INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

INTERNATIONAL STANDARD SERIAL NUMBER INDIA

Impact Factor: 7.542

Real Time Data Fetching and Health Prediction System

Aadesh Bhandari, Mayur Sawant, Manish Gadekar, Shivranjan Dharmadhikari,

Dept. of Computer Engineering, BSIOTR, Pune, Maharashtra, India

Dept. of Computer Engineering, BSIOTR, Pune, Maharashtra, India

Dept. of Computer Engineering, BSIOTR, Pune, Maharashtra, India

Dept. of Computer Engineering, BSIOTR, Pune, Maharashtra, India

ABSTRACT:each Country's biggest plus is folks and their contribution towards nation. This Contribution helps the country to grow the long run as we have a tendency to referred to as it as value of nation. Gross domestic product (GDP) may be a financial live of the market price of all the ultimate merchandise and services created during a specific fundamental measure . value definitions square measure maintained by variety of national and international economic organizations. This Organization collects the massive range of work force and contribute equally to nation. Any growing of Organization should have labored peoples UN agency puts best to figure for betterment of organization. and also, the best Organization is taken into account to be best provided that they pay attention of worker health and supports them. For a business to achieve its endeavors, its workers should be match and healthy. for nice geographic point productivity, the health of your workers is that the determinative issue. Having physiological condition within the geographic point motivates workers. It conjointly reduces absence. Chronic diseases scale back productivity, square measure answerable for rising attention prices, and may be managed by the leader to scale back attention expenditures. this could be done through worker health and eudaimonia programs, and well-designed health management initiatives. additionally, new info and communication technologies build it doable to observe worker health with wearable devices and tele-health assisted police investigation techniques. This paper introduces a singular new approach to Real time knowledge attractive and health prediction system itself a monitor to predict the health conditions. the most edges are: reduction within the range of visits to the doctor throughout workplace hours; reduced dependency on institutionalized health setting like hospitals for check-ups; and previous data of worsening symptoms, thereby resulting in timely cure instead of moment hospital visits, institution admissions, all of that end in lesser sick leaves, and a lot of productivity per worker.

KEYWORDS: Cloud Computing, prognosticative models, Regressions, Web-Technology , worker health management, health-device.

I. INTRODUCTION

Any growing Country encompasses a robust foundation of labour force and economy that is contributed considerably for growth of gross domestic product. Any growing of Organization should have laboured peoples WHO puts best to figure for betterment of organization. and therefore, the best Organization is taken into account to be best given that they beware of worker health and supports them. Associate in Nursing worker health is main issue as a result of physiological state within the geographical point motivates workers. It additionally reduces absence at the same time will increase productivity. it's believed that the typical yank worker suffers from a minimum of one chronic malady throughout their period, inflicting a control on operating capability and typically resulting in forced resignation. These diseases like COPD, diabetes, epilepsy, Parkinson's cause a significant danger to worker health and square measure an explanation for concern for employers, as a result of earnings rely directly on a healthy operating force. {waysthat ways in that} to scale back the impact of chronic diseases may be a major analysis topic nowadays with scientists making an attempt to search out solutions which if enforced will improve trade earnings by bettering worker health outcome and quality of life. Any growing Country encompasses a robust foundation of labour force and economy that is contributed considerably for growth of gross domestic product. Any growing of Organization should have laboured peoples WHO puts best to figure for betterment of organization. and therefore, the best Organization is taken into account to be best given that they beware of worker health and supports them. Associate in Nursing worker health is main issue as a result of physiological state within the geographical point motivates workers. It additionally reduces absence at the same time

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II. LITERATURE SURVEY

Health watching systems embody process and analysis of information retrieved from smart-phones, good watches, further as numerous connected sensors and wearable devices. Such systems modify continuous watching of patients psychological and health conditions by sensing and transmittal measurements like pulse rate, EKG (ECG), blood heat, vital sign, chest sounds, and pressure.Bluetooth is employed to trace social interactions will|which will|that may} be used for communicable disease management and psychological health and Smartphone or wearable sensors can communicate between one another and collect the information. what is more, these systems most frequently exhibit further capabilities of having the ability to alert initial responders.

