Zero Contact Hand Sanitizer Dispenser

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Introduction

- In today's time, social distancing is one of the most important factor.
- Hand Sanitizer has become a crucial part of our lives due to the fact that our hands have the highest probability of being exposed to the virus.
- So, people use hand sanitizers to avoid spreading of virus and disinfect their hands.
- Many public places and facilities have special staff for manually dispensing hand sanitizers and checking temperatures of the people who are entering their premises.
- This project aims at encouraging automation and social distancing by creating an automatic hand sanitizer dispenser using ultrasonic sensors mounted near them.
- This ensures that the people need not touch the dispenser cap thus preventing the possibility of transmitting the virus.

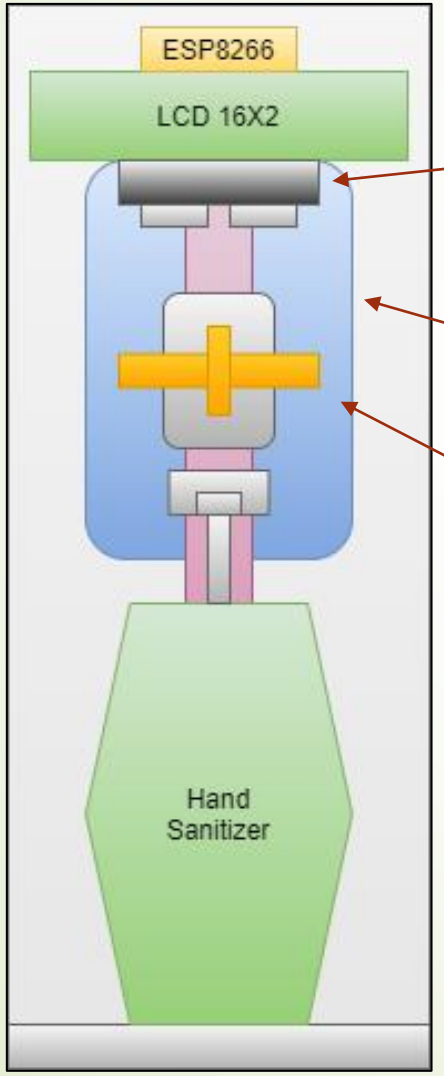
Problem Statement

- In this current scenario of global outbreak, it is advised by WHO (world health organization) to maintain Healthy Hand Wash and Sanitation Habits, but the main problem is the way we do it, that is by physically touching the bottle, which in short doesn't serve our purpose. In order to maintain social distancing it is important to implement measures to reduce physical contact and encourage automation using IoT.

Objectives

- To maintain Social Distancing
- To educate user about the intensity of Covid-19 cases in their area.
- To introduce automation in simple day to day necessities using IoT.
- To create cost efficient IoT based device that can be used anywhere, and acquaint users of live covid-19 statistics in areas with internet connectivity.

Zero Contact Hand Sanitizer Dispenser (Block Diagram)



