IOT BASED COVID-19 HEALTH CARE MONITOR SYSTEM

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ABSTRACT

This Research Papert describes a wireless system that allows for real-time monitoring of several patients' health. Patient data, such as heart rate, must be regularly monitored in health care facilities. The suggested system keeps track of the patient's heart rate and other vital signs. A Heart Beat Sensor, for example, measures heart rate. A transmitting module is connected, which uses a Bluetooth module to continually send the encoded serial data. A receiver device is installed in the doctor's or nurse's mobile phone, which receives and decodes the data and presents it on a user interface that may be seen on a PC, laptop, or mobile phone. As a result, the doctor can keep track on several patients at the same time. The system also continually monitors the patient's data, and if any possible abnormalities in the patient's health are detected, the system's alarm system sends out an audio-visual warning signal that the patient in that room need immediate treatment. If the doctor is not in his chamber, the system's GSM modem sends a message to all of the doctors in the unit, indicating the room number of the patient who need immediate attention

Keyword : - *Introduction. Literature Survey, Block diagram, Sensor*

I. INTRODUCTION

Using the existing healthcare system, medical personnel can do real-time monitoring, early detection, and treatment for potential health issues. Medical monitoring systems, sometimes known as telemedicine, are rapidly expanding as wireless communication technology advances. Remote health monitoring systems, both commercial and research prototypes, have made great progress recently. These advancements rely on wired/wireless communication networks for patient consultations and medical testing. Modern healthcare is being used to improve physician efficiency, reduce hospital costs, reduce the skill level and frequency of home-care professional visits, reduce hospital readmission rates, and increase health education at all levels.

II. LITERATURE SURVEY

This study outlines the overall concept for a system that uses three smart sensors to detect a person's corresponding three parameters (patients), as well as a mobile phone interface to notify clinicians. The smart sensors detect the biological signal of the topic of study (in this case, a patient) and send it to the mother processor, an Arduino Uno, for processing. It then connects to a wireless GSM network and alerts the appropriate doctors using the mobile phone's application software and Message application protocol. This idea is to save energy by using a mobile phone battery and to assist low-income people in reaching out to skilled physicians who are out of reach. whose research is meticulously performed There was no external source that generated the warning. Using a low-cost wireless system to continuously monitor the subject's pathogenic parameters and referring to it as a basic biomedical-care system. At home/in the ICU, the system keeps a close eye on the pathological parameters of the test subject/patients. A detection circuit and a mobile display unit are located in the intelligent system's reception section. Using various application sensors, the detector circuit detects the subject's health state at the source. By using a text-based application on their mobile phones, a doctor or concerned individual can use the mobile display device to see the health state. The mobile phone standard that has been used in this study is wireless communication.

III. METHODOLOGY

Body vitals (Pulse Temperature Humidity) are crucial in determining a patient's well-being and aid in the monitoring and recording of therapy responses. While visiting a high number of patients on a tight schedule to gather vitals information might be difficult and time consuming, the accuracy and time lag, as well as instrument calibration, increase the risk of false positives. To overcome this problem, we suggest a digitally calibrated and real-time vital monitoring device that can collect data in real time and send it to clinicians for study. It also raises an alarm if vitals need to be treated right away. The information obtained through measurement can be used for data analysis and to improve the efficiency of health-tracking records. The device's purpose is to make health-care delivery more efficient and effective.

