Annals of R.S.C.B., ISSN: 1583-6258, Vol.25, Issue 4, 2021, Pages. 20940 -20947
Received 05 March 2021; Accepted 01 April 2021

Web-Based Self Health Analysis System (WBSAS)

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Abstract

This paper introduced a web based self-health analysis system using machine learning and system link for detecting health parameters. The system consists of a temperature sensor, blood pressure sensor and ECG sensor interfaced with the MyRIO. The parameters collected by the sensor compare the results and send to the web. It features the utmost important biomedical parameters for health analysis and Machine Learning Algorithms for health assessment and prediction. It also supports high speed data collection and real-time monitoring in a regular web browser, so this can be accessed globally by anyone. The cloud-based analytics and health monitoring is completely developed and managed in LabVIEW and the web application is created with LabVIEW Next Generation – Webmodule with system link cloud

Keywords—LabVIEW, LabVIEW NXG, Web Module, System Link Cloud.

I.INTRODUCTION

LabVIEW:

In this regard, National Instruments has made a great contribution through the development of Lab View graphical programming Lab View has a built-in server, which can be configured these servers are required. On LabVIEW, can view the signal through the LabVIEW Web Publishing Tool and send it to the Web server. Lab VIEW Web Server can create HTML documents open the front panel in a web browser. The front panel can remote monitoring through the following methods of Web browser using TCP or IP service. National Instrument LabVIEW is an industry-leading software tool that can be used design test, measurement and control systems. LabVIEW is a graphical programming language, use icons instead of text lines to create applications.

NI LabVIEW NXG5.0:

The LabVIEW NXG 5.0 Manual contains programming concepts, step-by-step instructions, and reference information that permits to accumulate, analyze, and automate measurements. Ensure software detects connected hardware and sensors. Open System Designer to seek out an inventory of connected hardware and register network systems. The

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interactive measurement panel that's right corner. On the Projects tab, click Measurement Panels and flick through the available options to start out taking measurements together with the connected devices. Learn to automate the measurements using G Dataflow code. On the training tab, open interactive lessons to find outprogramming basics for G Dataflow.

WEB SERVICE:

Persistent Physiological boundary observing is fundamental for old and sick patients. There is a requirement for a Web-based Patient wellbeing observing framework, when the patient isn't in the Hospital. Such a framework will empower the specialists to screen the physiological years, principally to support deployments of telehealth services pass by health service suppliers.

This paper focused on developing a model to detect health parameters of temperature, ECG, Blood Pressure. The physiological monitor center, is developed using the Laboratory Virtual Instrument Engineering Workbench (LabVIEW). Through the internet the patient's physiological signals can be transmitted in real-time to Remote monitor the remote unit can access the data and the case history of the patient. The objective of this paper is it also supports high speed data collection and real-time monitoring in a regular web browser, so this can be accessed globally by anyone. The proposed approach shows an agile, flexible, interoperable, and economical alternative to existing remote health monitoring systems.

II. LITERATURE SURVEY

Arshad Ali. (2020) proposed a room is required provide remote temperature control experiment Control parameters and hardware. It is by acquiring and presenting data in the LabView and passing Remote computer. Because the experiment takes a long time to proceed in the laboratory, someone needs to be present during this period Laboratory supervision of ongoing experiments. Live video will also be released with a remote panel for viewing the hardware, the panel is laboratory. The results presented in this paper are very Satisfied and reliable [1].

Alan Roddick.S.(2020) proposed an effectively monitoring the oxygen concentration in human blood to obtain and transmit data transmission to personal cloud storage through wireless communication through the Internet of Things. It can access data at any time to observe the current state of the patient. If the detected signal has abnormal stager, caregivers and doctors get notified immediately via short message service (SMS) via GSM module. Cloud computing and passwords the protected account allows restricted access to the database, thereby providing privacy and security for patient database. The main advantage is that had greatly reduced hospitalization [2].

Rathy G.A. (2020) proposed MyRIO and IoT based health monitoring and diagnosing system (HMDS) to acquire heartbeat rate, pulse, blood pressure (BP), temperature and activities of the patient using various smart sensors with more accuracy. Medical parameters LabVIEW and similar products may be transferred to remote monitoring systems (RMS). Abnormal data Will be monitored and diagnosed. The results ensured that the proposed HMDS considerably improved the accuracy and speed of operation performances over the existing smart health care system. To monitor other medical parameters of the patient as well as to suggest the treatment or prescription of medicine to the patient using machine-learning algorithms [3].

Nayeemuddin. (2019) proposed expected to be measured and screened the patient remembers the final basic physiological data. The purpose is to accurately describe her/his prosperity, and health condition. The system fundamentally includes sensors, data verification units, Microcontroller i.e., myDAQ and programming i.e., LabVIEW. The patient's body temperature, heart rate, display and place cyclic strain and ECG data test results and show that the proposed the structure can highly check the patient's physiological data accurate [4].

Sneha Babusingh Rathode. (2019) proposed a device into the Internet of Things are widely used in many fields. IoT-based healthcare is a heterogeneous computing system of applications and wearable devices that can remotely connect patients and medical service providers. These smart sensor devices are used to collect data and will transmit it regularly continuously uploaded to the hospital database of the hospital's network server the doctor can monitor the patient. The collected data is stored in a mobile application and transmitted to a central database server immediately or periodically via the Internet. Doctors and hospitals can use real data collected on cloud platforms to provide fast and effective solution [5].

Tonio Candelieri. (2018) proposed pipeline, the representation sequences of the personal standard rehabilitation exercises in wearable sensor streams are therefore first benchmarked, then an assessment system
which integrates multistage data processing and analyzing. The system

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proves that become an effective tool to support compliance monitoring, and personalized self-repair, currently in further progress developed in the Italian Home-IoT project, aiming to become a more general data flow analysis service, not only committed to rehabilitation exercise assessment. The system provides feasible an economic alternative to traditional rehabilitation. It is expected to alleviate traditional pressing challenges rehabilitation elderly care [6].

