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AUTOMATIC TEMPERATURE, OXYGEN AND PULSE DETECTION SYSTEM AT ENTRANCE FOR COVID SAFETY

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Abstract: IoT-based healthcare monitoring gadgets might be quite valuable for COVID-19 patients during the present outbreak. The goal of this research is to create an IoT-based solutions for automatic health monitoring that integrates the patient's detected body temperature, heart rate, and oxygen saturation, that are the most significant critical care indications. An OLED display in this system displays the current temperature, heart rate, and oxygen saturation level. Using a Node MCU-based system , Human test subjects were used to validate the suggested IoT-based strategy. The system's results were promising: the information it gathered was stored quite quickly.

The device's results were proved to be accurate in compared to other commonly produced devices. IoT-based gadgets may be immensely valuable in saving lives during the COVID-19 epidemic.

As a result, we chose this project. This IoT-based solution allows for automatic remote parameter monitoring. The technology is secure and simple to use.These devices can swiftly monitor and show temperature, pulse, and oxygen saturation, allowing a large number of people to be individually assessed at the point of entrance. Pulse oximeters with non-contact temperature measurement sensors may help to limit the danger of COVID-19 infection spreading.

INTRODUCTION

The project's goal is to measure temperature, oxygen, and pulse at the entrance to ensure Covid-19 safety around he world.The propagation of the Covid Virus is rapidly increasing. People have developed major health problems as a result of this.There is a dire need for a proper system to detect COVID symptoms and Alert Officials. The proposed solution is an IoT

COVID symptoms are detected and officials are notified using a multi-health monitoring system. It is made up of a contactless temperature sensor and an oxygen metre. It's a technique for assessing patients. Devices can connect to the internet and communicate with one another thanks to the Internet of Things. The data from these IoT-connected devices will aid in identifying the situation and taking the appropriate actions. Temperature, oxygen level, and heart rate are all measured using contactless temperature sensors, oximeters, and heartbeat rate sensors, respectively. NodeMCU reads sensor readings and saves them for later use. The data is measured by the sensors. The typical temperature range is 97°F to 99°F, and the normal SpO2 level is at least 85%.

I. Literature Survey

[1] The initial survey is based on the person's thermal imaging, which can detect the person's elevated temperature and prevent them from entering the institution or offices. They paired an AI-enabled IR camera sensor with an Arduino uno to make this procedure completely automated without the need for human participation.

[2] The system is separated into three elements in the second survey: hardware, firmware, and software. The most often used forehead temperature sensor, the MLX90614, is used as the basis for measurement in this system. It can detect temperatures ranging from -40 to +125 degrees Fahrenheit.

[3] The third survey focuses on the accurate monitoring of a person's oxygen levels.
blood, collecting and transmitting data via wireless communication to a personal cloud storage via IoT.

Literature Summery

In the initial survey, the procedure is based on thermal imaging of the individual, which may identify their increased temperature and keep them out of the building or workplaces. They used an IR camera sensor with AI capabilities and an Arduino Uno to totally automate this operation without any assistance from humans.

In a second study Both the forehead temperature and the proper card number may be determined using this approach. The Android mobile app has also completed the query function, which may ease the burden on the nursing staff and accomplish the function of data and people control, in addition to the failsafe function. The management interface may also contain an extra degree of authority management functionality as the number of individuals grows. For instance, in classrooms,

To more effectively control pupils' body temperatures, the job of the tutor can be replaced. With this method, it is believed that both the workload of medical personnel and the likelihood of employing contact measuring equipment would be significantly reduced.In the third survey, they concentration the efficient monitoring of a person's blood oxygen levels while collecting and delivering the data via wireless communication to a private cloud storage system via IOT.

I. Methodology

1.To capture real-time data, the temperaturee sensor and pulse oximeter are connected to the NODE MCU.

2.The data is sent from the Node MCU to theOLED display and the motor driver.

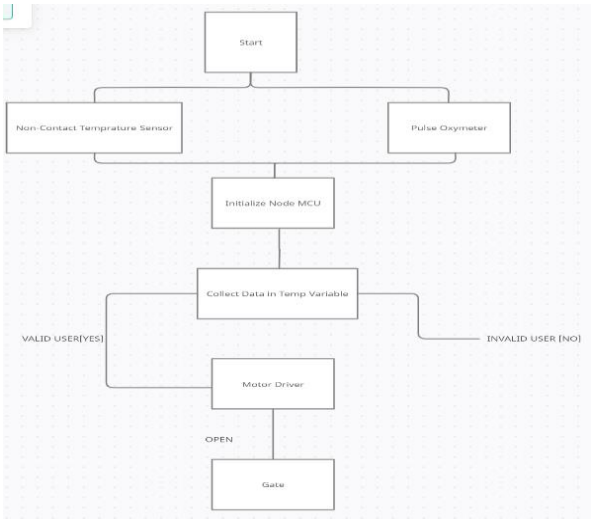
3.Node MCU receives the output of the non-contact temperature sensor and the pulse oximeter.

4.The temperature variable compares the output of a non-contact temperature sensor and a pulse oximeter to a predetermined threshold.

5.If the user's temperature is between 30 and 37 degrees Celsius, and his or her pulse rate is above 60, and his or her oxygen level is over 80, the user will be authenticated to enter the room at the same time the gate opens and closes, and this command will be displayed on the OLED display.

