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A Smart Real Time Health Monitoring Through Iot

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Abstract
Over the previous few decades, lifestyles have multiplied enormously. However, aged those who stay on their very own regularly want help because of mobility difficulties, signs and symptoms of dementia or different fitness problems. In such cases, a self-reliant assisting gadget can be helpful. This paper proposes the simple system Internet of Things (IoT)-mainly based fixed records gadget for indoor and outside use. Since the carried-out survey of associated works indicated a loss of methodological processes to the outside process, consequently a Design Methodology (DM), which processes the layout goal from the angle of the stake holders from markets, contracting government and reach the right customers, is introduced. The applied answer applies the three-axial accelerometer and magnetometer, Pedestrian Dead Reckoning (PDR), thresholding and the selection timber algorithm. Such a structure permits the localization of a monitored character inside 4 room-zones with accuracy of these algorithms, it identifies falls and the sports of lying, standing, sitting and walking and all other activities. Based at the recognized sports, the gadget classifies modern sports as whether it is normal or not it is suspicious or very dangerous, that is used to inform the healthcare personnel approximately feasible problems. The real-lifestyle eventualities established the excessive robustness of the proposed answer. Moreover, they take a look at the consequences happy each stakeholder and destiny customers and ensured in addition cooperation with the project.

Keywords: *Health monitoring, Monitoring device using IOT , Real time health monitoring*

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I. INTRODUCTION

In recent years, Big Data Analytics (BDA) has become an emerging approach for analyzing data and extracting information and their relations in a wide range of application areas. Due to continuous urbanization and growing populations, cities play important central roles in our society. However, such developments have also been accompanied by an increase in violent crimes and accidents. To tackle such problems, sociologists, analysts, and safety institutions have devoted much effort towards mining potential patterns and factors. In relation to public policy however, there are many challenges in dealing with large amounts of available data. As a result, new methods and technologies need to be devised in order to analyze this heterogeneous and multi-sourced data. Analysis of such big data enables us to effectively keep track of occurred events, identify similarities from incidents, deploy resources and make quick decisions accordingly. This can also help further our understanding of both historical issues and current situations, ultimately ensuring improved safety/security and quality of life, as well as increased cultural and economic growth. The rapid growth of cloud computing and data acquisition and storage technologies, from business and research institutions to governments and various organizations, have led to a huge number of unprecedented scopes/complexities from data that has been collected and made publicly available. It has become increasingly important to extract meaningful information and achieve new insights for understanding patterns from such data resources. BDA can effectively address the challenges of data that are too vast, too unstructured, and too fast moving to be managed by traditional methods. As a fast growing and influential practice, DBA can aid organizations to utilize their data and facilitate new opportunities. Furthermore, BDA can be deployed to help intelligent businesses move ahead with more effective operations, high profits and satisfied customers.

II. LITERATURE SURVEY

LOW-COST REAL-TIME MEASUREMENT OF THE ECG, SPO2 AND TEMPERATURE SIGNALS IN THE LABVIEW ENVIRONMENT FOR BIOMEDICAL TECHNOLOGIES EDUCATION - *Conference: International Conference on Research in Education and Science (ICRES), May 18 - 21, 2017 Ephesus Kusadasi/Turkey, At Kusadası/Turkey,*

Electrocardiography (ECG) is to measure the electrical activity of the heart. Doctors diagnose various cardiac diseases by analyzing this signal. The ECG signal is one of the best diagnostic devices for heart diseases. The

purpose of this work is to display the ECG signal in the LabVIEW (Laboratory Virtual Instrument Engineering Workbench) environment. Lowering the cost by designing your own ECG circuit. The program can also easily process the ECG signal in various ways. There is no need to set up any electronic circuit. In addition to the ECG signal, modules with pulse oximeter and temperature indicating oxygen saturation are added. In this study, low-cost ECG, temperature and pulse measurements were performed in our own laboratory environment. The measurement circuit was communicated with the LabVIEW program via Arduino. The data received with Arduino is shown after processing in the LabVIEW environment. The program also shows the patient's heart rate and alerts when the patient enters a heart attack.

