



## Safety Regulations Checks At Entrance For Covid Safety

*Gavade Poonam Bhagawan<sup>a</sup>, V. V. Purohit<sup>b</sup>*

<sup>a</sup>UG Students, Electrical Engineering Dept.Ashokrao Mane Group of Institutes,Kolhapur, India.416112

<sup>b</sup>Assi. Prof., Electrical Engineering Dept.Ashokrao Mane Group of Institutes, Kolhapur, India,416112

### ABSTRACT

Human history is monitor a very eccentric time fighting an unseen enemy; the novel COVID-19 corona virus. Initially observed in the Wuhan province of China, now fastly spreading around the world. There has been strenuous conflict on how different countries feel for to the covid 19 Pandemic to secure public safety. In this paper to estimate the problems related to personal privacy and public health. We investigate the usage pattern of true data, De-identification data, and encrypted data. our specific aim is how to secure human health for this disease.

Keywords: Coronavirus, Pandemic, Covid-19, Free Articles, Articles About Coronavirus

### 1. Introduction

Today we all are facing problems due to covid 19. This system comes into use, this system allows only limited people into the room. The temperature of people is checked before entering into the room. First of all the system will check the body temperature of the person using the contact less IR temperature sensor. The sensor will be placed on the gate. Then the person has to place his finger on pulse oxi meter sensor for few seconds. The sensor will detect the blood oxygen level. Both the sensors will be interfaced with the arduino board. Then the system will check the number of persons already present in the room. The gate will be only open if all the criteria are fulfilled, i.e. body temperature is less than set point, pulse oxygen is greater than the set point and the person in the room are less than the criteria. If person temperature is more than set temperature the door won't open. Set maximum number of people allowed into room. After pressing set information is updated in system. COVID 19 has made a tremendous effect on the society, the new regulations has been appointed as in the number of users allowed in a particular room in offices, shops, etc. to maintain social distancing, along with social distancing regular temperature check at entrances of malls, shops and the office is mandatory. The system provides a complete solution to the new social distancing criteria set by government in order to fight against covid19 corona virus. In this project we simulate a room where such necessary precautions are taken, we make use of a IR sensors to detect the entrance of a person, when the system detect entrance it will check the body temperature of the person if the temperature is less than the set temperature the person is allowed entry otherwise the entry is denied. only a predetermined number of people are allowed in the room. The Permit temperature, the more than one people allowed in the room as well as the number of people assiduously present in the room can be set/looked out using the lcd. We also use here a pulseoximeter to detect the blood oxygen of the person. If its less than the mandatory limit then also the person is not allowed to enter. There will be also a sanitizer to disinfect the person before he/she enters the room.

### 2. Literature Survey and Related Works

This concept provides a low cost and simple solution. They are also time and labour consuming. we can use this system for entrance for mall, restaurant, colleges, industries, offices. To advise people of protocol for social distancing. Monitor conditions and immediately take steps to limit and

\* Corresponding author.

E-mail address: [poonamgavade9393@gmail.com](mailto:poonamgavade9393@gmail.com)

mitigate safety. This system protect health and safety of the faculty, staff, student and visitors. To design such a circuit we refers various projects related to the ARDUINO. components were to be decided to according to requirements. Initially there cause many problems while searching the project components we refers many journals and papers. The paper were on microcontroller as well as Arduino but finally we find Arduino would be suitable for our project concept. After this various case studies were done to get expected result. At every stage of observation web modified the structure and finally results were get Positive.

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### 3. Software to be used in the Present Study

1. Compiler Arduino IDE
2. Programming Language embedded C
3. Circuit designing/simulation Proteus ISIS
4. PCB Designing Proteus ARES

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### 4. Important Hardware Components

1. Controller ATMEGA328 (Arduino Uno)
2. Display LCD 16x2
3. IR Temperature Sensor MLX 90614
4. Pulse Oxi Meter MAX 30100
5. Motor 30RPM 12V DC geared motor
6. Sanitizer Pump 12V Water pump

