PROJECT 5

Automatic Hand Sanitizer Machine

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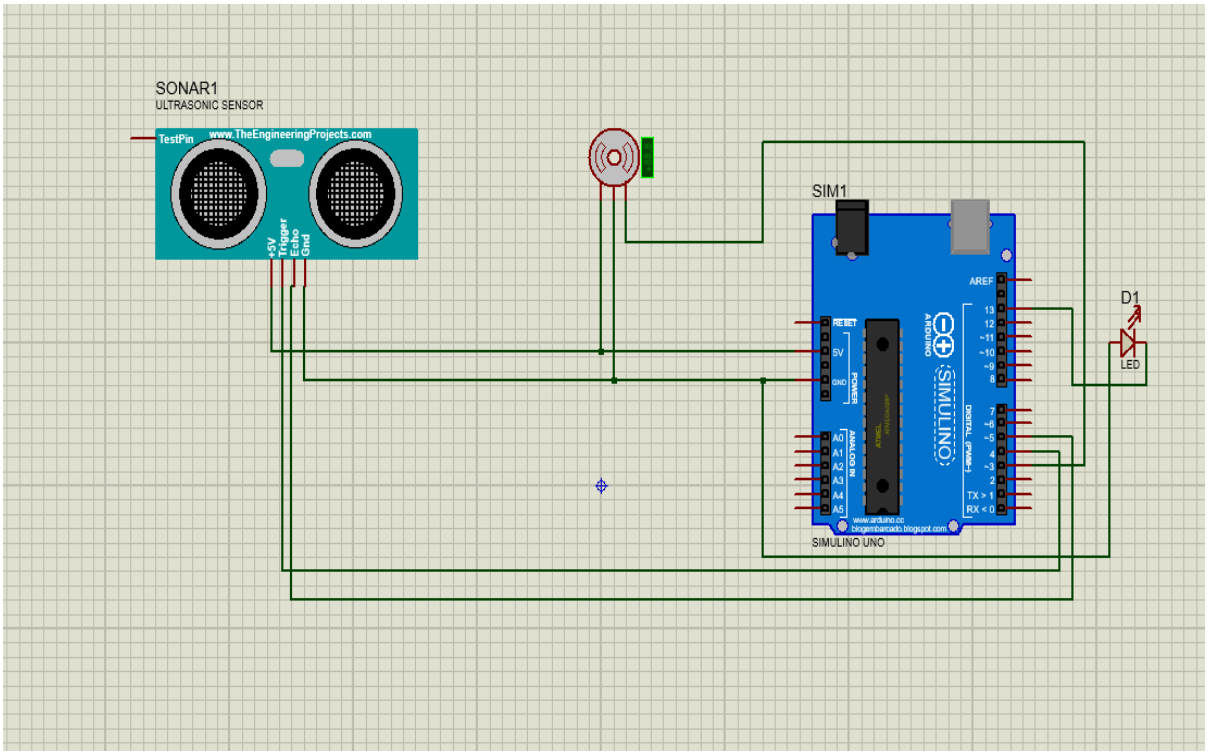
G11 ES

Components Used:

- Arduino UNO R3
- LED
- Resistor (250ohm)
- Servo motor
- Ultrasonic Sensor (HC-SR04)



Schematic Diagram

Program:

```
#include<Servo.h>
#define echoPin 4
#define trigPin 5
Servo mservo;
int long duration;
int distance;
void setup(){
  pinMode(13,OUTPUT);
  mservo.attach(3);
  pinMode(echoPin,INPUT);
  pinMode(trigPin,OUTPUT);
}
void loop()
{
  digitalWrite(trigPin,LOW);
  delayMicroseconds(2);
  digitalWrite(trigPin,HIGH);
  delayMicroseconds(10);
  digitalWrite(trigPin,LOW);
  duration=pulseIn(echoPin,HIGH);
  distance=(duration*0.034/2);
  if(distance<=15) {
  mservo.write(90);
  digitalWrite(13,HIGH);
  }
  else {
    mservo.write(0);
    digitalWrite(13,LOW);
  }
  delay(1000);
}

```

Advantages:

- It helps in sanitizing hands without touching bottle.

- It can be used at any place like in office, hospitals, schools or at home also.
- Easy to use, making it accessible for children, elderly individuals, and people with disabilities.

Disadvantages:

- It requires power to work.
- More expensive than manual dispensers due to technology and automation.
- Regular cleaning, refilling, and technical maintenance may be needed, adding to operational costs.
- Users may sanitize excessively, leading to skin dryness or irritation if the sanitizer contains high alcohol content.

Improvements:

- Servo motor can be replaced with mist sensor.
- Sanitizer level indication can be added.