WIRELESS ECG, SPO2, PTT AND HEART RATE MONITOR REFERENCE DESIGN FOR MEDICAL AND CONSUMER WEARABLES - *Shweta S Budihal, Niharika Kumar* ECG is an electrical measurement of the activity in the heart whereas PPG is an optical measurement of the volume of an organ. In principle, ECG uses multiple electrodes to measure the electrical activity of the heart, whereas PPG illuminates the skin and subcutaneous tissue with light of a specific wavelength from a light-emitting diode (LED) to measure organ volume. This light is absorbed, passed through, or reflected back. A photodiode sensor measures the light that is either transmitted or reflected, depending on where it is placed relative to the LED. The light is then converted to an electrical signal. In both cases, the information can be used to determine the heart rate of a person, but each application offers its own set of diagnostic information. ECG focuses on the electrical activity of the cardiac muscle tissue, because the exact sequence of contraction is well- known to trained cardiologists. Physicians use ECG to diagnose all kinds of heart diseases and abnormalities. PPG provides more information about blood flow and blood pressure. This measurement can be conducted at various locations on the body, to examine the blood flow to different regions. When measured closest to the aorta of the heart (for example, the left arm), some additional information can be gained regarding the cardiac output and heart valve function. One advantage that PPG has is the number of skin contacts which are required to measure it. Because users can determine PPG from reflected or transmitted light, only a single point of contact is necessary to measure it. This feature allows for easy, continuous, time measurements, which is the most attractive advantage to wearable electronics such as fitness trackers. In contrast, ECG requires that the potential be measured across the heart. This means that users need at least two points

Because the frequency of both ECG and PPG signals is the same, heart rate can be calculated using both waveforms. Mostly green LEDs are used for measuring heart rates. A green LED has often been used in the reflective sensor to extract the PPG signal. Due to its wavelength, green light is known to penetrate the tissue less than higher wavelength LEDs. Hence, more unabsorbed (reflected) light comes out of the tissue with green than with other colors. Sensing the green light from more than one PD or eliminating from more than one LED surrounding the PD helps. Red and infrared (IR) lights are used for pulse oximetry, to estimate the true hemoglobin oxygen saturation of arterial blood. Oxyhemoglobin (HbO2) absorbs visible and infrared IR light differently than deoxyhemoglobin (Hb), and appears bright red as opposed to the darker brown of Hb. Absorption in the arterial blood is represented by an AC signal that is superimposed on a DC signal, representing absorptions in other substances like pigmentation in tissue, venous, capillary, bone, and so forth. The cardiac-synchronized AC signal is approximately 1% of the DC level.

A REVIEW PAPER ON PATIENT MONITORING SYSTEM- *2nd International Conference on Advances in Science & Technology (ICAST) 2019 on 8th, 9th April 2019 by K J Somaiya Institute of Engineering & Information Technology, Mumbai, India Sensor* networks are currently an active research area mainly due to the potential of their applications. In this paper we investigate the use of Wireless Sensor Networks (WSN) for air pollution monitoring in Mauritius. With the fast-growing industrial activities on the island, the problem of air pollution is becoming a major concern for the health of the population. We proposed an innovative system named Wireless Sensor Network Air Pollution Monitoring System (WAPMS) to monitor air pollution in Mauritius through the use of wireless sensors deployed in huge numbers around the island. The proposed system makes use of an Air Quality Index (AQI) which is presently not available in Mauritius. In order to improve the efficiency of WAPMS, we have designed and implemented a new data aggregation algorithm named Recursive Converging Quartiles (RCQ). The algorithm is used to merge data to eliminate duplicates, filter out invalid readings and summaries them into a simpler form which significantly reduces the amount of data to be transmitted to the sink and thus saves energy. For better power management we used a hierarchical routing protocol in WAPMS and caused the motes to sleep during idle time.

III. EXISTING METHOD

When one considers fitness, the maximum essential parameters to be visible are the nation of the coronary heart, human frame temperature and the extent of oxygen gift within the frame. The coronary heart is the principal detail in a human frame, accordingly is given extra significance on this proposed work. The

parameters associated with the coronary heart are heart-rate with the pressure of blood, electrocardiogram and oxygen stage with inside the blood additionally the frame temperature of the human is the thinking about issue for outlining the fitness of the person. In this paper, the brand-new version that is a synchronized model of the traditional device is discussed. This can be measured using the the parameters like ECG, coronary heart-rate, SPO2 and frames temperature. The tool which can be used to screen the sufferers simplest locate the analyzing of the sufferer's temperature blood stress or now no longer in any other case it wishes a large systematic ventilator or ECG Support and it offers a beep sound while the precise analyzing low or higher one