IV. BLOCK DIAGRAM

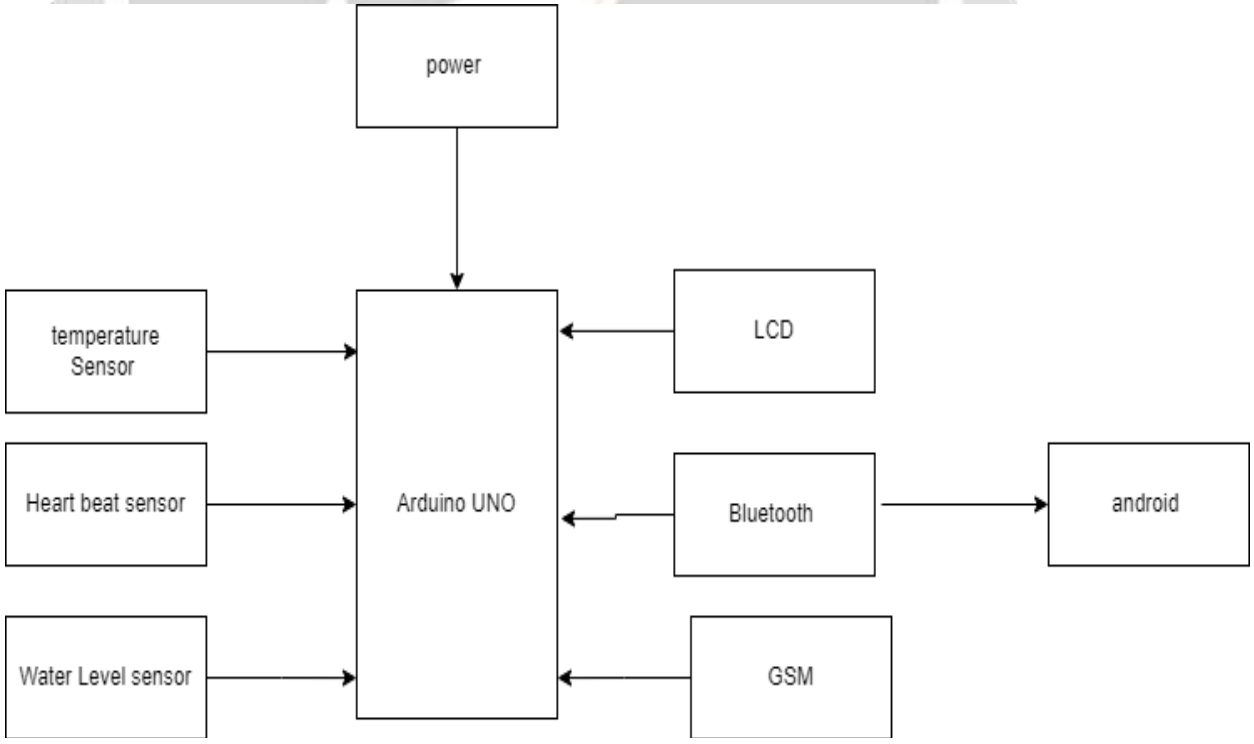


Fig .1-.block diagram of smart health monitoring system

We will monitor the health of patients using various sensors such as temperature sensors, heart rate sensors, and water level sensors, and we will display the continuous readings of these sensors on an LCD display as well as develop an Android application to access these readings so that the doctor can monitor the patient in the hospital even if he is at a distance, or in other words, the doctor can monitor the patient remotely. Here, the temperature sensor can detect the accurate temperature of the human body, and the water level sensor can detect the correct water level of saline and injection water level check, and the heart beat sensor will give heart beat ratings, reducing patient monitoring and the number of rounds of doctor and nurse in the patient ward, as well as improving patient health and response.

Elements of block diagram

1.Arduino Uno

The Arduino Uno is an open-source microcontroller board designed by Arduino.cc and based on the Microchip ATmega2056 microprocessor. The board has a number of digital and analogue input/output (I/O) pins that can be used to connect to different expansion boards (shields) and other circuits. The board features 14 digital I/O pins (six of which are capable of PWM output), 6 analogue I/O pins, and is programmable via a type B USB cable using the Arduino IDE (Integrated Development Environment). It can be powered by a USB cable or an external 9-volt battery, with voltages ranging from 7 to 20 volts. It's also comparable to the Arduino Nano and Leonardo microcontrollers.

Fig,2-Arduino Uno

2.LCD

LCD is a flat-panel display or other electronically modulated opticaldevice that uses the light-modulating properties of liquid crystals combined with polarizers. Liquid crystals do not emit light directly, instead using a backlight or reflector to produce images in color or monochrome. LCDs are available to display arbitrary images (as in a general-purpose computer display) or fixed images with low information content, which can be displayed or hidden, such as preset words, digits, and seven-segment displays, as in a digital clock. They use the same basic technology, except that arbitrary images are made from a matrix of small pixels, while other displays have larger elements. LCDs can either be normally on (positive) or off (negative), depending on the polarizer arrangement .

Fig.3-LCD Display

3. Bluetooth

HC-06 Bluetooth Module is an easy to use Bluetooth SPP(Serial Port Protocol) module, designed for transparent wireless serial connection setup. Its communication is via serial communication which makes an easy way to interface with controller or PC.HC-06Bluetooth module provides switching mode between master and slave mode which means it able to use neither receiving nor transmitting data. The Bluetooth module HC-06 is a MASTER/SLAVE module. By default the factory setting is SLAVE. The Role of the module (Master or Slave) can be configured only by AT COMMANDS. The slave modules cannot initiate a connection to another Bluetooth device but can accept connections.

4.Sensor

Heartbeat Sensor

A heartbeat sensor is an electronic device that measures the heart rate, or the rate at which the heart beats. The main things we do to stay healthy are monitor our body temperature, heart rate, and blood pressure. To monitor the Arterial Pressure or Blood Pressure, we utilize thermometers and a sphygmomanometer to measure the body temperature. Heart rate can be measured in two ways: one by manually checking the pulse at the wrists or neck, and the other by using a Heartbeat Sensor.

Temperature Sensor

The LM35 series is a well-integrated heat-resistant heat exchanger with Centigrade temperature. The LM35 device has an advantage over Kelvin's limited direct temperature sensors, as the user does not have to emit large, uninterruptible power outages for easy Centigrade measurements. The LM35 device does not require external measurement or cutting to provide normal details of Â± Â¼ Â° C at room temperature and Â± Â¾ Â° C in addition to the full temperature range of 55Â°C to 150Â°C.