Some samples of such systems are:
the good shirt developed by Sri-raam et al. [1] that depends on sensors embedded on the wearable shirt to select up important signs like graphical record, metastasis signals and temperature from the patient's body or the CHRONIOUS system developed by researchers at University of metropolis, funded by the ecu Union, as a part of a project that uses a wise wearable platform to watch patients littered with conditions like Chronic Order pulmonic illness (COPD), chronic uropathy (CKD) [2]. different such systems embody the one developed by Jin Jang et al. that provides health well-being services for the aged and terminally sick, and additionally runs a separate early warning system to report the decline in health standing [3]. Also, Bonato et al. discuss the new era of ensuing out of an attempt to merge home robots and wearable technology along to watch patient's health standing in their work [4] None of those. technologies square measure ideally suited to worker watching at the geographical point because of many reasons. None make the most bioengineering or easy usage, and plenty of square measure too large to hold around as an entire system. Some need the patients to wear them incessantly, usually resulting in skin irritation or discomfort, and in some extreme cases disapproval, because the patient feels he's simply distinguishable once within the crowd.

As such, new generation watching devices square measure needed to own tiny type issue and reduced power consumption, nevertheless be ready to last longer length on reversible batteries - so eliminating the necessity to own them charged forever or carry the charger adapter around. Also, these devices ought to be created by embedding health watching functionalities into already existing appliances and gadgets that the user is probably going to use in their day to day lives - like remotes, good phones, good tablets etc. This work proposes such an answer by planning to use radiocarpal joint band and mobile application and internet Application as Health watching system, to fetch dynamic information from user like heart rate, calories burn to predict a illness victimization Association rules, useful in emergency state of affairs. This Application can ready to directly report back to institutional doctor.

The planned resolution offers following benefits:
Benefit to the employer: reduction in sick leaves, productivity/ worker will increase, and worker well-being goals achieved. Finally, money losses reduced, healthy geographical point.
Apart from the most targeted advantages of the system, there square measure further advantages. One will attend to multiple patients at the same time, while not being physically gift the least bit locations, leading to economicaloperation and probably accrued earnings. members of the family of patients will relax and log in to the system anytime so as to look at patient data victimization the phone or desktop app.
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III. PROPOSED ALGORITHM

Figure 1 illustrates the system which consists of following modules: Data Collection (DC) Module (Hardware), Data Processing (DP) Module (Software), Data Storage (DS) Module (Software), Decision Support System (DSS) (Software), Data Presentation and User Interaction (DPIU) Module (Software). Apart from this, there are two layers: ENC/ DEC and SEC to enforce data security.
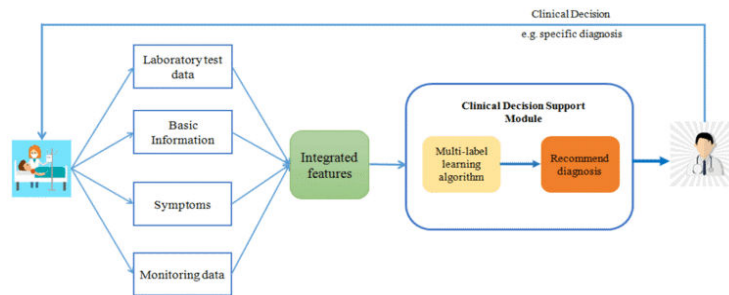

Fig 1. System Module

III.I Data Collection (DC) Module:

This is the only hardware module and consists of a wrist health band, physiological sensors which measure – pulse rate, pressure, calories and SpO2.The wrist band provides a convenient interface for the collection of physiological data, while the worker completes their normal tasks. The wrist band offers at least two advantages for this application:

1) Proximity to hand and surrounding areas to which the above-mentioned sensors can plug into to tap vital patient data.

2) Less complicated to use compared to a new-in-the-market complicated-to-learn health gadget.

3) Easy to carry the band as it looks cool. The wrist band attaches itself to the mobile and communicates with it through the Bluetooth technology. The communication between the Application dashboard and the wrists band occurs over aBluetooth and cloud technology, and shall be one of the two types:

1) Command messages: intended to issue commands to the Bluetooth.

