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Automatic Detection of Temperature and Level of Oxygen

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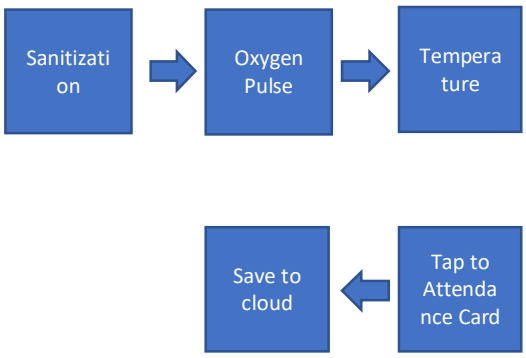
Abstract: The design depicted shows the preventive measure that can be taken during the COVID-19 pandemic in the whole world. Sanitizers have become the most important things right now. By the new rules given by WHO, sanitization is needed to survive. The design gave the preventive solution for the problem stated. The design introduces automatic hand sanitizer and temperature sensing system and detects oxygen level of person. The temperature sensor on touch gives the body temperature of the person. All the data of person, such as oxy level and temperature get recorded and displayed on the screen.

I. INTRODUCTION

Since December 2019 the world is under tremendous terror of CORONA, the number of patients are increasing day by day, and till date no vaccine has been provided effective against the pandemic medium. Yes it is COVID-19, it was unknown to the race before it out broke in Wuhan, china. Being from a large family, a continuous mutation is occurring, forbidding the researchers, microbiologist and pharmaceuticals to draw the line to conclusion of vaccine.

Affecting the most prestigious countries in a chain ; China , Italy ,Spain , USA , India ,the virus has proved it's power and compliant a technologically amplified race. The plans taken worldwide has shown its affect to some area but could not get rid of it. Lockdown made all nation's economically weak, and testing of various medicines are not showing any acceptable effects . The question now stands is Life vs. Subsistence. The weaker people's by economically and mentally are facing the problems due to hard lockdown across the nations. Seeing the picture of India, one of the most promising countries in technology, the laborers are rushing for a little piece of grain. The hungry and poor faces speaks the pain. Industries and factories are in losses, poor workers are losing their medium of living, economical situation of the nation has taken a back step, but it should be realized that a regular monitoring of body temperature and periodical hand sanitization can prevent the spread of the pandemic.

II. BLOCK DIAGRAM



III. WORKING OF BLOCK DIAGRAM

As we switch on the device, the sensors get activated as they are attached to the Arduino. We have 2 systems working simultaneously to each other. First is automatic sanitizer and secondly is contacted temperature sensing. The RFID sensor and PIR sensor are connected to the Arduino to detect human/object ranging and motion respectively. PIR sensor has a range around 3cm to 5cm and any detection in specify range will active the sanitizer and it sanitizes the around area with activation of spray pump 1 accompanied with blower so that the sanitizer reaches the surrounding. The RFID sensor at the other side has been specified with a range less than 30cm,any movement specially hand near to (<30cm) the device will activate spray pump 2 and the sanitizer reaches the hand through the small pipe. The sanitization done simultaneously with the activation of sensors, keeping the particular region sanitize and free from any virus, bacteria or infectious agent. The temperature senses the body temperature as soon as it is came in range or touched, and displays the temperature in F on led display(as it is programmed to convert C into F). If the sensed temperature is above the normal body temperature(98.6F) the buzzer starts alarming and the

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RGB led turns red and if the sensed value of sensor is same or below 98.6F then the buzzer still of and the RGB led turns green, depicting a symbol of safe and safety. The collected information get saved and also get uploaded in the cloud.

A. Arduino UNO 3:

Arduino UNO is a open source micro controller based on computing platform, used for easy and simple programming and synchronizing or different analog and digital sensors. Arduino UNO has 14 digital input/output pins and 8 bit micro controller.

B. RFID Sensor :

(Radio frequency identification) is the wireless communication technology working on radio frequency or radio waves used for automatically identifying the objects. The function of the RFID in this project to allow to enter the authorized person in the area like office, school etc. By holding the card in front of RFID in the specific range, RFID will scan the card and it will check that the person is authorized or not.

C. Infrared Thermometer Sensor :

Infrared thermometer sensor sometimes called laser thermometer. As a laser is used to help aim the thermometer, or non contact thermometer or temperature guns by knowing amount of infrared energy emitted by object. It measures the temperature from a distance. The thermometer has thermopile, which absorbs the energy and convert in output signal. The thermometer senses the body temperature in range of 2 to 5cm.

D. PIR Sensor:

Passive infrared sensor used to sense the motion and. It senses specially human motion. The sensor is made from pyroelectric sensor and it detects infrared signals. It works in type of sensing the radiation from body. PIR sensor senses the body motion and when it senses the hand under, it gives command to Arduino and sanitizer comes from the tank on hand.

E. Oximeter Sensor:

This sensor states the important factor in our project. The oximeter sensor is used to measure the oxygen level in our body. The normal range of oxygen in the human body is 95 to 99. If the range is below, then the it is dangerous to the health. It means the person needs more oxygen in body. You just have to put your finger on sensor for nearly 5 seconds.

F. Submersible Spray Pump:

The pump is used to spray the sanitizer on hands after sensors give required signal. The spray pump requires small motors to spray. When the Arduino gives command, pumps sprays the sanitizer.