IV. PROPOSED SYSTEM

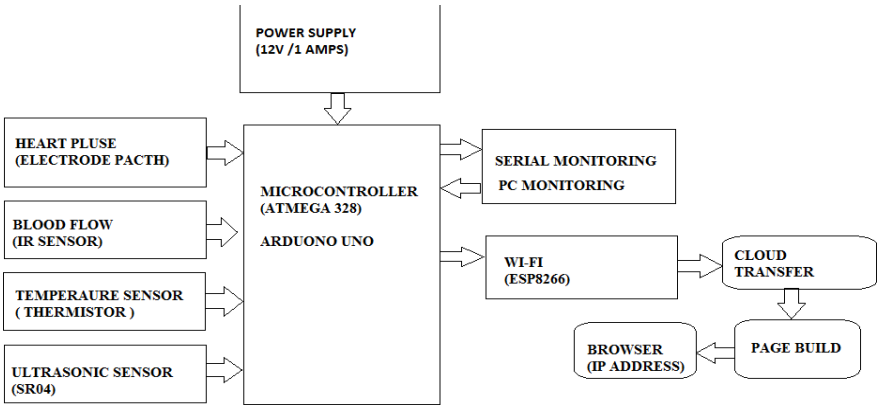
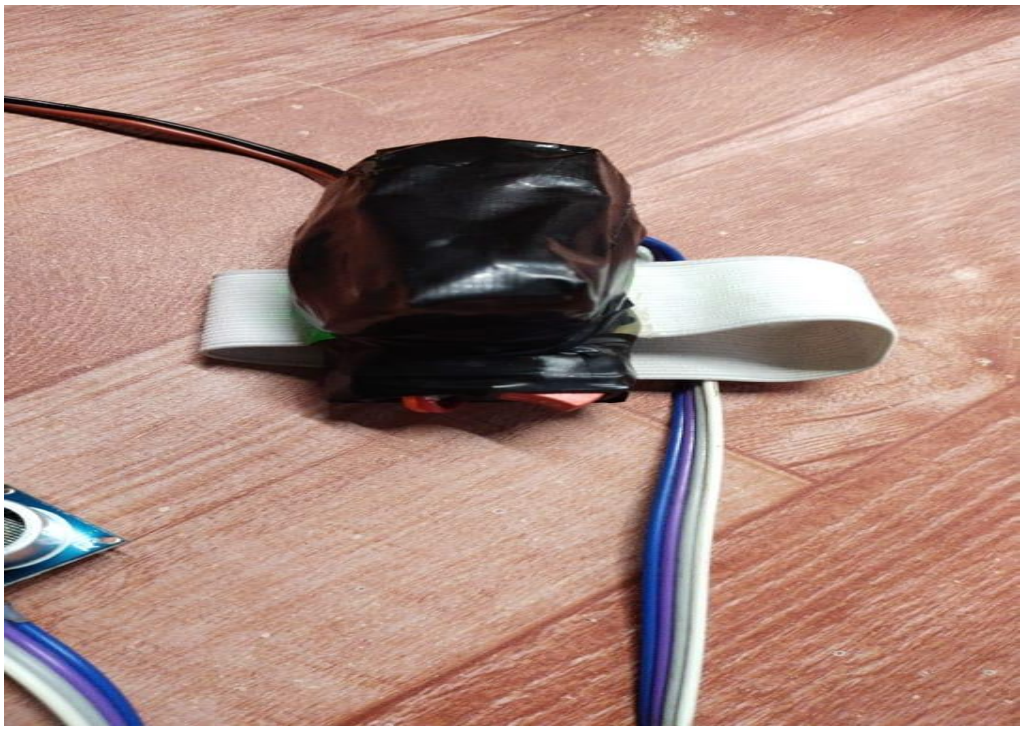


Fig 4.1 Architecture Diagram

V. KEY RESULTS

4.1 Device with temperature sensor probe



4.2 Sensor for alerting when temperature is high

VI. CONCLUSION AND FUTURE ENHANCEMENTS

This System allows the Doctor to monitor the patients remotely without the risk of infection and a Sigle doctor can Monitor over 500 patients at a time with the IOT Device and The Doctor can get alert where the instant alert in case of health fluctuations of emergency. The system is mounted at patient bedside and constantly transmits patient health data over the internet so that doctors can monitor multiple patients remotely and attend the desired patient urgently when needed This project fulfills the aims to significantly reduce the risk of exposure in healthcare workers. It is also expected to reduce the increasing demand for PPE (personnel protection equipment) and logistics. stays in quarantine period reduced for conventional routine examinations and most important that the health can be monitored and disease diagnosed by any doctor at any distance. In this paper, an IoT based health monitoring system was developed

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