2) Data messages: contain raw patient data, related to one of the following: Spo2, pressure, pulse rate and calories.

III.II Data processing module:

This module is entrusted with activity multiple tasks of filtration, extraction, conversion.

Filtration: Clear data of 'noise' and redundancy.

o Extraction: Derive substantive and helpful pattern from knowledge.

o Conversion: Convert knowledge into an evident format like JSON, XML for simple, reliable and economical inter-change between modules. These formats are simply understood by the presentation layer, and by the graphic and image algorithms.

III.III Data storage module:

This module stores 2 quite data:

1) User connected information that is any sub-divided into:

a) user profile

b) WHO will access patient knowledge and

c) in what roles

2) Patient's processed health knowledge.

User connected data enters this module through the interaction between a user and interaction module, whereas processed patient knowledge comes directly from the choice support module. The info used for this purpose may be relative, non-relational or cloud primarily based relying upon the necessity. samples of ancient knowledgebases include: MYSQL and SQL whereas No-SQL databases like Mongolian monetary unit dB that create it simple to store and retrieve machine generated data may be used for the aim. what is more, cloud-based databases like Amazon WS, Google Cloud SQL, and Microsoft Azure offer ascendable knowledge storage and might be used only if sizable amount of patient's square measure concerned, and therefore the knowledge area demand is anticipated to grow speedily.

However, whereas mistreatment any of those, it ought to be remembered that, health knowledge ought to be unbroken confidential therefore, additional care should be taken to encrypt/ decipher it before each storage/ retrieval method, in accordance with HIPAA/ HITECH security policies. the protection (SEC) and encryption/ decoding (ENC/ DEC) layers beware of this demand.

III.IIII Decision support system:

This module has three threads running simultaneously:

(Thread 1) collects incoming data from data collection module, and pushes it to data processing module; (Thread 2) collects processed data, checks for anomalous conditions, informs alarm generator module if something is wrong and (Thread 3) Collects processed data, passes to data storage module.

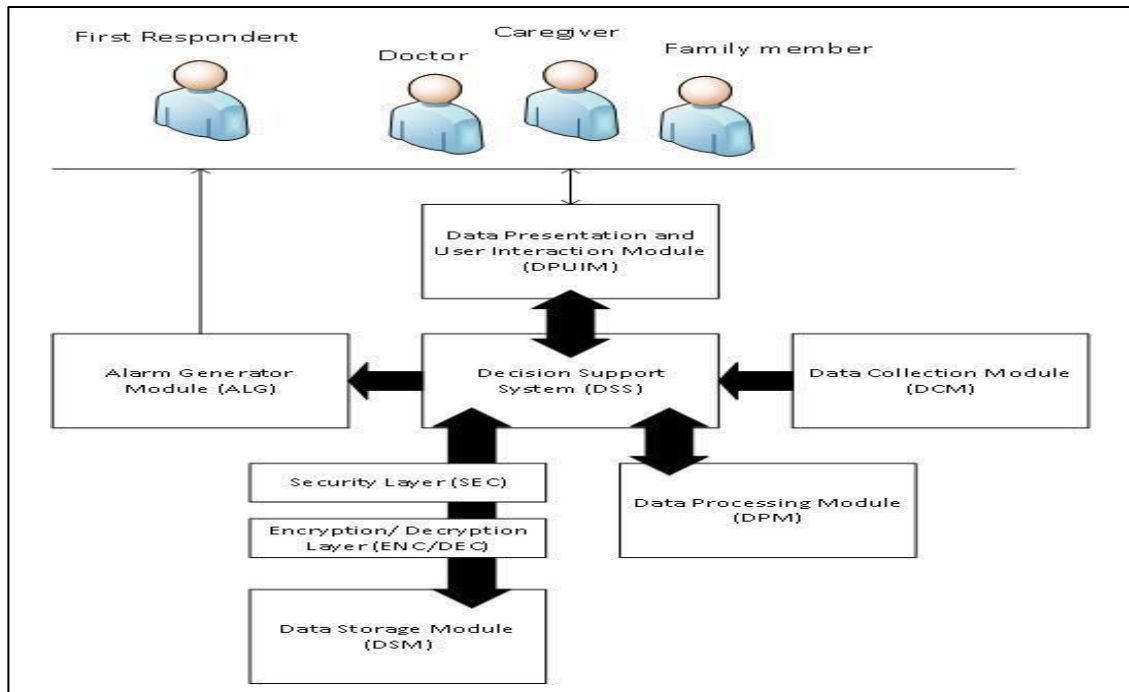In case of emergency only (Thread 2) is performed because (Thread 3) is not required. Below is figure 2.

