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# Automatic Door Control with Fever Screening and Touchless Sanitizer Preventing from COVID 19

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**Abstract -** *In the situation of this pandemic of COVID-19 (Corona Virus Disease), the main preventive measures for good health and hygiene by washing hands and sanitize their hands with alcohol sanitizers. The smart door thermal scanner with touchless sanitizer is a technique can be used when the pandemic period is on and gets over. Nowadays, in shopping malls, industries etc., The security guards check every individual person's temperature and pour sanitizers before entering into the building. When pandemic period gets over, it will be risk to check each and every individual person, especially in schools, colleges, industries etc., through this technique we can avoid such situations. The process begins with, the smart door will be at the entrance of the building. At first to sanitize their hands with touchless sanitizers, and starts to detect the presence of that person. The scanner is a laser thermometer, After scanning process is done, the temperature will be displayed on LCD, if any person is above the normal body temperature, the smart door will show display of red LED arose, the door gets locked to avoid that person from entering the building or if that person has a normal and low body temperature, green LED arose, so the door automatically opens for that person.*

***Key Words*: COVID-19, Pandemic, Public places, Touchless sanitizer, Laser Thermometer.**

## 1. INTRODUCTION

The concept of this project is to have automatic door control with height adjustable automatic thermometer with touchless sanitizer to prevent from COVID19. In this COVID 19, pandemic period, it is important to take preventive measures for good health and hygiene by washing hands frequently, sanitizing our hands by alcohol based sanitizers and social distancing to avoid the spreading of infectious agent in Places surrounded with many person. The smart door thermal scanner with touchless sanitizer is a technique that can be used when the pandemic period gets over. Nowadays, in shopping malls, industries etc., the security guards check every individual person's temperature and pour sanitizers before entering into the building. When pandemic period is on and gets over, it will be risk to check each and every individual person, especially in schools, colleges, industries etc., through this technique we can avoid such situations.

## 2. LITERATURE SURVEY

### 2.1 EXISTING SYSTEM

SI Kim [1] the paper title "Walk – through Screening Center for COVID-19: An accessible and Efficient Screening system in a pandemic situation" this project focuses on a safety method (Safe Assessment and Fast Evaluation Technical booth of the H Plus Yanji Hospital) system. This technique is a booth for one person to examine the negative result. The screening system should have well ventilized open space is required, this is the drawback for this technique. D. Bitar [2] through this paper "The travellers fever screening system in international airport to avoid disease spread: a literature review on the effectiveness and potential use of non- contact infrared thermometers" this project focuses on a Non-Contact Infrared Thermometer system. This technique is a fever screening center in airports for mass screening of passengers. Due to mass screening the normal temperature passengers were mistakenly identified as affected person, this is the drawback for this technique. MF Chiang [3] the paper title "Mass Screening of Suspected Febrile Patients with Remote-sensing Infrared Thermography: Alarm Temperature and Optimal Distance" this project focuses on a Digital Infrared fever checking system. This technique is a mass fever screening of patients who are entering into the hospital to identify those with fever. Due to sweat the patient fever screen were recorded as false negative, this the drawback of this technique.

### 2.2 PROPOSED SYSTEM

The smart door will be fixed at the entrance of the building, public places like park, school, colleges etc. The process begins by sanitize their hands with touchless sanitizers, then the PIR Sensor detects the human by their temperature and immediately the laser thermometer will start to fever screen, after the screening process the temperature will be displayed in LCD, if the person has high temperature the smart door produce with the display of red light in LED with beep sound from buzzer, then the door gets locked to avoid that person from entering the building or if that person has normal body temperature, there will be a green light in LED and the door automatically opens for that person to enter.

## 3. SYSTEM ARCHITECTURE

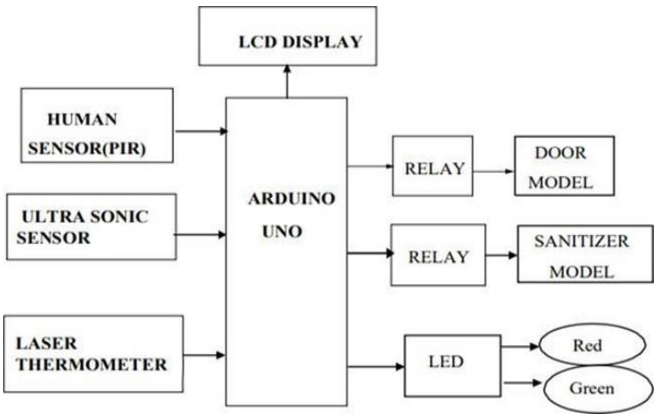


**Figure-1:** Block diagram of automatic door control with fever screening and touchless sanitizer preventing from COVID 19.

