

A Review Paper on Doctorless Intelligent Covid Center

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Abstract - This study describes a minimal, easy-to-install Contactless Patient Health Monitoring system that may be used in hospital wards. It employs Touchless technology to prevent infection spread by avoiding direct touch with the patient. This technique is particularly successful in preventing the transmission of covid-19, which is transferred when people come into touch with a sick person. The sensor control and data transfer are handled by a microcontroller in the system. The patient data is stored in LabVIEW on the server. Various applications, such as paramedical robots that serve meals and medicines, are used to eliminate personal connection between health care providers and patients.

Key Words: - Contactless Patient Health Monitoring, Touchless Technology, Covid-19, Microcontroller, Database, LabVIEW, Paramedical robot

1. INTRODUCTION

We Humans live in the twenty-first century, and the healthcare industry, including hospitals, plays a vital part in human existence. It has always been at the forefront of information acceptance and usage for effective healthcare administration and treatment. For communication purposes, hospitals have begun to use electronic gadgets. Control systems in hospitals, on the other hand, include automated inventory and control systems.

Our project's goal is to keep physical contact with covid patients to a minimum. This system is simple to use. The patient's information, such as body temperature and oxygen level, is collected and sent to an approved doctor using a simple and cost-effective approach. The government of India continues to strive to provide medical services via developing hospitals. The fundamentals of how diverse systems function. In comparison to hospitals in European countries, where computers have been installed to aid medical personnel in their job, the basic running of numerous hospitals in India is still done on paper. The goal of the initiative is to computerize hospital operations. The software meets all of the needs of a typical hospital and is capable of storing information on patients who visit the facility simply and efficiently.

2. Literature Review

2.1. Automated Robotic System for Assistance of Isolated Patients of Coronavirus (COVID-19) Iram Haider, Khan Bahadar Khan, Arshad Saeed, Kashif Nisar, Muhammad Arslan Haider 2020.

The article focuses on an evaluation of software and hardware options that might help coronavirus sufferers. This research proposes a robot to assist personnel in dealing with patients in quarantine who are maintained in less severe settings while preserving social distance. The planned robotic assistant would provide patients and hospital workers with an LCD screen that will display the patient's medical data as well as an iconized list of drugs that doctors may order from the pharmaceutical quarter for the patient. If the first request is approved, drugs will be automatically sent to the patient. On request, robotic services will be available to serve food from the kitchen to the patients on time. The proposed robotic cart will be extremely useful in controlling viral illnesses that transfer from one person to another.

2.2. Monitoring Health Care System using Internet of Things Veena Tripathi, Faizan Shakeel 2017

They used an Apple-I watch series 2 with OS 3.2.0 for their case study. It has detailed all of the characteristics and sensors that are used to measure health indicators such as heart rate, calories burned, and distance traveled, among others. The health care scheme focuses on measuring and monitoring different biological parameters of the patient's body such as heart rate, oxygen saturation level in the blood, and temperature using a web server and an Android application where the doctor can continually monitor the patient's condition on his smartphone using an Android application, the patient history will be recorded on the webserver, and the doctor may access the information anytime required from anywhere without having to physically visit the patient.

2.3. The Concept of the Home health monitoring Mitsuhiro Ogawa, Tatsuo Togawa 2003

They have provided an overview of the strategies established for home health monitoring in this article.

- 1) Sleep monitoring: - For example, the authors and Japan's Warfare Comfortable House Co. Ltd created a commercial ECG monitor in bed for use with laboratory equipment. b) Photoplethysmography (PPG) is measured from the buttocks and recorded while bathing with a probe affixed to the bathtub's bottom surface.
- 2) In the bathtub, keep an eye on things: - As an example, Ishijima, Noritz Corp., Japan, and Osaka Gas Co., LtCi, Japan developed and marketed a heart rate monitor for bathing that may be used in regular homes.
- 3) Using a toilet to keep an eye on things: - For example, a precise load cell system installed in the toilet seat is used to capture body weight data.
- 4) Monitoring of daily behaviour: - For example, infrared sensors (human detectors) are used to track human presence and movement in each room.

2.4. A wearable, low-power, health-monitoring instrumentation based on a Programmable System-on-Chip™ Bertrand Massot, Claudine Gehin, Ronald Nocua, Andre Dittmar, and Eric McAdams 2009

In this research, we will look upon A health monitoring system that has been described in-depth, and it is now used in a variety of contexts, including at home for prevention and in hospitals for continuous assessment. It has become an urgent requirement for patients to receive higher-quality treatment, as well as for society to achieve more efficient and cost-effective healthcare delivery. PSoC is a favored technique for limiting the number of components since each component must be chosen according to these criteria. It can do all of the processes from signal conditioning to structured data transfer, including analog to digital conversion and data processing, all inside a single part component.

2.5. The Automatic Health Monitoring System for Home Health Care Masayuki Nambu, Kazuki Nakajima, Atsushi Kawarada, Toshiyo Tamura 2002

It was examined and discussed in this article how an automated health monitoring system for home health care was built and implemented. This system had data gathering equipment and communication devices that automatically collected data. The electrocardiogram (ECG) in bed, the ECG in the bathtub, and the body and urinary weight in the restroom were all automatically monitored and uploaded to a computer for analysis.