HC-SR04 Ultrasonic Sensor

Arduino UNO

MG995 Servo Motor

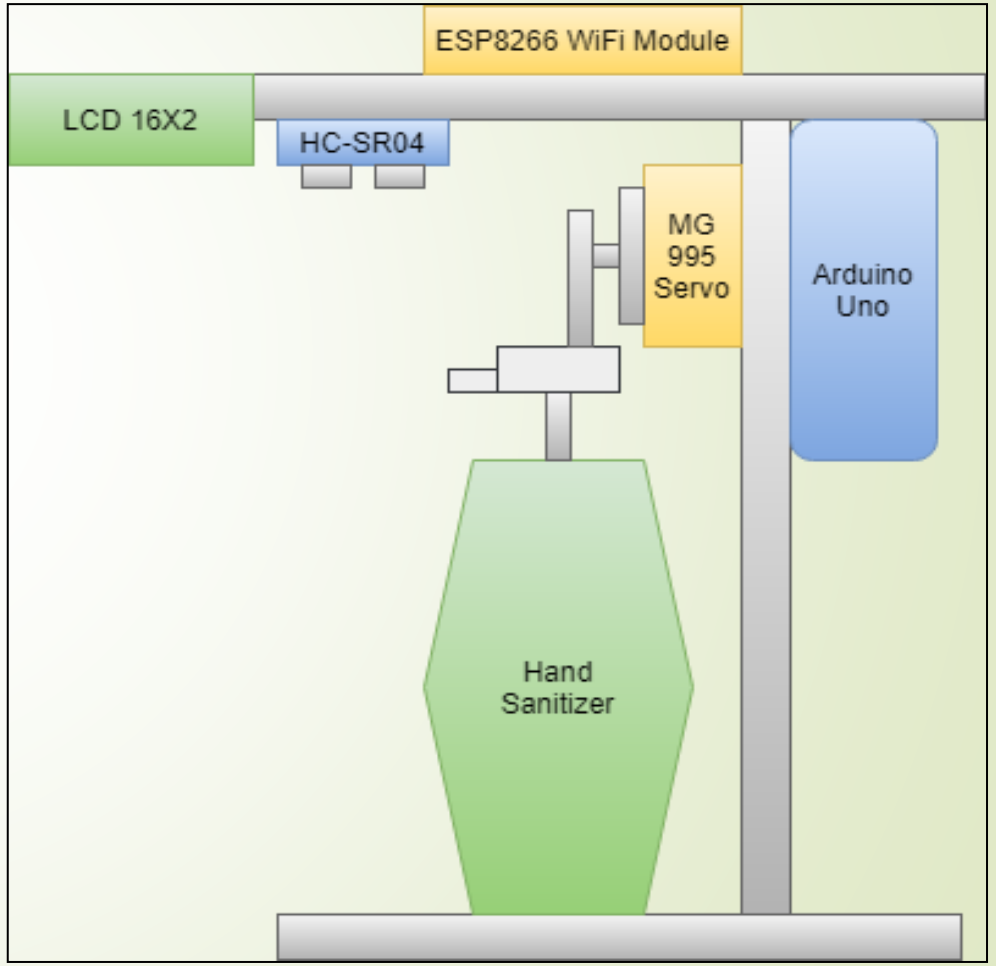
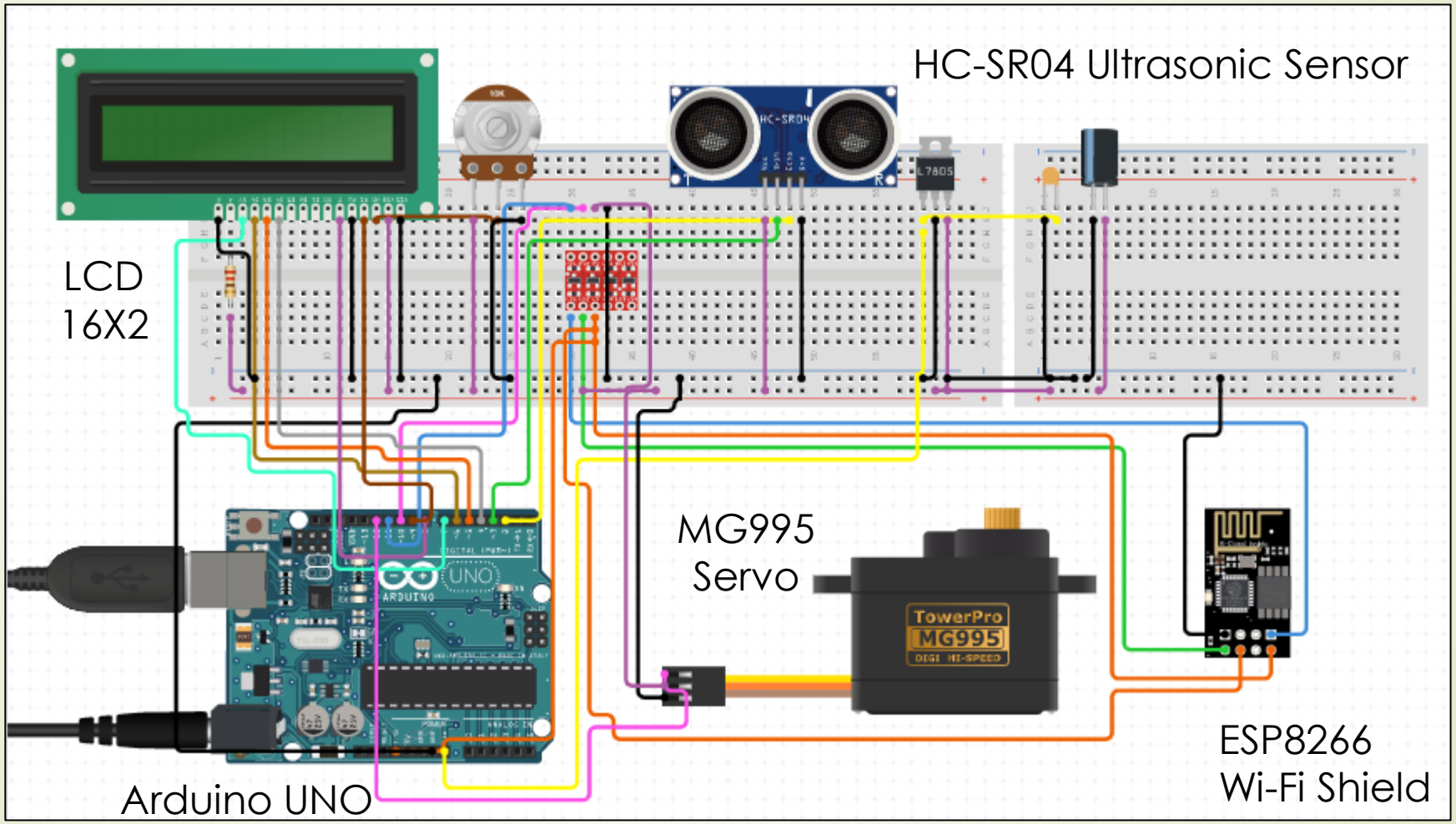