G. Piezo Buzzer:

The piezo buzzer makes a sound when it is synchronized with other sensors. Buzzer produce sound in particular purpose. When the body temperature is above 98.6F then the buzzer starts alarming for the alert instruction.

H. LCD 16×2

The liquid crystal display (LCD) is used to display the information. In the display there are 16 columns and 2 rows. The LCD shows the oxygen levels and body temperature level after getting. First, oxygen level shows separately and next body temperature shows separately. And in the last the both values shows at the same time.

IV. RESULTS

This project is can be used in the medical, commercial, industrial appliances etc. In the school, office, hospital, this project can be installed at the entrance. First spray of sanitizer, next reading of oxygen level and next senses the body temperature. Imitating the circuit at different case we can see the function of two motors as there is a change of rpm in the motors when changing the sensor values . Checking for the led and buzzer while sensing temperature we can see that the led changes its color and there is a radiating signal/tone in the buzzer.

V. CONCLUSION

According to the testing and checking and discussion, we can conclude that the project can work perfectly. The sensors can work correctly. The PIR sensor range has 3cm to 5cm and the RFID sensor has range of 30cm. So we can conclude that the all sensors and the project can work perfectly in this worst pandemic situation against the COVID-19.

VI. FUTURE SCOPE

A. By Using this project it can simplify the day to day life in this pandemic time.
B. By use of this machine we can access the multiple sensors at the time.

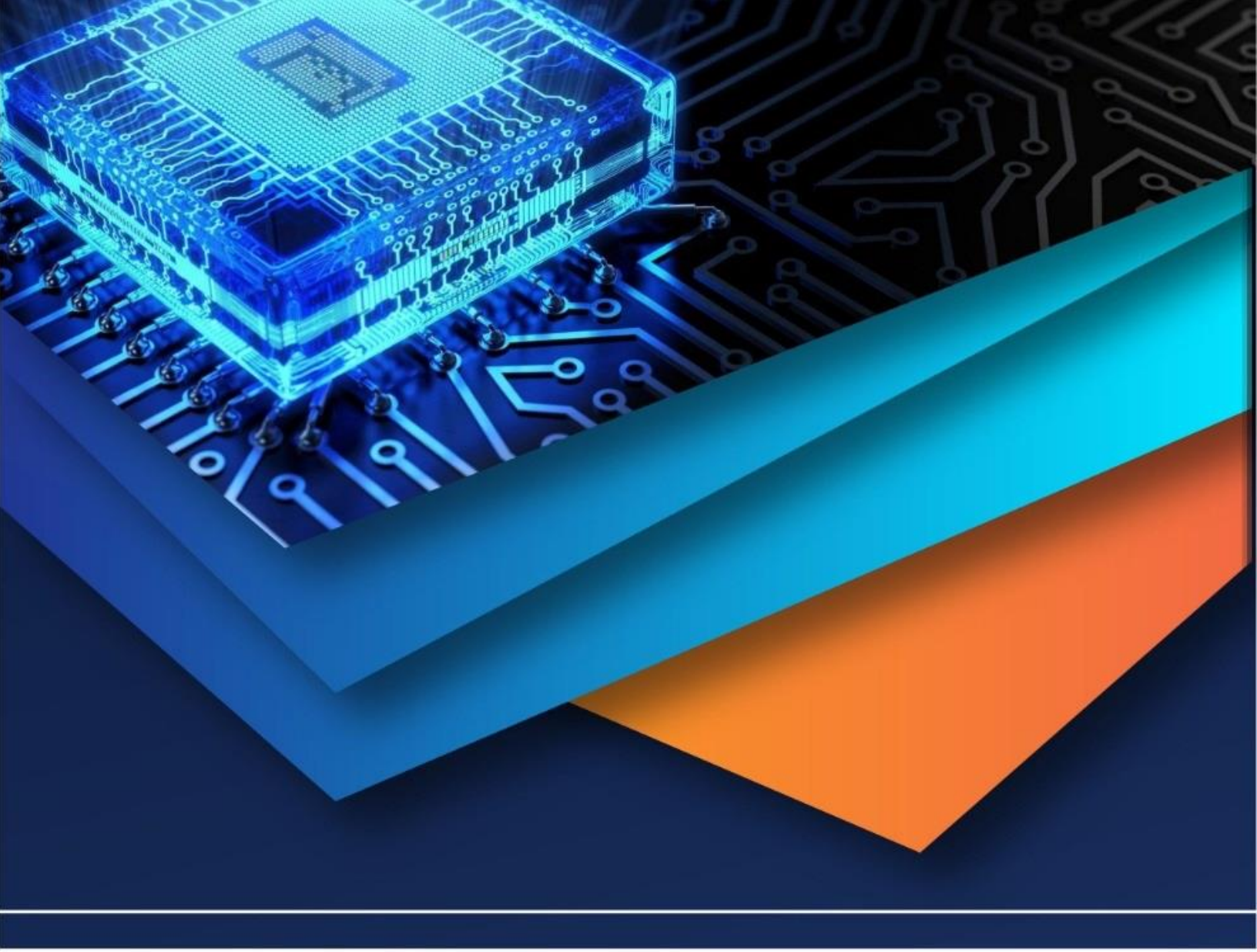
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C. It is easy that anybody can use this machine for safety purposes.
D. It can be installed anywhere like offices, educational institutes, public transports, regular shops.
E. This machine be like sanitizer spray, Oximeter, thermometer all applications in one project.
F. It will make our pandemic days easier to understand our health is well or not

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