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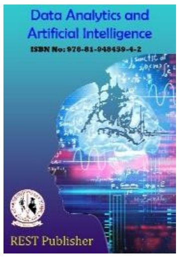

Design and Implement a health care monitoring and management system using IoT

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Abstract: *a result, an IoT- based patient monitoring system can efficiently monitor patients' health and save lives. A Microcontroller supported Wi-Fi enabled IOT controller was used to read and interpret sensory data. In today's environment, the use of mobile phones and smart devices has expanded dramatically. The primary goal of this project is to design and construct a "IoT-based Integrated Health Monitoring System" that will track key patient characteristics such as body temperature, breathing rate, heart rate, and glucose level.*

Keywords: *Microcontroller, Temperature sensor, Respiratory sensor, Heart beat sensor, Level sensor, Solenoid valve , RFID Reader and IOT.*

1. INTRODUCTION

Using IOT technology, all data will be displayed on an LCD and transferred to a cloud server. The most crucial thing is to keep track of the patient's health because it has such terrible consequences. The patient's health parameters are not automatically monitored in the present system. This might result in major issues. There is also no advanced technology for directly transferring the monitored data to the physicians for their reference. Since their introduction, these gadgets have improved people's lives, created safer and more engaged communities, and changed healthcare. Change is swift in today's advanced technology-enabled society, and the status quo is continuously disturbed. The Microcontroller is programmed with an intelligent programme developed in the Embedded C language to carry out this operation. The suggested module's major goal is to create an automated real-time wellness monitoring system .One compact electronics unit will be used in the process, which will include a Micro Controller, temperature sensor, respiration sensor, heartbeat sensor, level sensor, solenoid valve, RFID reader, and IOT. Using health care sensors, this system continuously monitors the patients' cardiac, respiration, and temperature levels. Every object becomes addressable, accessible, and actionable thanks to the Internet of Things. These are all the issues that the current system has. If the patient is in a life threatening situation, he or she will not be able to call the doctor right away. A wireless sensor network (WBAN) can be used for a variety of purposes, including area monitoring, industrial monitoring, and, most critically, health monitoring (Wireless Body Area Network). The RFID reader was used to read the patient's information from the RFID tag. In these monitoring systems, arithmetic circuits do the major role . The embedded technology in IOT items allows them to exchange information with each other or with the Internet, and it is estimated that between 8 and 50 billion gadgets will be connected by 2020. The level sensor controls the solenoid valve of the glucose container. The microcontroller analyzes all of the sensor data and sends it to the IoT portal.

2. HARDWARE REQUIREMENTS

ESP32: ESP32 is technically just the chip, modules and development boards that contain this chip are often also referred to as “ESP32” by the manufacturer. ESP32 is the name of the chip that was developed by Espressif Systems. This provides Wi-Fi (and in some models) dual-mode Bluetooth connectivity to embedded devices.
Pulse oximetry: This provides Wi-Fi (and in some models) dual-mode Bluetooth connectivity to embedded devices. While ESP32 is technically just the ch Pulse oximetry is a test used to measure the oxygen level (oxygen saturation) of the blood. ESP32 is the name of the chip that was developed by Espressif Systems. It is an easy, painless measure of how well oxygen is being sent to parts of your body furthest from your heart, such as the arms and legs.ip, modules and development boards that contain this chip are often also referred to as “ESP32” by the manufacturer.
Heart beat sensor: The AD8232 is an integrated signal conditioning block for ECG and other biopotential measurement applications. For most of these devices to work as designed, the band must be wet, or you need to use a conductive gel where the sensors touch your skin.ence of noisy conditions, such as those created by motion or remote electrode placement. They detect electrical activity through a band that wraps around your chest. It is designed to extract, amplify, and filter small biopotential signals in the presThese devices use electrical detection to track your heart rate.
Temperature LM-35: The LM35 is one kind of commonly used temperature sensor that can be used to measure temperature with an electrical o/p comparative to the temperature (in °C). It can measure temperature more correctly compare with a thermistor.
ECG heart rate AD 8232: It is designed to extract, amplify, and filter small biopotential signals in the presence of noisy conditions, such as those created by motion or remote electrode placement. The AD8232 is an integrated signal conditioning block for ECG and other biopotential measurement applications.
To Check the oxygen mask: monitor client frequency to check placement of the mask. Secure physician's order to replace mask with nasal cannula during meal time.

3. WORKING OF CHARGING CIRCUIT

In charging circuit, when output from the solar panel is 12 volts and the output from the wind source is 12v, the battery charges using the solar and wind power. When the output of solar panel drops below 12 volts, the battery charges through the wind power supply. This changeover is done through the 12 volts SPDT (single pole double throw) relay. In bright sunlight solar panel gives a steady output of 12 volts. and the fast wind to wind source gives steady output of 12 volts. Since its non-inverting input gets a higher voltage at this time, the output of the comparator turns high and the same is indicated by glowing green. then the Transistor conducts and the relay energizes. Thus the battery gets charging current from the solar panel through the normally-open (N/O) and common contacts of relay. A glowing green LED indicates charging of the battery from the solar panel. A capacitor is provided for clean switching of transistor. When output from the solar panel drops below 12 volts, output of the comparator turns low and the relay deenergizes. Now the battery gets charging current from the transformer-based power supply through the normally closed (N/C) and common contacts of the relay. This power supply comprises step-down transformer, two rectifying diodes, and smoothing capacitor.

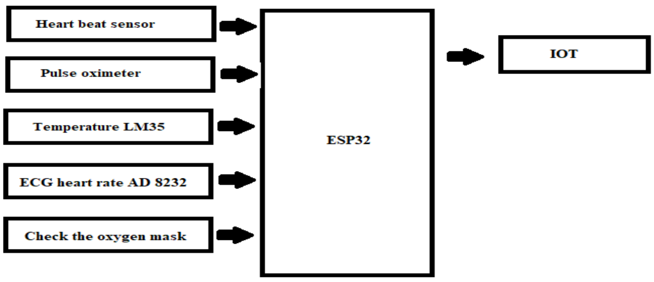

Figure 1. Block diagram

4. CONCLUSION

The system is less expensive and produces consisitent results when compared to other systems that are beneficial to society. These systems provide a handy solution for creating a smart wellness health monitoring systems through the usage of the internet of things. It is primarily applied on a large scale in order to achieve better outcomes and problem free solutions in the future.

Innovation: The patient's health parameters are not automatically monitored in the current systems. The most crucial thing is to keep track of the patient's health because it has such terrible consequences. These are all the issues that the current system has many new technologies software and sensor is used/ there is also no advanced technology for directly transferring the monitored data to the doctors for their reference. This could result in major issues. If the patent is in a life- Threatening situation, he or she will not be able to contact the doctor right away.

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