Wireless Temperature Read Out System in an Industry to Prevent Outbreak of COVID Cases

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Abstract. The 2019 Corona Virus Disease (COVID-19), announced as an epidemic by the World Health Organization (WHO in March 2020, is a significant problem in 175 countries worldwide. This disease is very easily transmitted by near interaction and through droplets in the air formed when people sneeze or cough. Established in Wuhan, it has expanded quickly to several other nations. The recent pandemic corona virus surprised the world's medical systems. Although tests are underway on possible vaccines, it would take a long time before they can be used publicly. The government has made most of its efforts to prevent the spread of the corona virus and predict likely hot zones. First & foremost, the body temperature is the measure performed to assess this epidemic. In this article, we have outlined the implementation of a read-out Wireless Temperature system capable of noting the worker's body temperature of the worker & updating the information on the organization portal's online repository. The study characterizes the appropriate use of scrapping methods for network security, model prediction, implementation of the mobile application platform and cloud storage.

Keywords: Covid-19, WHO, Hot zones, Temperature, Safety.

1. Introduction
New Corona virus Disease Contagion 2019 (covid-19) an urgent hazard to public health has been created, disrupting everyday life. Despite shutdown aimed at disease prevention & delay by the government & global safety responses, the spread has crippled many nations with a vital care problem. Soon, more countries will follow. Epidemics the requirement for hospital beds & beds has risen dramatically. Although medical professionals have higher amounts of Odds of being sick, there is a lack of surgical supplies.

Future planning plays a significant role in mitigating the healthcare system's burden and improving the delivery of health care choices, accurate diagnosis and evidence gathering on the disease's prognosis. Models of forecasting the future, combining multiple variables or functions to the number of people impacted by the pandemic could provide the necessary figures and perspectives. It would also assist decision-makers in producing for the forthcoming conditions using optimum strategy. These models will improve medical professionals' planned expectations to distribute health aids quickly.
In the present circumstances of COVID-19, flexible prediction plays a key role in cases, where cases shift quickly regularly depending on Government limits, test behavior, infection rate, etc. The paper’s dedication is as follows. This article deals with developing a read-out device for wireless temperature in an industry that avoids the occurrence of covid incidents. To help people in the sector from losses due to lack of manpower. Figure 1 shows the structure of corona virus.

Figure 1. Corona Virus Vision Structure

This paper presents an acquisition concept in the following sections: Literature Review followed by Section 3 Proposed system, Section 4 Hardware & Software tools, Section 5 Results & Discussions and Finally Section 6 Conclusions.

2. Literature Review
At [1], R. A model was proposed by Sujath et al. that could be useful in forecasting the proliferation of COVID-19. They have got on the COVID-19 Kaggle results, regression analysis, multilayer perceptron & vector autoregressive method were performed to predict the epidemiological example of the COVID-19 illness & speed in India. Based on available datasets obtained from Kaggle with data models on reported, mortality & recovered case throughout India for the duration, they predicted the possible trends of COVID-19 impact in India.

At [2], S. The new analysis was explored by Lalmuanawma et al., applying ML & AI technologies to improve the Numerous researchers. It also fixes a few mistakes & confronts actual issues by using those algorithms. [3] A.’s editorial article depicting Alimadadi et al. AI & ML Strategies Applicable to the COVID-19 battle.

In [4], N.S. Pun Suggesting the use of computer learning & deep learning Models built to grasp its regular exponential essence. Activity & the prediction through the application of real-time data from the Johns Hopkins database for the future wellness of the COVID-19 across nations. Realtime data query is conducted and visualized on the website.

