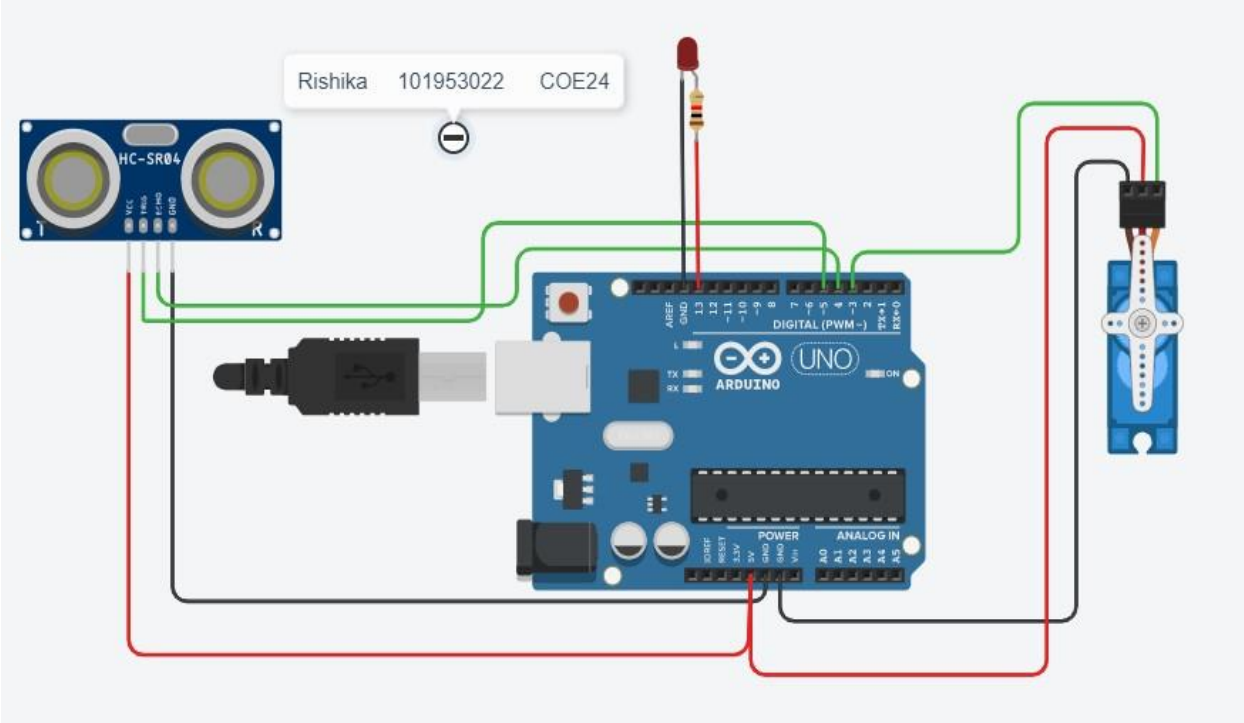
Project Report

Automatic Hand Sanitizer Dispenser

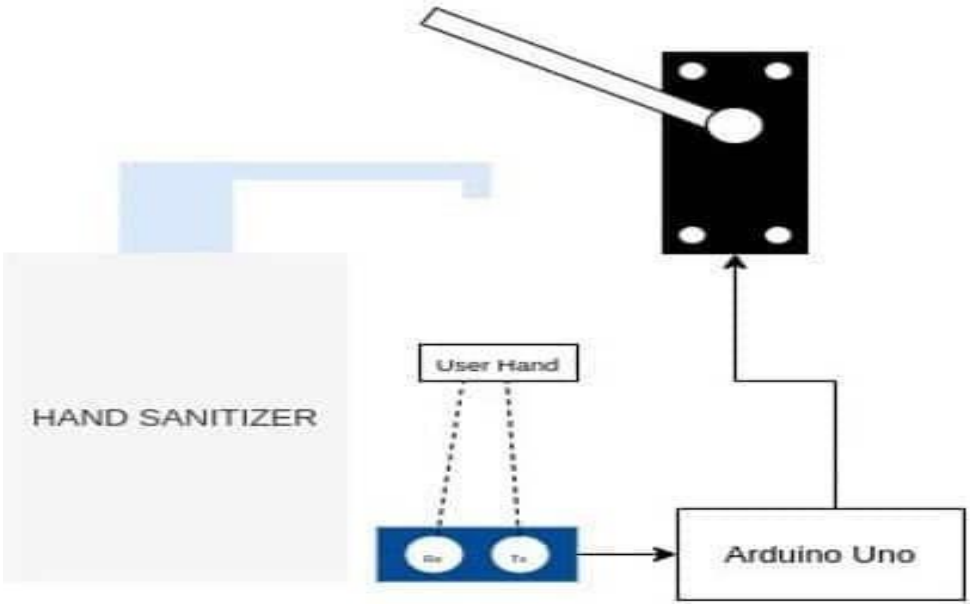
Objective: Arduino based Automatic Hand Sanitizer System.

Components required: Arduino Uno, Ultrasonic sensor, Servo motor, Jumper wires, LED.

Circuit Diagram:



Workflow Diagram:



Code:

```
#include<Servo.h>
#define echoPin 4
#define trigPin 5
Servo Myservo;
int long duration;
int distance;

void setup(){
pinMode(13,OUTPUT);
Myservo.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){
Myservo.write(90);
digitalWrite(13,HIGH);
}
else {
Myservo.write(0);
digitalWrite(13,LOW);
}
  delay(1000);
}
```

Working:

Here, we use an Ultrasonic distance sensor, Servo motor and Arduino Uno board. When we place our hand in front of the distance sensor, it will help to the Arduino to measure the distance from the sensor to object (here the hand). If the object is in the desired range, Arduino will write the servo to 180 and the LED glows. Servo motor is mounded on the hand sanitizer bottle. And the trigger of bottle is connected to servo by a thread. When servo motor rotates, the trigger will be pressed and sanitizer will be dispensed.

Tentative cost:

Tentative cost of this project will be approximately Rs.720 as

S no.	Product	Quantity	Cost (₹)
1.	Arduino Uno	1	499
2.	Ultrasonic sensor	1	50
3.	Servo motor	1	119
4.	LED	1	1
5.	Jumper wires		49
6.	Resistor	1	2

Result and Conclusion:

The automatic hand sanitizer system designed is compatible with various containers. When one moves one's hand close to the device sensor, the hand sanitizer container is pumped.

The automatic hand sanitizer device is ultimately expected to contribute to contactless hand disinfection in public places and virus infection prevention. Additionally, it is economical and eco-friendly by decreasing waste emissions.