

# Automated Electronic Covid Protection System

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## ABSTRACT:

COVID-19 is a virus taking the lives of thousands of people throughout the world. It has created a huge impact on people lives in every aspect. even though many organizations developed vaccines and vaccinating people in a phased manner, the spread of corona is reduced only upto to certain period of time. The main objective of this work is to provide solution for COVID-19 indoor safety for industries, offices and commercial places where public number is high. The work focus on automation of social distancing, temperature sensing, automatic switch and automatic sanitization which is usually carried out by a person. Elimination of human intervention reduces the risk of contradiction and spread of virus and avoids mistakes due to human negligence.

**KEYWORDS:** Arduino NANO, Ultrasonic sensor, IR sensor, temperature sensor, servo motors, LCD.

## I. INTRODUCTION:

The occurrence of novel infectious respiratory disease COVID-19 caused by coronavirus has a huge effect on every aspect human's lives globally since the end of the year 2019. The world health organization declared COVID-19 as a global pandemic. Soon the virus has been spread to all over the world. The virus is extremely contagious and transmitted from person to person very easily. The WHO has provided some guidelines to reduce its community transmission in various ways. Some of the recommended actions are maintaining social distancing, sanitizing the hands, no physical contact and measurement of temperature because prevention is better than cure. In the present scenario the social distancing, proper sanitization, measurement of temperature and touch less switch may reduce the spread of virus. This automated covid protection system helps in alerting people when others come closer with the help

of social distancing remainder, it helps in knowing the body temperature of people around us from certain distance with the help of temperature sensor, it helps in operating switches without touching physically with the help of touchless switch, it helps in sanitizing the hands without touching sanitizer dispenser with the help of touchless sanitizer dispenser. This automatic protection system is highly useful in public places, commercial places etc., It helps all the individuals without any physical interference with the objects. Therefore the usage of automatic social distancing remainder, automatic switch, automatic sanitizer dispenser and temperature sensor has shown positive results when it comes to disease spread reduction. Due to these facts, many protection and safety measures were taken by our government in order to reduce the disease spread, such as social distancing, proper sanitizing, temperature sensing and handling switch within public places, offices. In this paper, cost-effective automated electronic covid protection system aiming to help public to follow COVID-19 guidelines and safety rules in order to reduce the spread of corona virus. We focus on handling things without touching physically and alerting people. Our project uniqueness is, it is the combination of social distancing remainder, temperature sensor, touchless switch and sanitizer dispenser.

## II. OBJECTIVES

The project is to handle the devices without touching them in order to protect themselves. The project is used to reduce the transmission of the coronavirus at indoor places as well as public places. An automatic covid protection system is used can help the individuals to maintain social distancing and handle devices

without physical contact with them in public places and work places etc., In this project we have four cases.

- a) Maintaining social distance
- b) Temperature measurement of body
- c) Touch less switch
- d) Automatic sanitizer dispenser.

All the four cases can be handled automatically with the help of the sensors.

#### Case1: Maintaining social distancing

We all know social distancing is one of the important measures to reduce the spread of virus. However, it would be irritating to turn around every thirty seconds and look someone is approaching you. So, we have designed an automatic warning system to warn the individual when someone approaches near to you.

#### Case2: Body temperature measurement

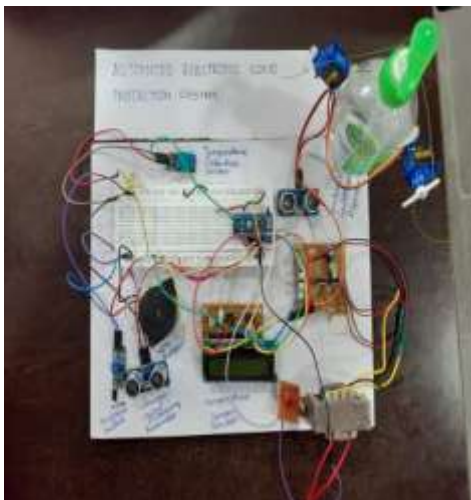
This system allows to monitor the temperature of people entering indoor places or public places. It scans the temperature of the person.

**Case 3: touch less switch** As the transmission of corona virus is high, to reduce the spread of virus we came up with an idea i.e touch less switch. It is designed to switch the devices without any physical contact. As there is physical contact to switch on the devices the spread may be high.

#### Case 4: Touchless sanitizer dispenser

The functioning of the touchless sanitizer dispenser seems to be very simple and effective as one simply needs to wave their hands near the ultrasonic sensor and instantly the sanitizer gets ejected from the bottle into the awaiting hands.