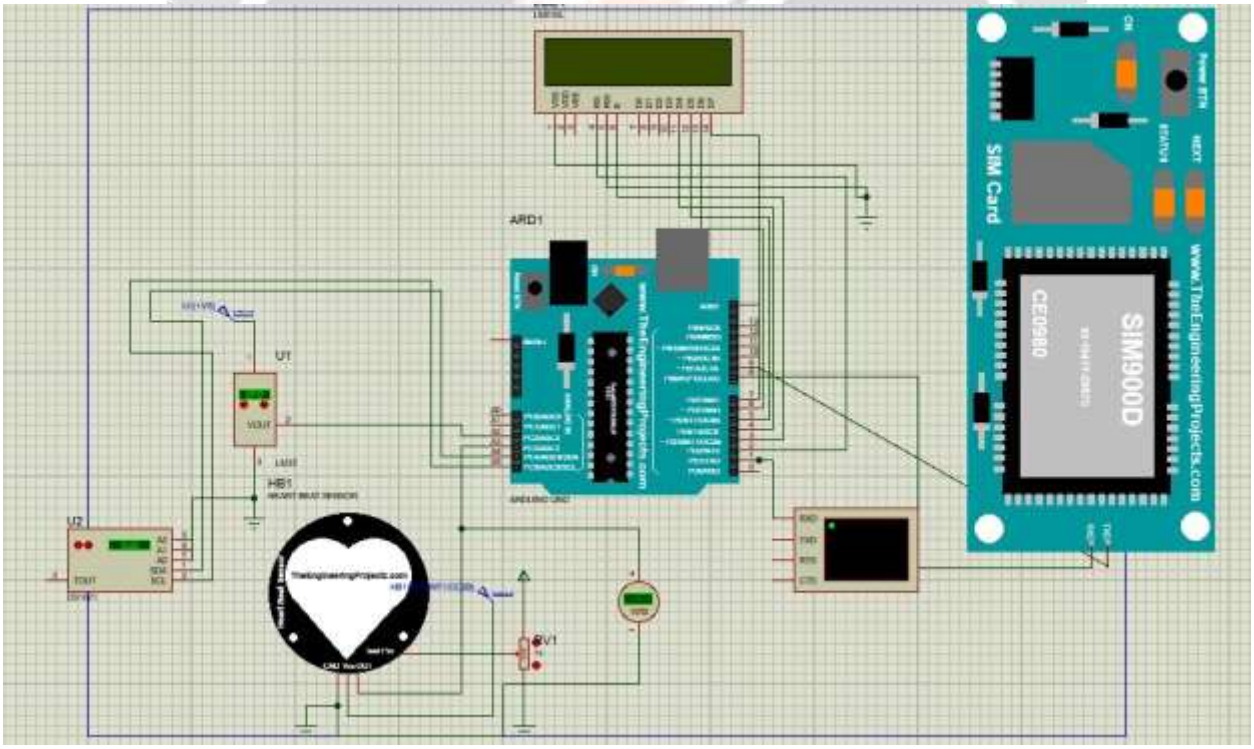
Water Level Sensor

Liquids, other fluids, and fluidized solids, such as slurries, granular materials, and powders with an upper free surface, are detected by level sensors. Gravity causes flowing substances to become almost horizontal in their containers (or other physical constraints), but most bulk solids pile up at an angle of repose to a peak. The substance

to be measured can be in its natural state or inside a container (e.g., a river or a lake). Continuous or point values can be used to measure the level. Continuous level sensors identify the exact amount of material in a given location by measuring the level within a specified range, whereas point-level sensors merely tell whether the substance is above or below the sensing point.

V. HARDWARE IMPLEMENTATION

The circuit diagram for the Arduino-based Heart Rate Monitor with Heartbeat Sensor is shown below. The sensor features a clip that allows you to put your finger and three pins that connect VCC, GND, and Data.



VI. CONCLUSIONS

In the not-too-distant future, many health-related contacts will be done "virtually" utilizing telemedicine technology, eventually leading to a situation where this mode is the norm rather than the exception. Telemedicine is an exciting technology that has the potential to change the way healthcare is delivered for the betterment of everyone. As the population grows faster than the number of available qualified healthcare professionals and facilities (institutional beds, investigation laboratories, day-care centers, and so on), this technology will need to be optimally utilized to ensure that all those who require care receive at least acceptable, if not the best possible, care. As more people are cared for without crowding institutions, care providers will be able to "visit" their patients at any time and from any

location without having to physically travel, and those who require continuous monitoring will be cared for with proactive interventions, it will undoubtedly lead to a situation where only those who require a physical encounter with their clinicians will need to travel and be attended to. This will aid in the resolution of a number of the system's current issues. Patients will be fewer in the institutions, and experts will have less travel time, allowing them to devote more time and effort to those patients who genuinely need it. Telemedicine will undoubtedly increase communication as well as patient satisfaction. Telemedicine will undoubtedly increase communication as well as patient satisfaction. Although costs and reimbursements, as well as legal issues, will continue to be a factor, increased use of the technology will foster greater confidence in it, allowing all stakeholders to learn the best ways and means of harnessing it, easing the underlying pressures that continue to limit its widespread adoption. It is difficult to transform anything. Changing the old system and ushering in the new is a difficult and painful process that will almost certainly be met with resistance, at least at first.

VII. REFERENCES

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