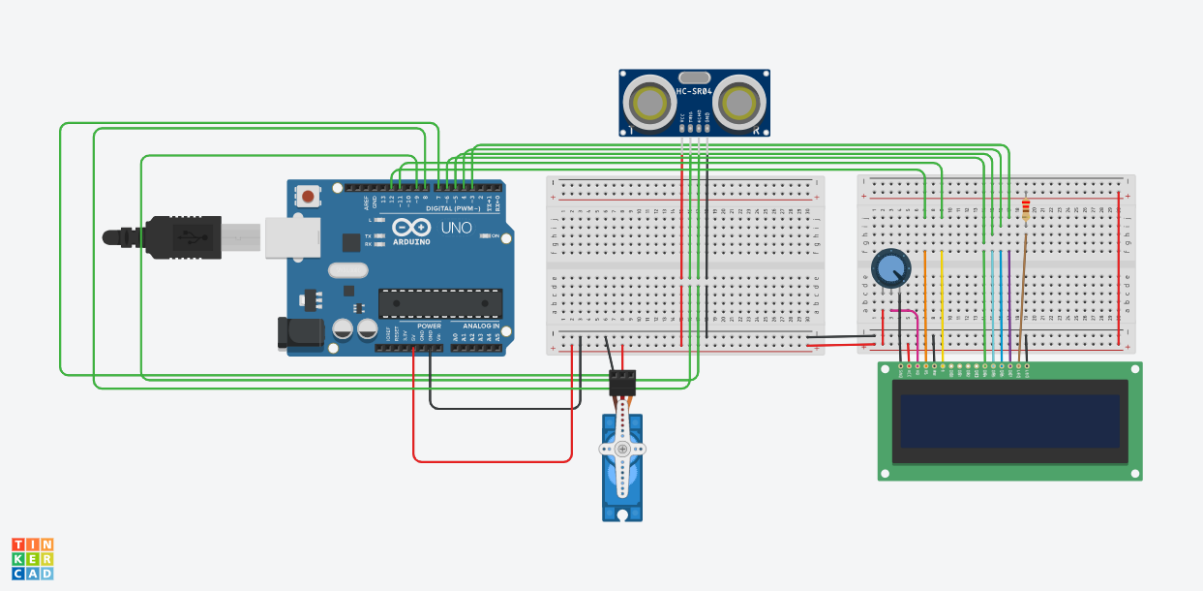
# Course Project

During this dwelling pandemic situation technology can be useful to save lives. The system that I have made is useful during the day to day life. Arduino and the components are very useful. Using the sensors such as ultrasonic sensors, heat sensors and IR sensors Arduino user can create amole amount of systems to reduce the exposure of virus among the people.

## Hand washer with timer using Arduino




This system consists of the following parts:

1. Arduino UNO Rev 3
2. Ultrasonic Sensor
3. Micro Servo
4. LCD Display
5. 220 Ω resistor
6. 250 kΩ Potentiometer
7. Bread Board Small x 2
8. Connecting wires

The above circuit acts as touch free hand wash machine. The system doe the process of pouring hand wash liquid and set a timer for the user for the hand wash. The timer is for 20 seconds. First, the servo will run for the signal from the ultrasonic sensor. The process of the servo runs approximately for 2 seconds. After the 2 seconds of time, the LCD will start to run the 20 seconds of timer. The status of the process is also shown in the LCD while washing the hands, and there will be stop sign in the status when the timer is finished with 20 seconds. The circuit will work only if the user's hand is 10cm away from the ultrasonic sensor. The resistor used in the circuit increases the brightness of the LCD display.