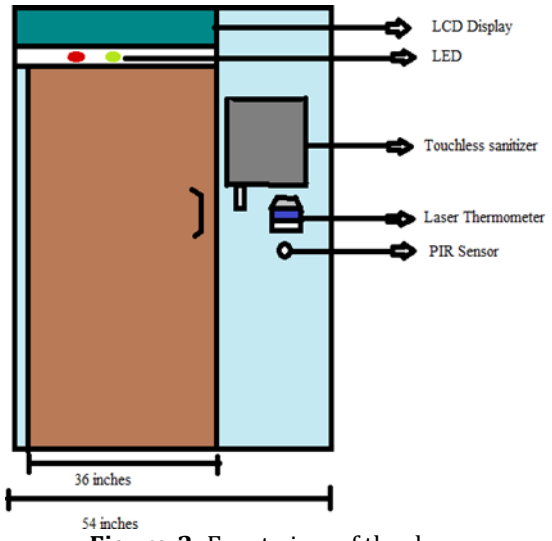


**Figure-2:** Front view of the door

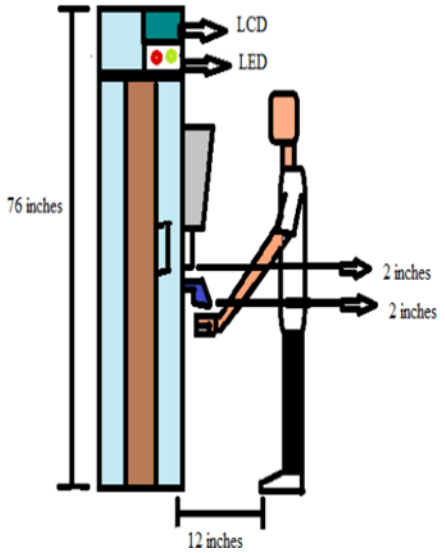


**Figure-3**: Side view of the door

## 4. METHODOLOGY

The method can be implemented in entrance of parks, industries, hospitals, school, colleges etc., all the process done automatically without any manual support. The process of this technique, here we use Arduino UNO microcontroller for this technique which consists of 14 Input and output pins.

### A) SENSORS

We use two types of sensors;
1) PIR sensor.
2) Ultrasonic Sensor.

### 1) PIR Sensor

The Passive Infrared Sensor is used for human detection by their body temperature based on their movement, it detect the hand with 2 inches. The range of PIR sensor, it sense upto 10m (30ft).

### 2) Ultrasonic Sensor

The Ultrasonic sensor is used to detect the hand with 2 inches and pour the sanitizer which is placed on touchless sanitizer. Its sensing range is commonly 1cm, upto 11 meters.

### B) LASER THERMOMETER

For fever screening we use infrared thermometer, it is also known as laser thermometer it is used to check the person's body temperature, without any manual support it check the temperature by the showing their hand infront of thermometer with 2 inches . It has a detection range upto 0.5 to 2.0 inches. The normal temperature is upto 98 F to 100 F.

### C) RELAYS

The process of relay is moving front and back, open and close. We use two relays, one
for the touchless sanitizer and other for door control.

### D) LCD

After the fever monitoring process is completed the temperature will be displayed on LCD, the temperature will be measured as Fahernheit and there will be a display of human is detected or not.

### E) LED

There will be two LEDs which will indicate whether the person allow to enter or not. The LEDs If Red arose with the beep sound from buzzer it shows that the person is sick, that is he is above the normal temperature (i.e above the 100 F), so the door will be remain closed for to not allow that person to enter. If the green LED arose then the person is not sick, he has normal temperature (i.e lower than 100 F), so the door opens automatically for that person to enter.

## 5. ADVANTAGES

- Every process is done without any Manual support.
- Each person who enters the building, the process begins with sanitize their hands with touchless sanitizer, after that it starts to fever screen and maintaining the social distancing.

## 6. CONCLUSION

This system will able to monitor the person's body temperature individual without any manual support it can used in all entrances of public places like schools, colleges, parks, industries etc., this smart door controller will avoid the sick people from entering into area and also reduces the risk of spreading of the disease.

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