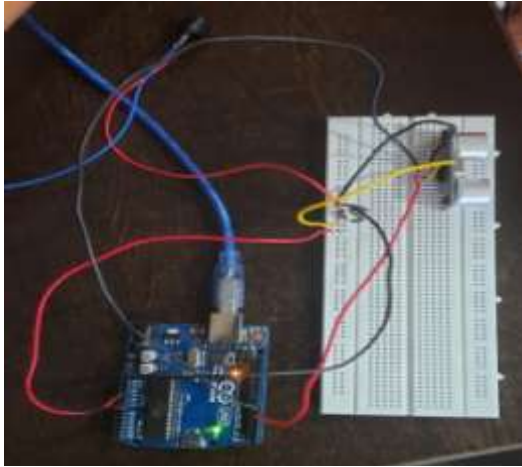
### III. PRACTICAL DESIGN OF THE PROJECT:



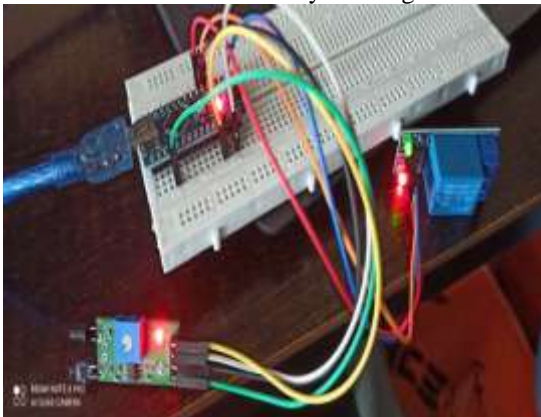
So, the arrangement of the project is done by interfacing the IR Sensor, temperature sensor and ultrasonic sensor with the Arduino microcontroller. In this project, the program for Arduino in Embedded C language has been executed in a Arduino NANO software and dumped into Arduino NANO. An Arduino NANO microcontroller is used to control an automatic electronic covid protection system. We have used different sensors to control those parameters. The main aim of this project is used to design is to use this design to reduce the transmission of infectious corona virus. This project helps all the individuals to protect from corona virus without touching the devices.

In order to overcome all the problem of touching all the devices we have designed the automatic electronic covid protection system so that we can handle the devices without touching them. The automated electronic covid protection system works with the help of the sensors and Arduino NANO software. Every individual case works with the help of their respective individual sensors. Everyone needs to be protected from the corona virus. With the high transmission of corona virus this design may help to reduce the spread of corona virus. It uses an ultrasonic sensor to calculate the distance between two individuals and warn the individuals regarding social distance, it will warn the individual regarding social distance. It uses ir sensor to detect the obstacle and to provide the switches works manually without the interference of physical touch. The temperature sensor is used to measure the temperature of the body. An ultrasonic sensor with the help of servo motors can be used as sanitizer dispenser, the sanitization will be done manually without touching physically. This helps the individuals to maintain social distance and handle devices without any physical contact in public places, work places etc., this may help to reduce the transmission of infectious virus.

### IV. EXPERIMENTATION DIAGRAM:



The HC-SR04 ultrasonic sensor uses to determine the distance of an object. It offers non-contact range detection with higher accuracy. It is directly connected to an Arduino or any microcontrollers. It will detect the individuals and warn the people when two individuals come closer. It is used to maintain the social distance by warning individuals



The IR sensor detects the infrared radiation or obstacles in its environment. It is used to switch the devices manually without any physical touch with the help of the relay. It detects the obstacles coming closer and make the switches operate manually.



The temperature sensor is used to measure the temperature of the body which is connected to the Arduino. It is used to display the temperature on

the LCD. When someone temperature is abnormal it can be detected by the above design.



The HC-SR04 ultrasonic sensor with the help of servo motors can be handled as automatic sanitizer dispenser. The hands should be waved near the ultrasonic sensor and the sanitizer instantly will get ejected into the hands.

## V. CONCLUSION:

People will forget maintaining social distancing eventually and handles things at public places. In order to alert people to maintain social distancing, in order to know body temperature of people around us in public places, in order to handle some things without touching them. We have designed this project to overcome the problem of forgetting nature of public and negligence in handling things directly in covid situation.

## VI. ADVANTAGES:

- Giving researchers time to study a new disease
- Slowing the spread of disease.
- Allowing people to avoid complete quarantine and isolation.
- Minimizing exposure to potential infections.
- We can avoid direct physical contact with things to handle them.

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