The libraries used in the programing part of then circuits are:

- #include <LiquidCrystal.h>
- #include <Servo.h>

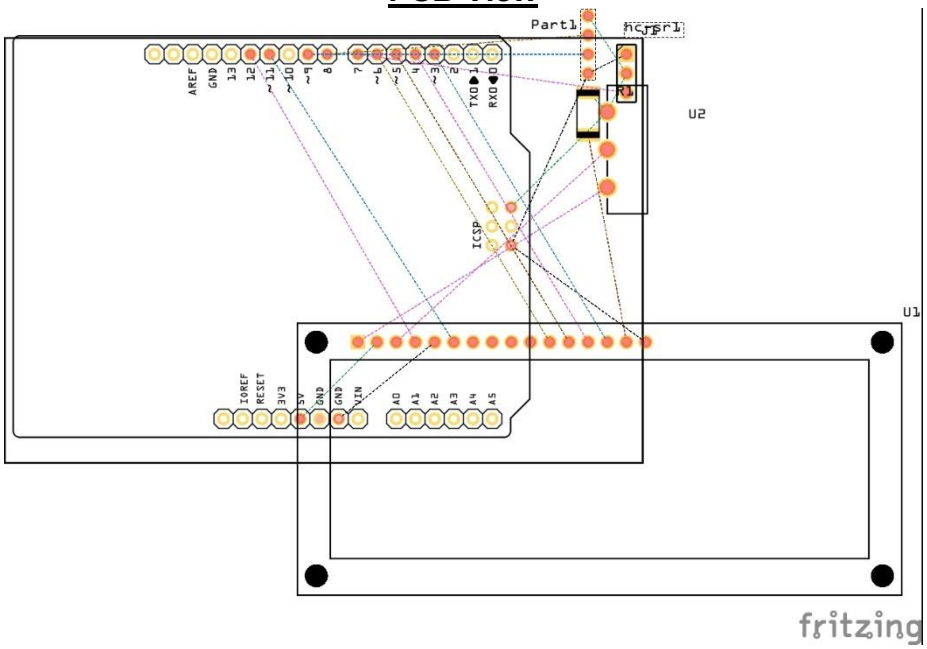
The above libraries are available in the below mentioned websites. The user can download the libraries for coding.

Liquid Crystal Library: https://www.arduinolibraries.info/libraries/liquid-crystal

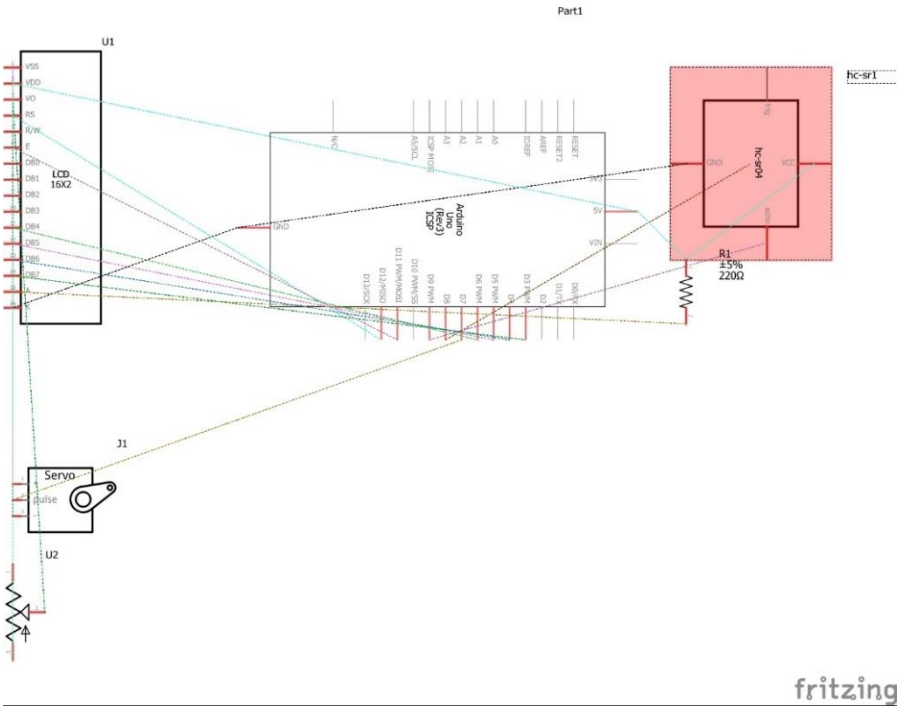
Servo Library: https://www.arduinolibraries.info/libraries/servo

This circuit is very helpful in public places i.e. Hospitals, supermarket, hotel and etc.

