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Health Care System for Home Quarantine People

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ABSTRACT: We have proposed an Internet of Things based electronic wireless communication system which is monitoring the health parameters continuously by using biosensors such as Body temperature sensor and Heart rate sensor. The received values will be transmitted to the nearby medical centre or COVID Hospital and the same values will be displayed on IoT web server or App. The information on this web-server or app can be monitored by the doctor's mobile devices dealing with quarantined people and Government authorities through the server.The data can be continuously monitored for a 24x7 time frame and that too with non-contact with the person.

KEYWORDS: Temperaturesensor,Heart beat sensor, RHMS, MCD.

I. INTRODUCTION

When the COVID-19 disease was rapidly spreading throughout the world, the most difficulty faced by hospitals was the lack of enough places (i.e., beds) to accommodate the patients. Hence, they were forced to send back the patients with mild symptoms to their homes for self-quarantine. During the home quarantine period, it is very troublesome to monitor the patients' live status by doctors or other medical staff. Proper medications have to be provided promptly in case the symptoms get worse. No delays in notifications can be tolerated. The implementation of an Home Quarantine Patient Monitoring System, with the help of IoT network, would minimise the physical gap between the patient and the healthcare system.

To such an aim, an Internet of Things (IoT) based network infrastructure is conceived in this paper, since heterogeneous devices can be involved in remote monitoring applications; in fact, it comprises wearable sensors, GPS tracker, air quality sensor, a lightweight databaseand a monitoring dashboard. Wearable sensors would monitor the body temperature, blood pressure, oxygen saturation, heart rate and respiratory rate. GPS tracker would ensure the patient does not leave the permitted area during the quarantine period. This helps to prevent the community from spreading. The air quality of the quarantine room is also measured as it has a role in patients' recovery from the effect of COVID-19 on lungs.

II. EXISTING SYSTEM

Health Care Concerns In Telemedicine

This section introduces an overview of healthcare service concerns in telemedicine. Further healthcare services are apparently required, particularly services supplied from outside of hospitals . Chronic diseases (e.g. cardiovascular diseases, cancer and diabetes) are critical matters for healthcare services, given that these diseases embody one of the first causes of mortality, morbidity and disability . Several challenges occur in healthcare service provision for telemonitoring systems . However, this study focused on the challenges related to scalability. The challenges in healthcare service in relation to scalability problems are presented in taxonomy

SYSTEMATIC REVIEW PROTOCOL FOR PATIENTS PRIORITISATION

The scope of this study was established by using the keywords 'telemedicine', 'triage', 'priority' and 'sensor'. Other telemedicine studies, such as surveys and reviews, were excluded. The scope was limited to English literature but considers all health-related areas. Three digital databases were searched for target articles:(1) the Science Direct database offering access to science, technology and articles in highly reliable journals; (2) the IEEE Xplore Library of technical literature

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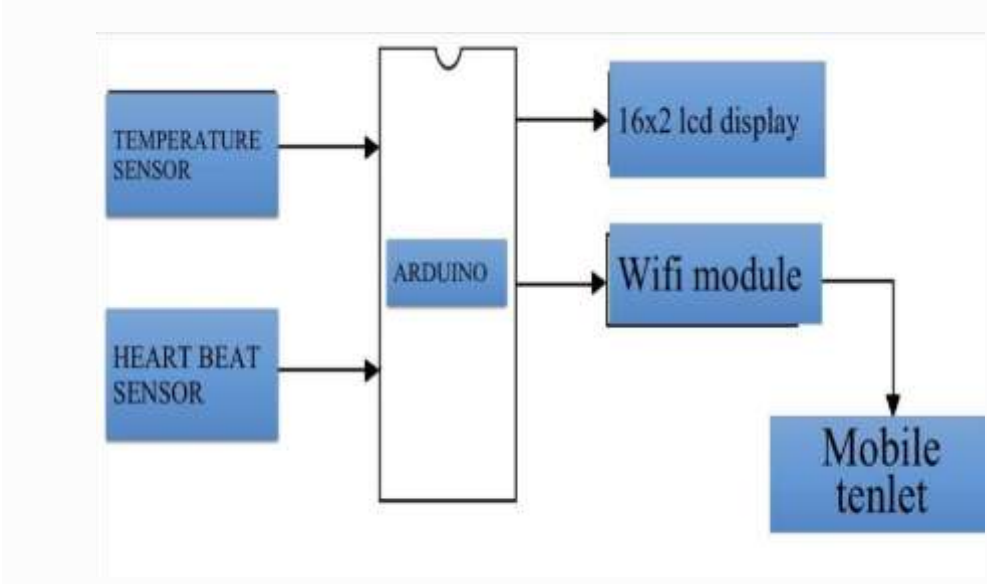
in engineering and technology and (3) the Web of Science (WoS) service.

III . MODELING AND ANALYSIS



Hardware components:

1. Microcontroller (ARDUINO)
2. Heartbeat sensor
3. Body temperature sensor
4. Wi-fi module
5. LCD display
6. Mobile telnet
7. Power supply

Software components:

1.ARDUINO IDE
2. Embedded C

The envisioned remote health monitoring system should be mainly composed by: (i) heterogeneous IoT devices, able to acquire relevant patient related information, which will be details in the following; (ii) a publish subscribe based system, in charge of managing the acquisition and sharing of data, with an MQTT broker as an intermediary; (iii) a lightweight database management system for the historization of the monitored information; (iv) an application for the visualisation of the analysed data.A control application manages all such entities. provides a high-level vision of the system schema. The next subsections will detail the monitored parameters and the rules to be applied within the e-health environment. Note that such rules will determine the behaviour of the whole system, in response to changes.

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IV.RESULT

PATIENT HEALTH MONITORING

Patients Heartbeat and Temperature

This project describes the design of a simple, low-cost controller-based patient health monitoring system. Heart rate of the subject is measured from the thumb finger using IRD (InfraRed Device sensors and the rate is then averaged and displayed on a 16 X 2 LCD display). This instrument employs a simple up to electronic sensor, conveniently strapped on the finger, to give continuous indication of the pulse digits.The Pulse monitor works both on battery or mains supply. It is ideal for continuous monitoring in operation theatres, I.C units, biomedical/human engineering studies and sports medicine. This project we used a microcontroller for reading and updating the data to the doctor over the internet. By reading all the values of temperature and heart rate will be displayed on PC/Phone. This project uses a Microcontroller as the heart of the project.

V.CONCLUSION

The project "**Monitoring Patients' Signs Wirelessly"** has been successfully designed and tested. Integrating features of all the hardware components used have developed it. Presence of every module has been reasoned out and placed carefully thus contributing to the best working of the unit. Secondly, using highly advanced IC's and with the help of growing technology the project has been successfully implemented.

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