#### 1. Controller ATMEGA328 (Arduino Uno)

The Arduino Uno is one kind of microcontroller board based on ATmega328, and Uno is an Italian term which means one. Arduino Uno is named for marking the upcoming let go of microcontroller board namely Arduino Uno Board 1.0. It consist of 14 digital input/output pins, a power jack, analog i/p-6, ceramic resonator-16 MHz, a USB connection, an RST button, and an ICSP header. All these can carry the microcontroller for further operation by connecting this board to the computer. The power supply of this board can be done with the help of an AC to DC adapter, a USB cable, otherwise a battery. The features of Arduino Uno ATmega328 includes the following. The operating voltage is 5V. The range of input voltage is 7V to 12 V. The input voltage ranges from 6V to 20V. Digital input/output pins are 14. Analog i/p pins are 6. 40mA is DC current for each input/output pin. 50mA is the DC Current for 3.3V Pin. Flash Memory is 32 KB. SRAM is 2 KB. EEPROM is 1 KB. CLK Speed is 16 MHz.

#### 2. Display LCD

16x2 LCD modules are appropriate regularly used in countless embedded projects, the cause being its inexpensive cost, availability and programmer friendly. Most of us would have come opposite these displays in our day to day life, either at PCO's or calculators. The impression and the pinouts have already been visualized above now let us get a bit technical. 16x2 LCD is named so because; it has 16 Columns and 2 rows.

#### 3. IR Temperature Sensor MLX 90614

The MLX 90614 is a contactless infrared digital temperature sensor that can be take to measure the temperature of a particular object ranging from -70 degree selceus to 382.2 degree selceus. The key feature of MLX90614 is that it is a contactless IR temperature sensor with most accuracy. So it can be used in industries to scale the temperature of movable objects like a rotating motor shaft. Due to its more accurate and precision, it is also used in a wide range of commercial, health care, and household applications like room temperature monitoring, body temperature measurement, etc.

#### 4. Pulse Oxi Meter MAX 30100

Generally 75 and 100 millimeters of mercury (mm Hg) is the range of blood oxygen level. The pulse oximeter generally shows the reading between 95 and 100 percent. If the blood level of oxygen saturation on the device is less than 90 per cent, then it is considered harmful. As shortness of breath is considered a key symptom of coronavirus infection, people are using a pulse oximeter to check the level of oxygen in their blood.

#### 5. Motor 30RPM 12V DC GEARED MOTOR

the motor is apply in the area of highability (as represented by the shaded area) far off life and good doing can be looked for. However, using the motor outside this range will result in more temperature rises and fading of motor parts. If voltage in carry on with applied to a motor in a locked rotor condition, the motor will heat up and fail in a relatively small time. Therefore it is for most that there is some form of security in opposition to high temperature rises.

## 6. Sanitizer Pump 12V WATER PUMP

It has Amphibious design and Submersible installation and entirely waterproof it consist of low consumption and the main feature is it has low noise less than 35db