## PCB View

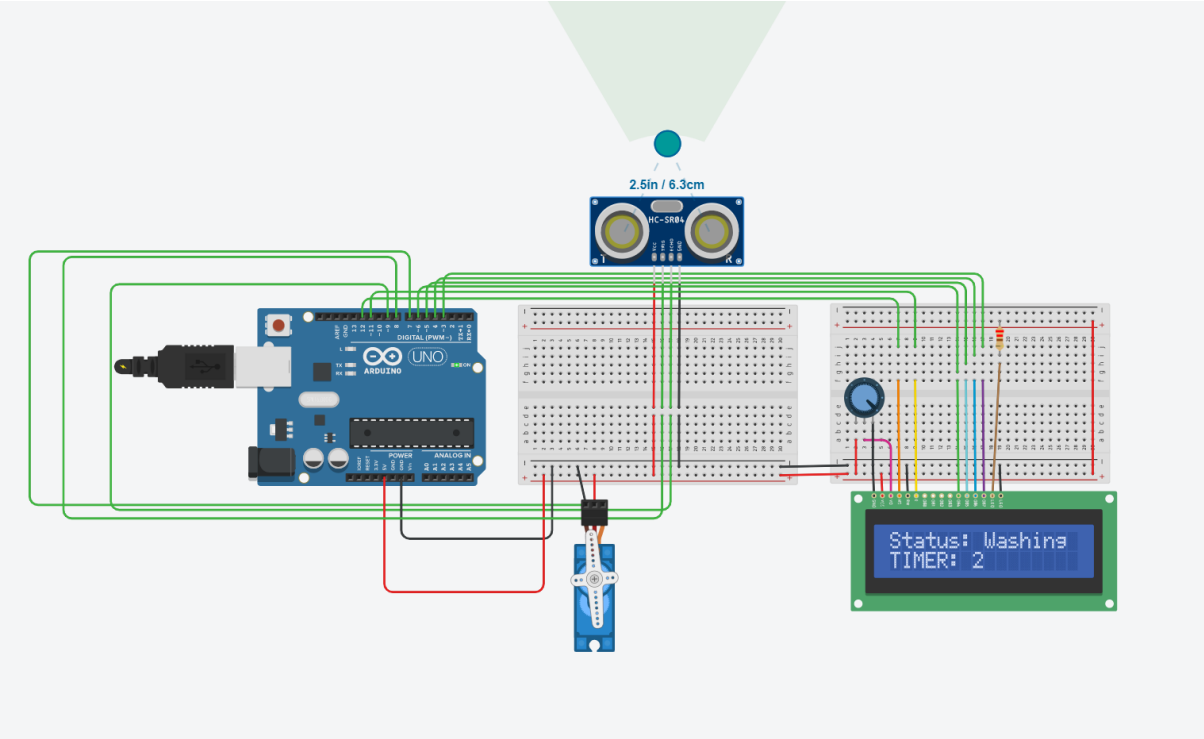



## Schematic View



The servo is been connected to signal port 7. The LCD Display's RS, E, DB4, DB5, DB6, DB7 is connected to 12, 11, 6, 5, 4, 3 ports respectively

## Simulation samples of the Circuit.




## Reason to use Arduino UNO

The Arduino UNO is easy to program and the standard board available on the market. Arduino is a well-known microcontroller board for simple circuits. This system does not need high performance since it is a simple and small embedded system. Using an attiny 85 microcontroller chip makes it more complex since there will be more other input and output components connected to the system.