Diagram created at https://app.diagrams.net/

Zero Contact Hand Sanitizer Dispenser (Circuit Diagram)



https://www.circuito.io/app?components=9442,10334,11021,13678,13959,341099

Components

Hardware:

- Arduino UNO
- ESP8266 Wi-Fi Shield
- LCD 16x2
- HC-SR04 Ultrasonic Sensor
- MG995 Metal Gear Servo Motor
- Generic Hand Sanitizer Bottle with Dispenser Cap

Software:

- Tinkercad
- Arduino IDE
- C (Programming Language)

Conclusion

- Corona Virus (Covid19) is wreaking havoc in the world. Almost every country is suffering from the Corona Virus.
- WHO has already announced it a Pandemic disease and many cities are under lockdown situation, people can't step out of their homes, and thousands have lost their lives.
- This project is thus an attempt to reduce the impact of coronavirus by automation and hands free approach of using hand sanitizers at public places.
- The users are also made aware of the intensity of cases in their area.

Future Scope

- The aim of this project is to be a cost efficient solution for a zero contact hand sanitizer dispenser, but if the budget is high, a thermal sensor can be installed which shows the body temperature of the user and alerts for any abnormal conditions.

References

- Ashish Chaudhary, "*https://circuitdigest.com/microcontroller-projects/automatic-hand-sanitizer-dispenser-with-covid19-live-updates*", website.
- herolivechannel,"*https://create.arduino.cc/projecthub/herolivechannel/fighting-corona-multichoice-automatic-hand-sanitizer-b3df30*" ,website.
- Alberto Berardi, Diego Perinelli, Hamid Merchant, Lorina Bisharat, Iman Basheti, Giulia Bonacucina, Marco Cespi, Giovanni Palmieri, "*Hand sanitizers amid CoViD-19: A critical review of alcohol-based products on the market and formulation approaches to respond to increasing demand*", published.

- Brian Hammond, Yusuf Ali, Eleanor Fendler, Michael Donal, Sandra Donovan, MSN, "*Effect of hand sanitizer use on elementary school absenteeism*", published.
- Juhui Lee, Jin-Young Lee, Sung-Min Cho, Ki-Cheol Yoon, Young Jae Kim, Kwang Gi Kim, "*Design of Automatic Hand Sanitizer System Compatible with Various Containers*", published.
- Adeel Mahmood, Maryam Eqan, Saher Pervez, Huda Ahmed Alghamdi, Amtul Bari Tabinda, Abdullah Yasar, Kathirvel Brindhadevi, Arivalagan Pugazhendhi, "*COVID-19 and frequent use of hand sanitizers; human health and environmental hazards by exposure pathways*", published.

Thank You