Automated Door and Body Temperature Detect System for COVID Patients

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Abstract: *In view of current situation the COVID-19 is found all over the world.COVID-19 is a viral disease that is spread all over the world which has caused huge loss of the populations around the world. The virus mainly targets the respiratory organs like lungs. The spreading of this virus occurs when a healthy person comes in contact with air or surface which contains the droplets of infected persons sneeze, cough or breathe through hands. As a precautionary measure it is essential that we sanitize our hands regularly to protect ourselves from being affected by the virus. It is necessary to predict the symptoms of these viral diseases to know who is infected so as to not allow them at the public places. Hence usage of automatic hand sanitizing dispenser and temperature reading systems can prevent the spreading of viral disease. One of the initial symptoms is high body temperature; it is difficult to check temperature of each person who enters the public place. In the process of checking the temperature there may be a chance of being in contact with the person who has symptoms of this virus, hence an automatic body temperature system is presented to check the temperature of entering person at the entrance and then allow the person into the entering place if his temperature is within threshold limit. The person whose temperature is not within the threshold limit is not allowed to enter the public place. In this system an attempt is made to develop a prototype for Automatic Temperature Detect System to avoid spreading of COVID-19.*

Keywords: ARDUINO UNO, PIR Sensor, LCD Display, Servo Motor and Buzzer

I. INTRODUCTION

At present entire world is being cautious of covid-19.in order to prevent its spreading most of the people and the government has been striving hard to design a system and protocols so as to take care of them from spreading the virus. Wuhan was the first place in china with a widespread outbreak in January 2019.the death cases increased sue to virus and there was no treatment or vaccine for preventing the virus. Other countries shut their borders, banned travel to other countries and began to issue orders to its citizens to stay under lockdown which went for some months in some countries which had more spread. The lockdown and pandemic is a huge loss to everyone and the employment rate drastically reduced causing many to lose their jobs. In this situation it is necessary for us to take precautions to keep us safe and avoid infection spread further. At public places like malls, offices and hospitals security guard has to check the temperature of the individual entering that place. In our system we build an automatic temperature sensing system which senses temperature and allows the person based on the threshold limit from entering that place. In this model there is no dependency on human to measure the temperature on a daily basis. The aim of our project is to make use of an infrared temperature measurement solution which senses the temperature of any incoming person at the entrances and allow only that person whose temperature is in threshold limit to avoid spreading of virus. The sensors used in our project are of low cost and are easily available.

II. SYSTEM ARCHITECTURE AND METHODOLOGY
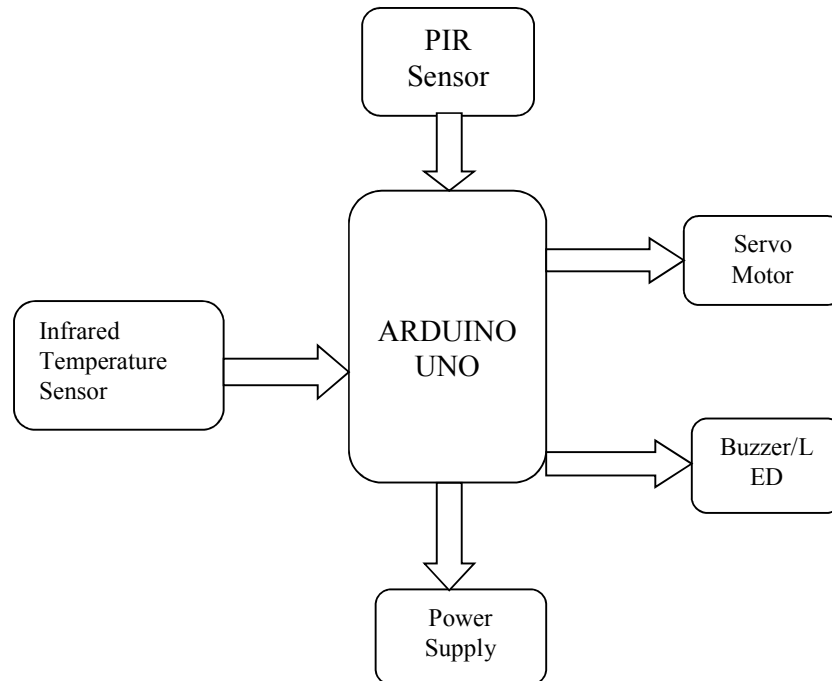
2.1 Block Diagram

Figure 1: Block Diagram of Proposed system

2.2 Methodology

1. The proposed work is about the design of ARDUINO based automation system using PIR sensor, IR temperature sensor and servo motor.
2. When the person approaches the door, the PIR sensor detects the presence of person and sends the signal to IR temperature sensor to read the temperature of a person and sends a signal to the ARDUINO which in turn controls the servo motor to automatically open the door.
3. In normal conditions the door is closed, otherwise the door is open if it detects the person at entrance.
4. Only one person is detected and checked and sent inside at once through the door by the sensors.
5. If the temperature of the person at the entrance of gate is not within the threshold limit of temperature then the door is closed and the person is not allowed to enter inside.

III. RESULTS AND DISCUSSIONS

The output of the system is it reads the temperature of the intruder and displays the reading on LCD display. The LCD also displays the message whether the intruder is allowed inside the entrance or no on comparing the body temperature of intruder with threshold limit of temperature

Figure 2: Implementation of Proposed Model
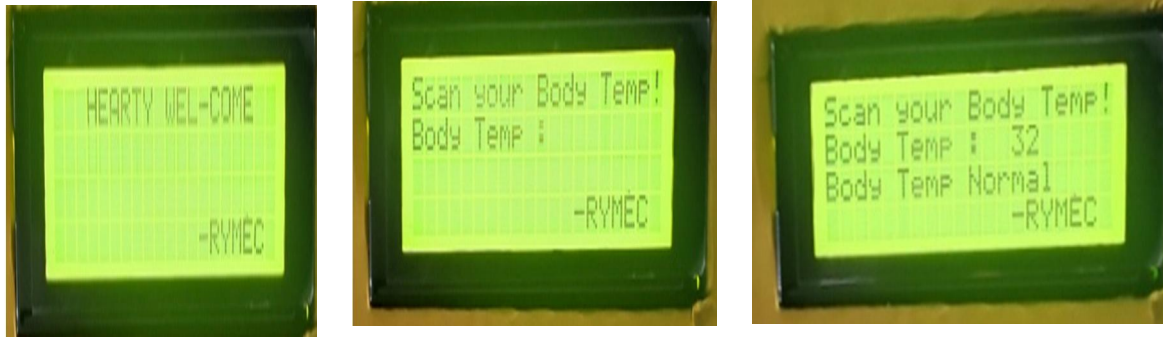

Figure 3: Project Model

Figure 4: LCD Display Readings

IV. ADVANTAGES

1. The testing of the person with low or high temperature is easy using this model.
2. There will be no contact between the person and the temperature measuring sensor.
3. The person need not open the door by being in contact with the door

V. APPLICATIONS

1. These systems are used in many public places like malls, theatres and hospitals
2. This model also helps us to study about other systems which can be useful for addition of new features to our project

VI. CONCLUSION

The development of smart gate based on temperature detection could help reduce the risk of spreading the virus. It also helps in societal impact. It is cost proficient and simple to use for fever screening, using infrared temperature sensor. The implementation of system is appropriate for establishment in fixed position.

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