Figure 2   System module diagram

IV. SYSTEM WORKFLOW

Figure 3 shows the system working and data flow as it is anticipated to occur between modules. The data collection module is responsible for collecting vital data. It consists of physiological sensors, connected to a wrist band. The wrist band non-invasively collect and transmit data to the decision support system (DSS), which is part of a larger application running on the web server . DSS is the core of the whole system, and capable of taking various decisions in real-time. The incoming data from Data Collection Module (DCM) is fed to DSS which in turn passes the raw data to Data Processing Module (DPM). After this, stage, the processed 'useful data' makes its way to the Data Storage Module (DSM), while the 'useless data' is discarded. The 'useful data' needs to pass through DSS during the previous step, mainly because DSS runs a separate thread to check for anomalous health situations. In the event, that an abnormal condition is detected, the DSS immediately calls, emails, or texts emergency responders and/ or family members via the Alarm Generation Module (ALG). If everything is normal, another thread running on the DSS pushes the cleaned data to Storage Module for back up. This Data Presentation and User Interaction Module (DPIU) use stored data to present bar graphs, charts, to the end-user, or to send auto-generated health reports to the doctor or patient family member.
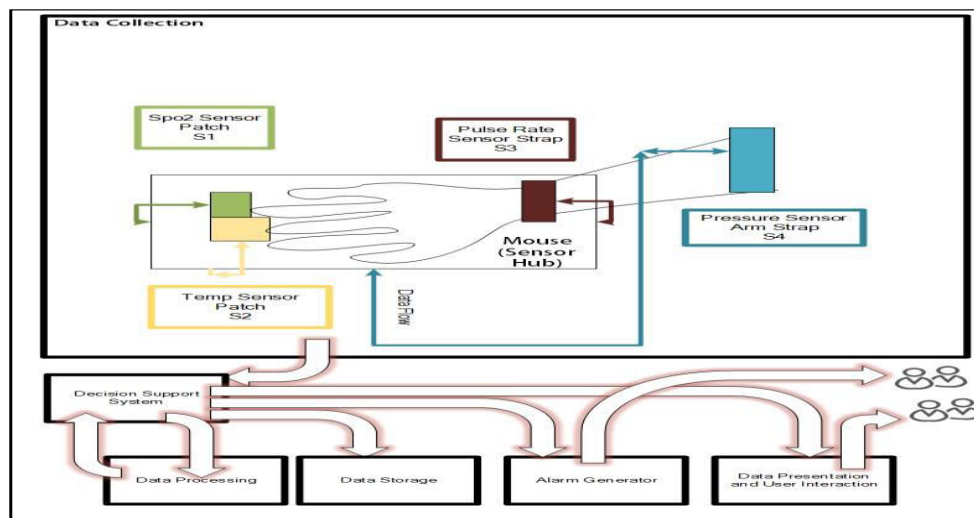
Fig 3: System Workflow Diagram

V. CONCLUSION

The proposed solution enables workplace health status monitoring, potentially reducing the impact of chronic diseases in office environments by utilizing the Mobile Application and web-App itself so it becomes a powerful health monitoring system. The main benefits are: reduction in the number of visits to the doctor during office hours; reduced dependency on institutionalized health setting such as hospitals for check-ups, advanced knowledge of worsening symptoms, leading to timely cure rather than last minute hospital visits. Together these will result in fewer sick leaves, and more productivity achieved per employee contributing a healthy work environment, minimized revenue losses for the companies, maximized overall output, and improved health outcome for the employees, all with minimum impact on their day-to-day activities.

VI. ACKNOWLEDGEMENT

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