[5] Also, it visualizes the portal. Predictive modelling for Susceptible-Exposed-Infectious Recovered (SEIR), requested data is used. Usage of SEIR by writers Modeling to predict the outbreak of COVID-19 within & outside of based on ordinary observations, China. Authors have also stated to have the analysis of the requested news & grading of the reports through negative to grasp the power of the news & optimistic feelings, Registered Authorized Use Restricted to Middlesex University. Downloaded at 09:22:17 UTC from IEEE Xplore on October 18, 2020. Restraints apply. People’s acts, both publicly & socially. M. In [6] Mandal et al. A computational model was proposed to study the contagion of COVID-19 both technically & numerically the model has been validated by short-term projection in 3 states of India. Yes. Mathematical ideas were suggested by V. Suchodolski et al. in

[7] Template, i.e., in contrast with the phase transformation model to describe the exponential mechanism, in the autoregressive distributed lag (ADL) model. The Alamode requires nonmonotonic shifts to be represented in relative terms. Over time, illness.
[8] & [9] are two records by the WHO represented at an early stage and quite a degree, covid-19 pandemic circumstances and sophisticated process, alike. Timeline of the covid-19 pandemic is shown in fig. 2.

![Timeline of the COVID-19 Pandemic](image)

**Figure 2.** Timeline of the COVID-19 Pandemic

### 3. Proposed System

![Block diagram of the Proposed System](image)

**Figure 3.** Block diagram of the Proposed System

Figure 3 shows the block diagram of the proposed system consists of a controller that controls the project's overall modules. Modules constitute of IR thermometer, RFID tags, RFID reader and some virtual supports. Using the RFID module, we can segregate the employee one by one. For each employee, the IR thermometer senses the body temperature and communicates the controller's obtained temperature value [15]. Hence, from the controller, they obtained value is fed to the cloud server from
where every member of the organization can come up with the worker's health status on a day-to-day basis and their attendance.

4. Hardware & Software Tools Used

4.1. Controller
A microcontroller is a compact device on an integrated circuit chip that is a single metal-oxide-semiconductor. It is equivalent to but less complex than a device on a chip in modern usage; an SoC can have one of the modules a microcontroller. Figure 4 shows the microcontroller.

![Figure 4. Microcontroller](image)

Here, it is used to control or monitor the overall operation of the user. To begin with monitoring, the body temperature also updates the recorded temperature in the concerned organization's web portal.

4.2. IR Thermometer
By detecting the infrared energy that a substance or entity with heat above utter zero (0 ° K) radiates, that is how an infrared thermometer calculates the temperature. A lens will concentrate the infrared radiation on a sensor in the simplest configuration, transforming this energy into an electrical pulse in return. The infrared thermometer is shown in figure 5.

![Figure 5. Infrared Thermometer](image)

This IR thermometer module is placed inside a cabin in which a user enters to check the body temperature. After each checkup, the value will be updated to the common portal of an organization using IoT to come across the status of the health details of their employees easily.

4.3. RFID tags
An RFID reader is still turned on & is usually activated by an external power source. The tag senses the users signal via a coil found in it that transforms the obtained RF signal into an electrical signal when an RFID tag arrives near the RFID tag.
Here, it is mainly used to classify the user to update each one's status in the portal accordingly. Using this method, we can also come to know their presence and absence in the company. RFID Scan method is shown in figure 6.

4.4. Cube IDE
STM32CubeIDE is an integrated C/C++ programming tool for STM32 microprocessors & microprocessors with peripheral setup, code creation, code compilation, and debug functionality.

5. Results and Discussions
The main detector chip has been successfully manufactured & deployed. Figure 7 displays the main sensor chip's picture. As seen below, prototype detached wireless thermometers built on the main sensor chip were produced on a white mica substrate. Hardware implementation of the proposed system shown in figure 7.

As shown in figure 8, the IR thermometer's noted temperature is wirelessly transmitted to the common server for a particular organization using an IoT platform. Here, even we can add a column for the attendance of each employee.
Figure 8. IoT portal displaying various virtual temperature screen

6. Conclusion
This article suggests a passive wireless temperature detector based on the ADC conversion method. The wireless sensors are paired with the main chip & off-chip temperature of the sensor. The sensor interface on the main chip of the sensor was designed to connect the off-chip sensors. The Wireless Temperature Sensor can be regulated in a sub passive mode and passive mode. Electric power control and the clock gating system were implemented to reduce the electricity demand. The experimental results demonstrated that wireless devices' temperature could be measured using the Passively Sensing Sensor on-chip. The sensor's successful & detailed response is -15.1/-11.2dBm in a passive state to apply on-chip reading & sensing.

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