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# Patient Monitoring System Using Web Services

Swathi N[1], Master of Computer Application,

Mr. K. Nirmal[2], M.C.A.,M.Phil., Assistant Professor,

Research scholar [1] ,Research Guide [2]

Department of Computer Application

Krishnasamy college of Engineering and Technology, Cuddalore.

Abstract

The Patient Monitoring System using Web Service is designed for any hospital to replace their existing manual paper-based system. The project Patient Monitoring system includes registration of patients, storing their details into the system, and also computerized billing in the pharmacy and labs the purpose of the project entitled as "PATIENT MONITORING SYSTEM" is to computerize the Front Office Management of Hospital to develop software which is user friendly simple, fast, and cost – effective. It deals with the collection of patient's information, diagnosis details, etc.

Introduction

The modern visionary of healthcare industry is to provide better healthcare to people anytime and anywherein the world in a more economic and patient friendly manner. Therefore for increasing the patient careefficiency, there arises a need to improve the patient monitoring devices and make them more mobile. Themedical world today faces two basic problems when it comes to patient monitoring. Firstly, the needs of healthcare's provider's presence near the bedside of the patient and secondly, the patient is restricted to bed and wiredto large machines.

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The framework integrated web services with multiplesensors controlled by Arduino Uno. Therefore, theService Oriented Architecture (SOA) with Rich InternetApplication (RIA) wasused in this system. In particular,this system was applied on the four types of sensorsnecessary to monitor the patient such aselectrocardiogram (ECG), body temperature, pulse rateandoxygen in blood (SPO2). Finally, the system outputsimprove a high-quality service, real time datacollecting, eliminating manual data gathering andenabling the monitoring of huge numbers of patients.

The vital signals of any patients are extremelybasic and key to be checked. Any progressions thatmay happen may influence the patient's health.Patient's vital signals and passionate parameters arechiefly Heart Rate (HR), Body Temperature (T),Oxygen Saturation (SPO2) and Electrocardiography(ECG) [5]. These parameters are basic to be reportedfor a few patients that are presented to a fewsicknesses. As the adjustment in every of these parametersmay influence patient's health adversely,the framework permits the specialist (Supervisor) toview and spare these parameters whenever overInternet on a database

Web services give a standard method forinteroperating between various programmingapplications running on an assortment of stages and/orstructures. Web services are applications thatuncover their business rationale, information andprocedures through automatic interface. We have beenutilizing distinctive strategies as a part of theconfiguration of the proposed framework site as it willbe clarified in this research. In this paper, weconcentrate on the concept of real-time monitoringpatient utilizing different sorts of the sensors and webserving.

Existing System

Patient Monitoring System using Web Service currently use a manual system for the management and maintenance of critical information.

The current system requires numerous paper forms, with data stores spread throughout the hospital management infrastructure.

Often information is incomplete or does not follow management standards.

Forms are often lost in transit between departments requiring a comprehensive auditing process to ensure that no vital information is lost.

Disadvantage

It is difficult to handle the whole system manually and it is less accurate and to keep the data in case files for future reference because it may get destroyed.

Moreover, it is very difficult to retrieve data.
Redundancy of data may occur and this may lead to the inconsistency.
The manual system is so time-consuming

Proposed System

The Patient Monitoring System using Web Service is designed for any hospital to replace their existing manual paper-basedsystem.
The new system is to control the information of patients.

Room availability, staff and operating room schedules and patient invoices.

These services are to be provided in an efficient, cost effective manner, with the goal of reducing the time and resourcescurrently required for such task.

Advantage

It provided in an efficient, cost effective manner.
Reducing the time and resources
Reducing man power

Modules Description

**1.Reception Module**

The reception module handles various enquiries about the patient's admission and discharge details, bed census, and the patient's movements within the hospital. The system can also handle fixed-cost package deals for patients as well as Doctor Consultation and Scheduling, Doctor Consultancy Fees and Time Allocation.

- Doctor visit schedule
- Doctor Appointment Scheduling
- Enquiry of Patient
- Find History of Patient Enquired.

**2.Administration**

This module handles all the master entry details for the hospital requirement such as consultation detail, doctor specialization, consultancy fee, and service charges.

- Employee
- Employee Detail Recording.
- Doctor Type.
- Doctor Master
- Referral Doctor

**3.Pharmacy**

This module deals with all medical items. This module helps in maintaining Item Master, Receipt of Drugs/consumables, issue, handling of material return, generating retail bills, stock maintenance. It also helps in fulfilling the requirements of both IPD and OPD Pharmacy.

**4. Laboratory**

This module enables the maintenance of investigation requests by the patient and generation of test results for the various available services, such as clinical pathology, X-ray and ultrasound tests. Requests can be made from various points, including wards, billing, sample collection and the laboratory receiving point. The laboratory module is integrated with the in-patient/ outpatient registration, wards and billing modules.

**5.Registration**

This module helps in registering information about patients and handling both IPD and OPD patient’s query. A unique ID is generated for each patient after registration.

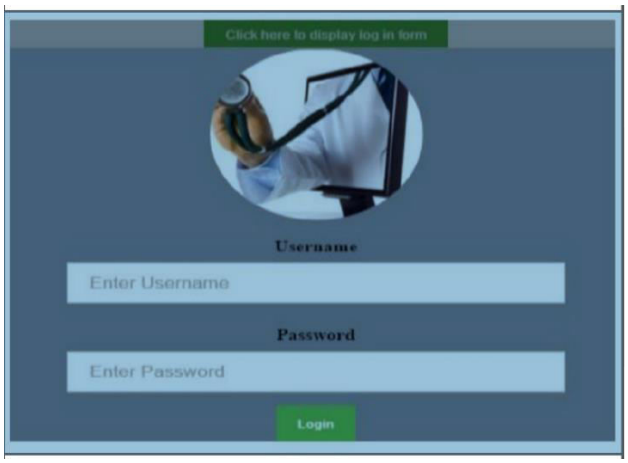


Fig 1:login page


Fig 2: Home page

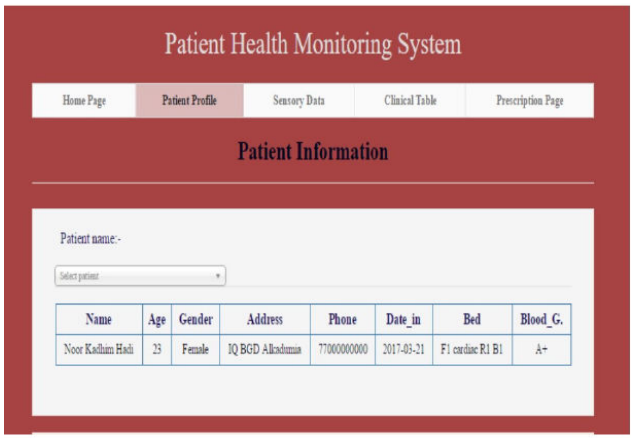


Fig 3: Patient profile page which display patient's information

Future scope

The entire details of the patient suffering from various chronic diseases like cancer, Alzheimer's etc can be sent to a doctor sitting abroad in order to analyse and recommend the type of treatment and medicines for the diagnosis of the disease.

Conclusion

This paper presents a design and implementationof patient monitoring system depending on multipletypes of sensor and web services. Using four sensorsrelated to healthcare monitoring such aselectrocardiogram sensor (ECG), body temperaturesensor, pulse rate sensor and oxygen in blood sensor (SPO2) which is controlled by Arduino Uno and fetched data from sensors. The proposed system is help to medical staff for easy monitoring and restoring for the patient's state.Database is also designed and implemented to store the information about the patients.

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