2.6. Review and Evaluation of Heart Rate Monitoring Based Vital Signs, A case Study: Covid-19 Pandemic Abdoullah Bella; Rachid Latif; Amine Saddik; Laila Jamad 2020 6th IEEE Conference on Information Science and Technology (CiSt)

In hospital practice, vital indicators such as temperature, respiration rate, and heart rate must be monitored. As vital signs monitoring is required regularly, remote monitoring devices, methods, and services are emerging. Breathing patterns and frequency may be monitored using a variety of devices. However, due to the intrusiveness of most of the sensors used, the respiration rate remains the least monitored vital sign in many cases. This is not true with Covid-19, which attacks the respiratory system directly. We offer state-of-the-art on several applications that monitor temperature, heart rate, and restorative rate, as well as an assessment of an algorithm that extracts the heart rate from an RGB camera in this work.

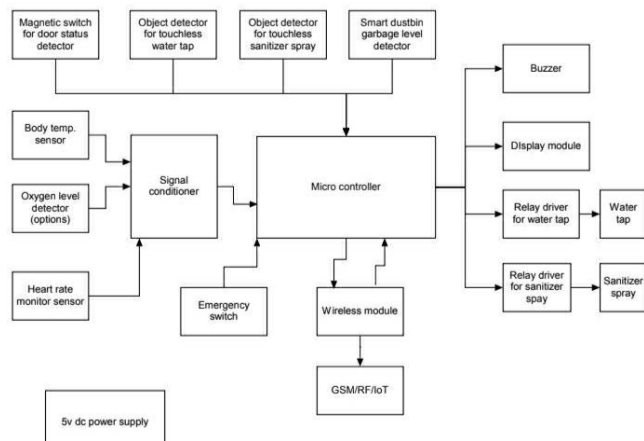
2.7. Cost-effective, Disposable, Flexible and Printable MWCNT based Wearable Sensor for Human Body Temperature Monitoring K Thiyagarajan; G.K. Rajini; Debashis Maji IEEE Sensors Journal

In today's world, personalized mobile healthcare combined with a variety of wearable gadgets has become a hot topic. A flexible, wearable, and disposable paper-based continuous skin temperature monitoring sensor for early medical prognosis and precise detection of body temperature-related diseases, such as COVID-19, is suggested in the current research. The suggested sensor was made utilizing traditional screen-printing and drop-casting procedures with MWCNTs as the sensing material and paper as the substrate. The constructed temperature sensor was also tested as a temperature-based tactile sensor for robotics/artificial skin applications, as well as a noncontact breath monitoring device for use in tailored healthcare monitoring applications.

3. Proposed System

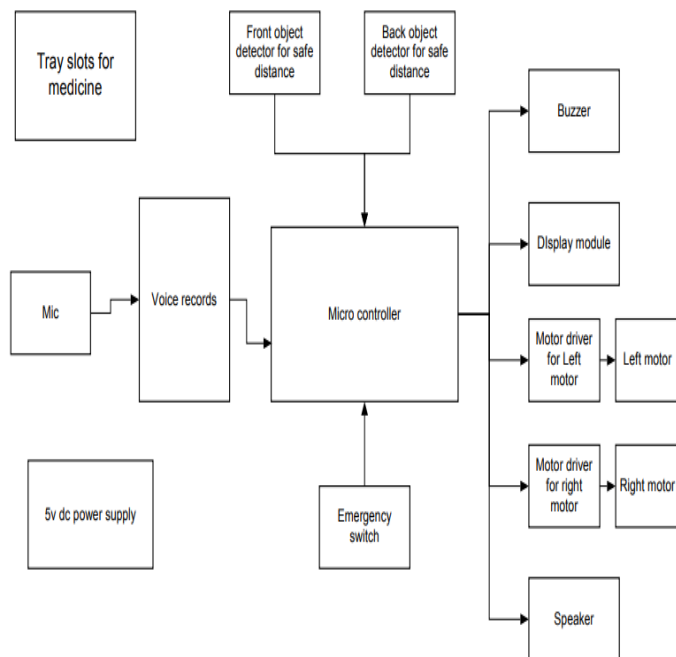
3.1. Smart Covid ward:

This system primarily collects and transmits patient information such as body temperature, heart rate, and oxygen level to an approved doctor, as well as displaying it on an LCD screen and sending messages. When a person's temperature rises or falls below a certain threshold, an urgent alert is sent to the doctor through the cloud. This implies that a doctor can only be summoned in an emergency. We've seen that physicians are at high danger while treating a covid patient, therefore we're putting in place a system that applies to everyone who works in a hospital.



People are preferring for touchless technology as the prevalence of covid has risen, therefore we have integrated this technology in our project. Based on this technology, we will retain a touchless hand sanitizer for the patient, doctor, and staff, as well as a touchless drinking tap that will be controlled by IR sensors. We're building a Smart Dustbin garbage level detector, and we'll require an ultrasonic sensor for it. The waste collector in the hospital will be informed of the current rubbish level. In our project, we use the 8051 as the primary controller. We are familiar with this microcontroller because we have done several projects with it.

3.2. Robot as Paramedical Staff



The most crucial thing for a patient, as we all know, is to receive adequate food and medicine on time. The robot will deliver it to the patients, and voice records, such as when to take your medicine or eat, will be installed. A robot's

operation is controlled by a motor driver that may travel in any direction within the medical ward. The nurse in charge of the hospital ward will be in charge of the entire system. This system may be deployed in any ward, and nurses will be able to continually monitor the patients and give them the essential items. Our invention allows for the treatment of covid patients while maintaining a safe distance from them.

4. CONCLUSION

Our project's main goal is to use embedded technology to minimize the number of covid 19 cases among countries. The software we implemented meets all of the needs of a typical hospital and is capable of storing patient health data simply and efficiently. It's a cutting-edge solution that can meet a patient's needs as a nurse while also being cost-effective. It may be used to keep track of patients' information in hospitals, clinics, dispensaries, and pathology labs.

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