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# Intelligent Pulse Oximeter for Covid Patients

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**ABSTRACT:** Nowadays the world is globally suffered from <sup>2</sup>corona (COVID-19). Until the date no proper and effective vaccines are found which gives us proper relaxation from COVID-19. This project represents a prototype experiment regarding the practical implementation of an affordable, wireless and online monitoring pulse oximetry device, for a Covid-19 infected patient who are quarantined at home. Pulse oximeter is the non-invasive device that can collect data of SPO2 and Heart Rate. By using a microcontroller based IOT (Internet of Things) embedded platform and a free online API(Application Programming Interface)live data stream server, the doctor can remotely monitor the patient's pulse and blood oxygen level, by using a mobile phone, a tablet or a computer, without any contamination risk or contact, with the infected patient. If the pulse oxygen level of the covid patient is continuously monitored by using SPO2 sensor through online webpage. If the blood oxygen level of the patient is abnormal means sends online notification to doctor/nurse with the help of Wi-Fi device.

**KEYWORDS:**COVID-19, SPO2 sensor, Node MCU microcontroller.

## I. INTRODUCTION

In the starting of the coronavirus malady (COVID-19) pandemic have highlighted a haul whereby patients area unit presenting for analysis with clinically vital hypoxemia within the absence of dyspnea. On the side remarked as “silent hypoxemia”. This development poses vital risks to patients, because it might delay presentation to a degree that their viral-mediated respiratory organ injury is way advanced, increasing the chance of complications like unrecognized general organ disfunction, severe per cannulation hypoxemia, or a systole. One resolution that has been planned for avoiding this downside has patients diagnosed with COVID-19 UN agency are not sick enough to warrant hospital admission may be discharged from the emergency department or clinician's workplace to watch pulse oximetry reception on a daily basis. If the chemical element saturation falls below a mere threshold, they'd then gift for analysis or decision their medical supplier for steerage. Though the benefit of use, comparatively low price of the many finger oximeters, and ubiquitousness of sensible phones makes this a gorgeous possibility for observation patients and distinctive issues at an early stage, the area unit vital concerns with these devices regarding the patients and suppliers might not bear in mind that have the potential to have an effect on triple-crown implementation of such observation programs. The aim of this review is to think about these problems in larger detail. When reviewing the categories of accessible devices and their principles of operation, we tend to discuss the most tools for assessing the accuracy of observation devices and examine the of cheap pulse oximeters and sensible phone-based systems. There will be some potential pitfalls with pulse oximetry observation that would have an effect on accuracy and implementation of a computer program and conclude by providing sensible steerage for patients and medical suppliers UN agency plan to use these devices for home observation.

## II. RELATED WORK

[1].Gandhi RT, Lynch JB, Del Rio C. gentle or moderate Covid-19. N Engl J Master of Education [online previous print] twenty four Apr 2020; DOI: ten.1056/ NEJMcp2009249.

[2]. Hodgson CL, Tuxen DV, Holland AE, Keating JL. Comparison of forehead Max-Fast pulse oximetry device with finger device at high positive end-expiratory pressure in adult patients with acute metabolism distress syndrome. Anaesth medical care 2019;37: 953–960.

[3]. Schallom L, Sona C, McSweeney M, Mazuski J. Comparison of forehead and digit oximetry in surgical/trauma patients in danger for faded peripheral insertion. Heart respiratory organ 2017;36:188–194.

### III. METHODOLOGY

In this projected system, a little oximetry device is connected to the patient's finger whereas the embedded system makes reads of the O saturation and pulse. Thus, the PPG (photoplethysmogram) signal captured by the device is internally born-again into digital signals, that is any born-again into tag numerical values and send to Wi-Fi device. These values area unit then transmitted to an internet information server that streams and collects the received information, by exploitation the API service and identification key. The blood oxygen level of the patient information visualizes, through associate degree account channel, with the elaborated keep information, so as to observe the patient's health. If the patient blood oxygen level is abnormal means that send on-line notification to doctor/nurse with the assistance of Wi-Fi device. the most advantage of this technique is that doesn't interact in any physical contact with the patient which will presumably be infected. Moreover,if the patient's health standing is remotely observation.

### IV. EXPERIMENTAL RESULTS

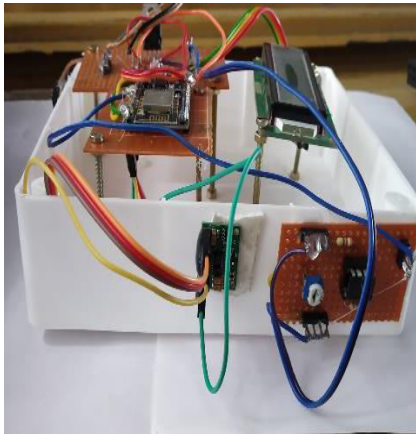


FIGURE 7: EXPERIMENTAL SETUP

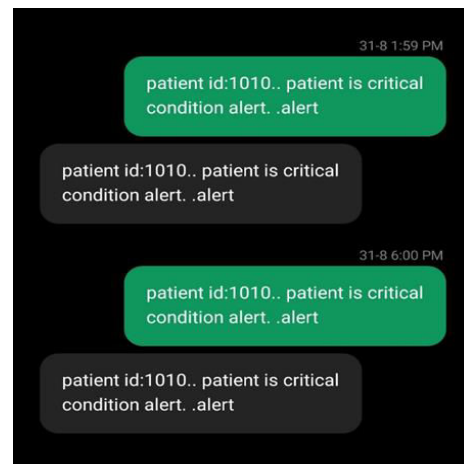


FIGURE 8: EXPERIMENTAL RESULT

### V. CONCLUSION

An emergency system for home monitoring of patients with COVID-19 was developed in the current study. The proposed system allowed us to quickly respond to early abnormalities in these patients. This system may contribute to conserving hospital resources for those most in need while simultaneously enabling early recognition of patients under acute deterioration requiring urgent assessment.

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