III.PROPOSED SYSTEM

The block diagram shown in Figure 2 illustrates the proposed system.

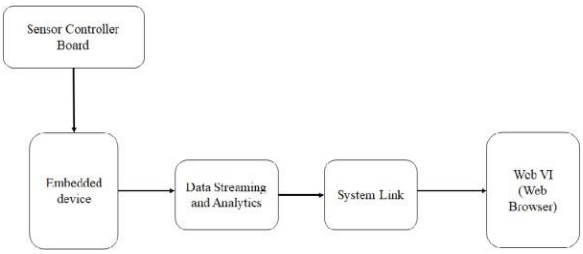

Figure 2-Block Diagram of Proposed System

The Web-Based Self Health Analysis System (WBSAS) involves design the Web graphical interface (Web GUI) may be a sort of interface through which users interact with electronic devices via visual indicatorrepresentations. The Web graphical user interface designed through LabVIEW next generation. It tests smarter with LabVIEW NXG by quickly automating the hardware, customizing tests the special specifications, and simply viewing measurement results from anywhere. The Lab VIEW web server can create HTML documents open front panel in browser. The front panel are often remotely monitored and controlled through the online browser. When developing a distributed application for the online several factors must be taken into consideration involving bandwidth and network traffic. An application which will be controlled by any remote computer must be ready to provide up so far information to all or any connected clients. The rapid development in web browsers and cloud analytics made web services an increasingly attractive platform for delivering self-health assessment and analysis Internet applications. Web application development is that the process and practice of developing web applications. Developed a database to store the corresponding result. The collected sensors result can be real-time monitoring through remote locations using the Web Publishing tools.

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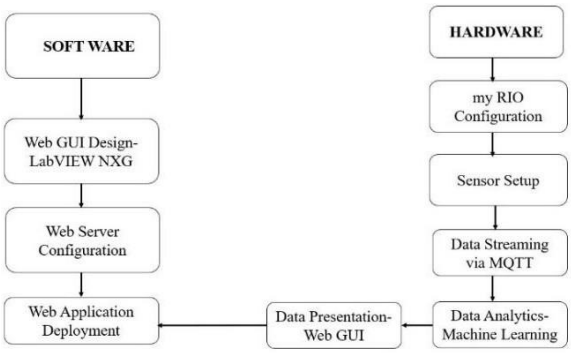

Figure 3- Scheme of Proposed System

The Web GUI presents the complete health information that can be analyzed with various ML algorithms in order to predict health status of a patient. The GUI holds latest engineering widgets to display the acquireddata from various sensors.

IV.RESULT AND DISCUSSION

The physiological parameters of the human will be continuously displayed on a personal webpage, which can be accessed using individual. Sudden abnormal variations in the values will be immediately alerted to the patient to take immediate recovery measures.

Table: 1 Normalised Set and Abnormal Set

ECG	**TEMPERATURE**	**BLOOD PRESSURE**
Normalized Set		
Min-120 Max-200ms	Min- 36.1°C Max- 37.2°C	Below 120/80 mm Hg
Abnormal Set		
Below-60 beats Above-100 beats	Above - 38°C	Above -130-140

The Figure 4 indicates the health data dashboard including the patient's details, Health information, Health Prediction

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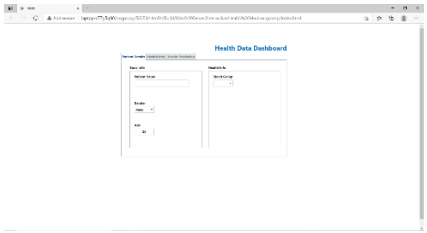

Figure 4- Web Page

The Figure 5 indicates the patient's name, Gender, Age, Blood group.

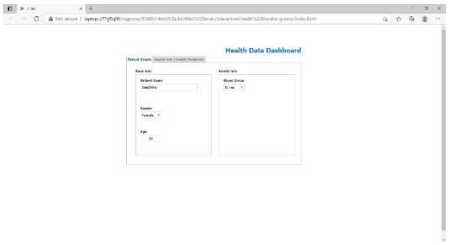

Figure 5- Patient Details

The Figure 6 indicates the patient's health information of temperature, Blood Pressure, Heart Rate

Figure 6- Health information

The Figure 7 indicates the patient's health prediction of temperature status, Blood pressure tatus, Heart rate status and over all status.

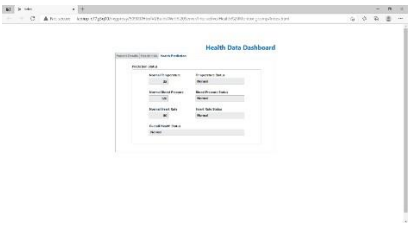

Figure 7- Health prediction

Web Page Link

https://hosting.systemlinkcloud.io/webapps/37106bc1-8820-4b27-b232-27f2d0c23b71/content/

IV. CONCLUSION AND FUTURE SCOPE

This system is often wont to transmit the patient vital parameter information in real time to remote location and may be viewed by the care giver. The telemonitoring application which is proposed allows doctor to look at his patient's vital parameter remotely and dynamically during a website in real time and doesn't got to have any special requirement on his PC all he needs is an online access. The Web service provides the essential functionalities of the remote health monitoring system in order to achieve cross-platform compatibility and enable ease of integration with existing or future healthcare system. In future work the database can be secured using security tools, thus making it more secure, LabVIEW application. Various network protocols can be investigated for traffic management.

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