6.If a person's temperature is not between 30 and 37 degrees Celsius, and their pulse rate and oxygen level are not within the prescribed range, the user will not be allowed to enter the room, and their access will be denied.

II. Flow Chart



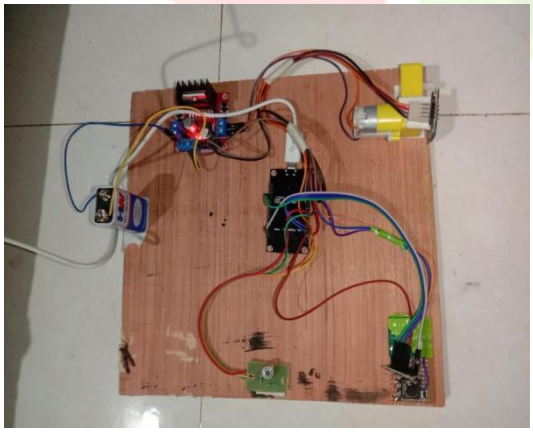
III. Proposed Method

This is a microcontroller-based health monitoring system which specifically measures Body Temperature, Heart Rate with Oxygen Saturation (SpO2) of a patient

In this corona virus pandemic situation health monitoring of a patient becomes very risky and difficult to achieve. So, this system helps to monitor a patient remotely

IV. Hardware Design

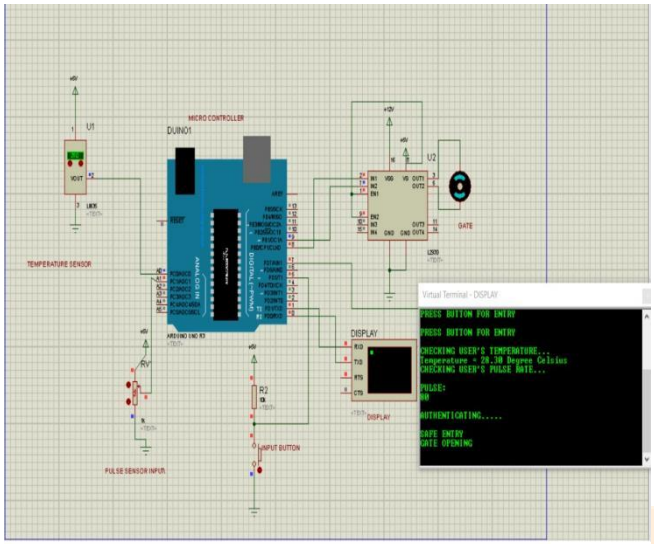
Mainly Automatic Temperature, Oxygen And Pulse detection system consist of
1.Node MCU ESP 8266,
2.Non contact Temperature sensor (MLX90614 3.ESF),
4.Pulse Oximeter (MAX30100),
5.OLED Display (0.96" I2C),
6.Motor driver (L298 2A).



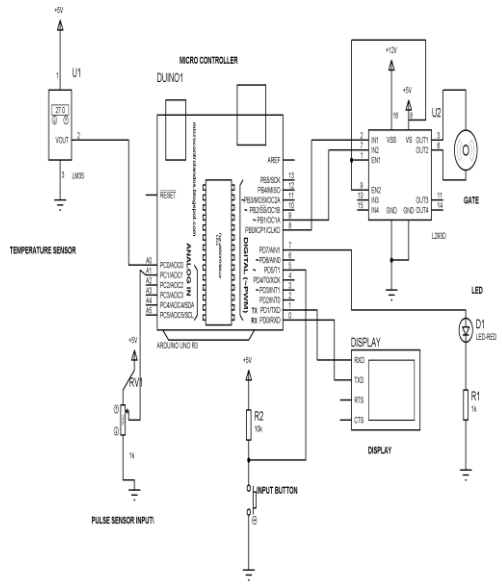
V. Software Design

Arduino IDE

The Arduino development environment is connected to the Arduino board by connecting it to a computer through USB (IDE). In the IDE, the user creates the Arduino code, which is then uploaded to the microcontroller where it is executed and interacts with inputs and outputs like sensors, motors, and lights.



VI. Circuit Diagram



VII. Result and Discussion

For covid safety and to acknowledge the user about their health, an automatic temperature, oxygen, and pulse detection system is installed at the entry.
The Node MCU is the decision maker; it will check the conditions of each sensor and provide data to the motor driver based on those conditions.
The output is displayed to the user after the system has checked the condition.

VIII. Conclusion

This Iot based automatic screening system was developed and tested to track the peoplesbody condition in real time. This paper has described the design and implementation of our IoT-based screening system. A device combined

This system includes sensors, nodes, motors, and other components. The temperature must be below 37°C, the oxygen level must be over 80, and the pulse rate must be between 60 and 100 beats per minute. When authentication is successful, the user is authorised to enter the room, and the gate open instruction is displayed on the OLED display. When authentication fails, the user is not allowed to enter the room, and the gate close instruction is displayed on the OLED display.

IX. Referances

[1] Y. Guan, B. J. Zheng, Y. Q. He, Z. X. Zhuang, X. L. Liu, S. W. Luo, et al., "Isolation and characterization of viruses related to the sars coronavirus from animals in southern China", Science, vol. 302, no. 5643, pp. 276-278.

[2] 2020, [online] Available: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/q-a-coronaviruses.

[3] W. M. S. bin W. Ibrahim, S. H. binti M. Ashi, N. H. binti Othman and S.F. binti M. Zukri, Factors Leading to Malaysia Ageing Population, 2017