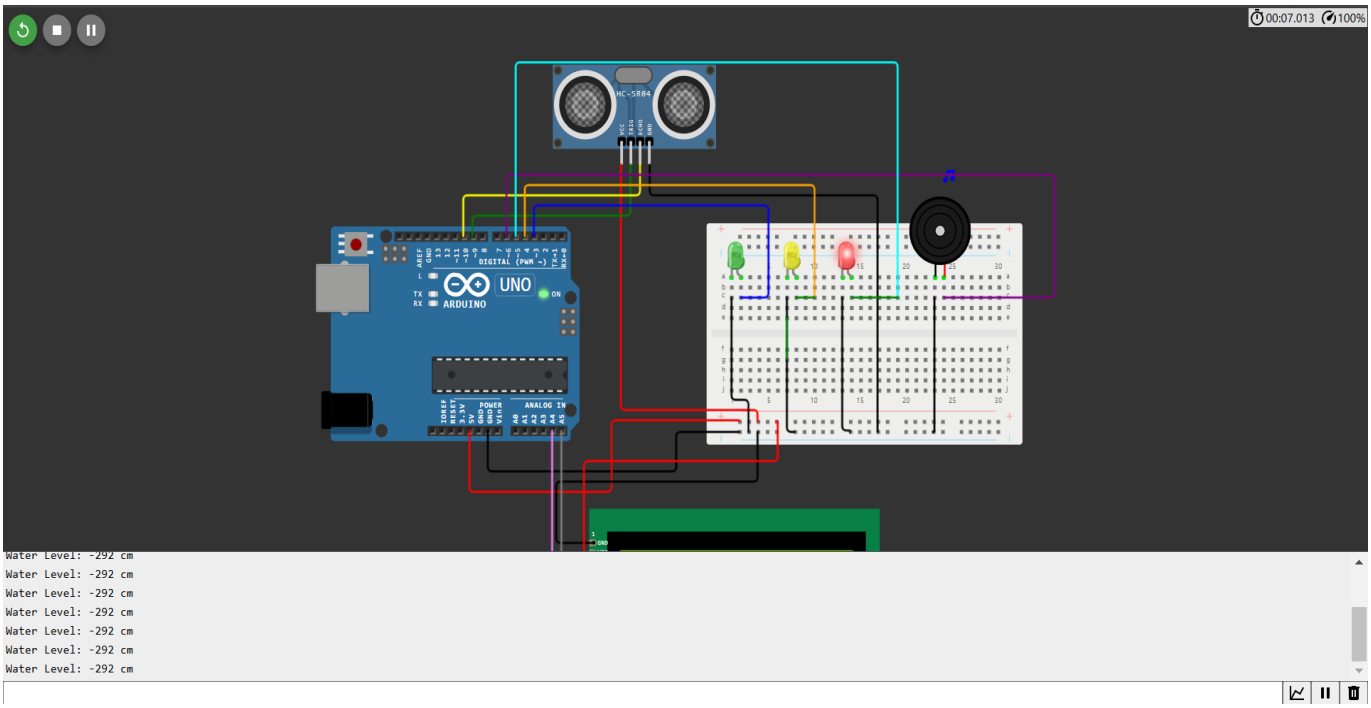
```
#include <Wire.h>
#include <LiquidCrystal_I2C.h>
LiquidCrystal_I2C lcd(0x27, 16, 2);

const int trigPin = 9;
const int echoPin = 10;
const int greenLED = 3;
const int yellowLED = 4;
const int redLED = 5;
const int buzzer = 6;

const int tankHeight = 100;

void setup() {
  Serial.begin(9600);
  pinMode(trigPin, OUTPUT);
  pinMode(echoPin, INPUT);
  pinMode(greenLED, OUTPUT);
  pinMode(yellowLED, OUTPUT);
```

```
  pinMode(redLED, OUTPUT);
  pinMode(buzzer, OUTPUT);

  lcd.init();
  lcd.backlight();
  lcd.setCursor(0, 0);
  lcd.print("Water Level:");
}

void loop() {
  digitalWrite(trigPin, LOW);
  delayMicroseconds(2);
  digitalWrite(trigPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(trigPin, LOW);
  long duration = pulseIn(echoPin, HIGH);
  long distance = duration * 0.034 / 2;

  long waterLevel = tankHeight - distance;
```

```
  lcd.setCursor(0, 1);
  if (waterLevel > 0 && waterLevel <= tankHeight) {
    lcd.print("Level: ");
    lcd.print(waterLevel);
    lcd.print(" cm   ");
   }
else if (waterLevel <= 0) {
    lcd.print("Level: Empty   ");
  } else {
    lcd.print("Out of Range   ");
  }

 if (waterLevel < 30) {
    digitalWrite(greenLED, LOW);
    digitalWrite(yellowLED, LOW);
    digitalWrite(redLED, HIGH);
    tone(buzzer, 1000);
  }
```

```
 Else
  if(waterLevel >= 30 && waterLevel <= 70) {
    digitalWrite(greenLED, LOW);
    digitalWrite(yellowLED, HIGH);
    digitalWrite(redLED, LOW);
    noTone(buzzer);
  } else if (waterLevel > 70) {
    digitalWrite(greenLED, HIGH);
    digitalWrite(yellowLED, LOW);
    digitalWrite(redLED, LOW);
    tone(buzzer, 500);
  }
  Serial.print("Water Level: ");
  Serial.print(waterLevel);
  Serial.println(" cm");



  delay(500);
}
```

Output:


00:07.013
100%
HC-SR04
UNO
ARDUINO
Water Level: -292 cm
Water Level: -292 cm
Water Level: -292 cm
Water Level: -292 cm
Water Level: -292 cm
Water Level: -292 cm
Water Level: -292 cm