## 5. Structure

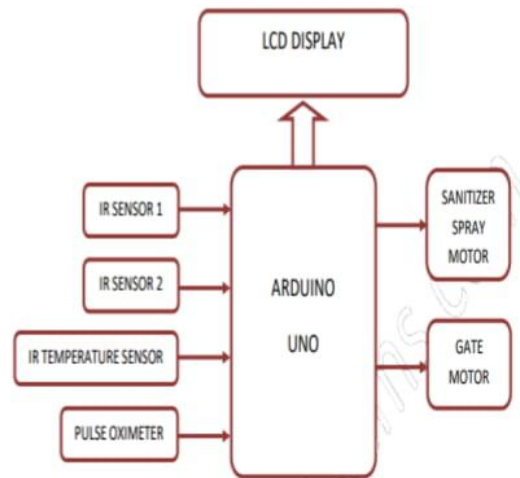


Fig 1. Structure

This is system Architecture of safety regulations checks at entrance for covid safety. The system provides a complete solution the new social distancing criterias set by government to in order to fight against covid19 corona virus. There will be 2 ir sensors placed near the gate. One sensor will be inside the gate and other will be outside the gate. These sensors will detect the person coming near the gate. First of all the system will check the body temperature of the person using the contactless IR temperature sensor. The sensor will be placed on the gate. Then the person has to place his finger on the pulse oxi meter sensor for few seconds. The sensor will detect the blood oxygen level. Both the sensors will be interfaced with the Arduino board. Then the system will check the number of persons already present in the room. The gate will only open if all the criteria are fulfilled, i.e. body temperature is less than set point, pulse oxygen level is greater than the set point and the persons in the room are less than the criteria. If the gate opens the person can enter the room. As he passes through the second IR sensor the visitor count will be incremented automatically. There will be a water pump which will spray the sanitizer. It will be interfaced to the Arduino using a relay. Similarly the gate motor will be interfaced with the Arduino using a motor drive IC.

## 6. Proteus Simulation

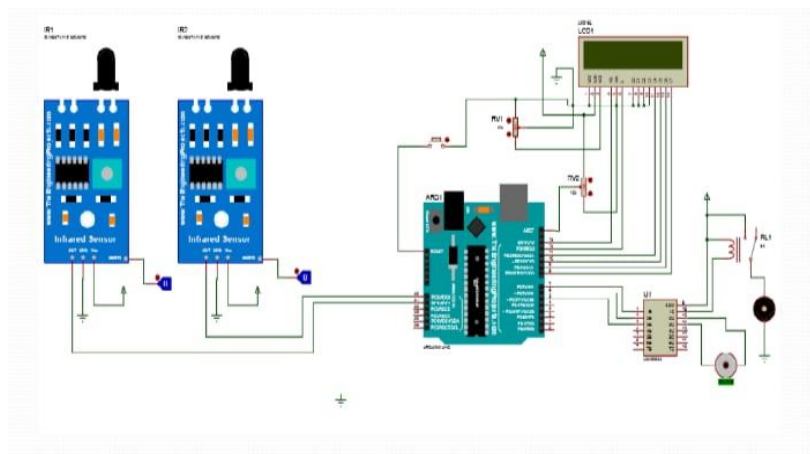


Fig 2 6. Proteus Simulation

We can use mega Arduino in our project. We can also use uno Arduino because only difference in between uno and mega, in mega pins are extra. A0 and A1 are the IR sensors. In the left side we can see here A0 to A5 is the analog input pins. In the right sides pin no 8 to pin no 13 are the lcd connections. D0, D5, D6 are the data lines of the LCDs We can see here RS is a resistor selected and E is a enable these are the control lines of LCDs. In this simulation two control lines and four data lines are connected to Arduino pins 8,9,10,11,12 and 13. We can see here U1 is relay driver IC. It's used for increasing the rate of current. REF is a voltage source connect Vcc is +5V. Output of IC we connected relay and the output of relay we connected to the motor. And this motor is a sanitizer motor. sanitizer motor is used for conditions on and off. But gate motor is revolved in both direction in forward direction motor is ON, and reversed direction motor is Off.

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## REFERENCES

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- [1] Corona virus Update (Live) [online]. Available on: <https://www.worldometers.info/coronavirus/>, last accessed: 11/07/2020
- [2] P. Zhai et al., "The epidemiology, diagnosis and treatment of COVID-19", *International Journal of Antimicrobial Agents* vol. 55 issue May 2020 105955, pp. 1-13, 2020. <https://doi.org/10.1016/j.ijantimicag.2020.105955>
- [3] P. Dawson et al., "Loss of Taste and Smell as Distinguishing Symptoms of COVID-19", *Clinical Infectious Diseases* June 2020, pp. 1-4, 2020. <https://doi.org/10.1093/cid/ciaa799>
- [4] L. Morawska, "How can airborne transmission of COVID-19 indoors be minimised?", *Environment International* vol. 142, September 2020, 105832, pp. 17, 2020. <https://doi.org/10.1016/j.envint.2020.105832>
- [5] T. Galbada, B. Peterson, R. Gunasekera, "Does COVID-19 Spread Through Droplets Alone?", *Frontiers in Public Health*, vol. 8, April 2020, pp. 1-4, 2020. <https://doi.org/10.3389/fpubh.2020.00163>