Design and Implementation of Hospital Management System: Room and Bed Management

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Abstract- The paper developed an automated system that is used to manage patient, bed and room information and its administration. This was with a view to eliminate the problem of inappropriate data keeping, inaccurate reports, time wastage in storing, processing and retrieving information encountered by the traditional hospital system in order to improve the overall efficiency of the organization. The tools used to implement the system are Hypertext Markup Language (HTML), Cascading Style Sheets (CSS), Hypertext Preprocessor (PHP), and My Structured Query Language (MySQL).

Index Terms-Automated system; Hospital administration; Web application system.

INTRODUCTION

Hospital Management System is comprises a automated web based application for record keeping, tracking and prescriptions with monitoring. It helps in monitoring and controlling the hospital’s daily transactions, as well as the hospital’s performance. Hospital management manage the daily activities such as patient information, bed and room information in the hospital, and how funds are being allocated and used. This results in waste of money, time and manpower. Room management allows to manage wards, rooms and beds in hospital. Every functionality is dynamic here and helps to create and allot a room or bed to patient and services related to it. It helps in monitoring and controlling the hospital’s daily transactions, as well as the hospital’s performance. The main purpose of the hospital is to provide adequate care and treatment to the people. Various operational works that are done in a hospital include: recording information about the Patients, and also manage the room and bed information, generating bill, recording information related to diagnosis given to Patients, Keeping record of the Immunization provided to patient, Keeping information about various diseases and medicines available to cure them.

1. Hospital Management System

Hospital is to provide adequate care and treatment to the people and activities, occurring within organizations for the purpose of accomplishing predetermined objectives through humans and other resources. Hospital management is related to integrated hospital information system, which addresses all the functional areas of multi-specialty hospitals. The hospital management includes better patient care, patient safety, patient confidentiality, efficiency and better management of bed and room information system. There are different modules in the process of Hospital Management System. These include:

1.1 Patient management

A patient agent simulates the role of patients. The patients in consultancy about doctor selection according to his need and symptoms. The doctor gathers patient’s requirements and prepares a requirement report in the developers’ comprehensible form and sends that to him.

1.2 Room management

Ward/room management allows to manage wards, rooms and beds in a hospital. Every functionality is dynamic here and helps to create and a lot a ward / room or bed to patient and services related to it.
1.3 Bed management

Bed management is a background activity in hospitals. It is the bane of hospitals all over the country, bringing in its wake myriads of problems for patients, nurses, physicians and administrators. Bed management perform various operations such as admissions/discharge/transfer.

1.4 User management.

User Form will save the data of the employee, when we click on user type we get list of different user such as Doctor, Admin etc. Entire data i.e. Full Name, Address, User Id, Password, Mobile No. Email Id.

1.5 Pharmacy management

Hospital pharmacies provide a huge amount of medications per day which is allocated to the wards and to intensive care unit according to medication schedule.

1.6 Employee Management

In employee management it contains employee details such as employee name, qualification, joining date, department etc.

1.7 Doctor Management

In this module it contains doctor details such as id, name, qualification, Specialization, designation and department etc.

2. Literature Review

HMS refers to a computer system designed to manage all the hospital’s medical and administrative information order tenable health professionals to perform their jobs more effectively and efficiently. Moreover, HMS manages althea information processing activities within hospital to achieve high-quality patients care services and medical research HMS consists of the following components: Employee Management, User Management, Patient Management, IPD Module, OPD Module, Room Management, Bed Management, Pharmacy Management, Blood bank Management. Each category has its own function, The organization and use of these HMS played an important role in improving the degree of patient fulfillment enhancing hospital competence and healthcare quality, protecting the safety of healthcare, and reducing healthcare costs. Hospital Management System (computerized) is increasingly becoming an emerging tool in health care area to efficiently enable delivery of high quality health services. These systems have large computerized data bases intended primarily for communication and storing health and administrative information.

HMS has components and has broad scope and level of systems from departmental to knowledge based systems that provide diagnostic support and interference for patient care activities. It is believed that HMS implementation is an organizational process conducted toward information technology within user community. Expectation and requirement arise from what users see and hear about the system and interpret the ways the system will work for them. Studies indicated that addressing user expectation is a distinct element to ensure the successful adoption of the HMS.

2.1 The Old System

The procedure involved in the current system is that, when a patient visit the hospital for medication, the patient will first of all buy the identification card which contains name, and other relevant information needed, and card identification number. The patient will then waits for the card to be processed together with a file jacket that holds the card that has column for diagnosis made by physician, drugs prescribed, and date at the waiting room for the arrival of the card. This system is so tedious in tracing a record files slow in processing of records, space occupied by the file time waiting while waiting for the patient file to be retrieve by the receptionist.

2.2 The New System

This new system is design for medical practitioner/physician to keep track of all patient’s medical record/information such as diagnosis, drug prescribed, admission and discharged, etc the new system will take care of the long processes and tedious work involved in tracing and retrieving a patient’s record in the old system in a nut shell this will
improve the efficiency of the management in a daily work as it can provide required records on time.

3. Problem Statement

The existing hospital systems provide the basic functionalities needed to be handled in a hospital. There is no intelligence of the software in such cases. In the existing system all the patient information, doctor availability details and regarding the tests done to the patients prescribed by the doctor is maintained. Also there is no proper search technique to check the Diagnosis information. In Our software standardized diagnosis code is not added as compared to earlier system. Still it is not implemented in any system. This code is 1 not available so can not be added in our software to fetch the diagnosis details on just a click.

3.1 System Design

![System Design Diagram]

Fig: System Design

4. Methodology

This hospital management system is based on the database, PHP programming language and ajax and j-query techniques. My SQL (Structure Query Language) is used in areas where keeping the records in the database is necessary and it also perform operation like insert, delete, update, edit. this system uses HTML and PHP as frontend and MySQL work as backend. In ajax technology it is asynchronous java script and xml. It is used for table loading purpose.

5. Advantage

- System of bed management makes it easy to declare patients into units, and saves time probing for available beds throughout the hospital.
- Personal is stress-free searching for available beds, especially during emergencies.
- Shortens patient waiting time during an emergency.
- Helps to check Ward / room / bed status and availability.
- Helps to easily search a patient allotted in a ward room and bed.

6. Results

The Hospital Management System software meets user requirement relating to entering patient data. It shows the number of patients registered in the hospital database. The system also was able to show patients past medical records such as diagnosis, drug prescription and dosage. The system can show login screen to access a particular module (figure 1).

The following screen shows the Room Type Management, Room Management, Location List, Bed Type Management, Bed Type List, Bed List.

The following figures are shows the login screen.

![Login Screen]

Fig.7.1 Admin

In the login screen, we have to select designation and login by using their Id and password to access that particular module.
In Room Type Management, all the details of room are stored through the various field such as Room Type Id, Room Type Name, Remark etc. Here, new room can also be added through ‘Add Room Type’.

Fig.7.3 Room List

Here, information of different rooms are stored through various fields such as Room No, Room Name, Location, Room Type, Room Rate, Total Beds. Here, details of new room can be through ‘Add Room List’ Here information can be added, deleted, and edited.

Fig.7.4 Location List

In location list stores the details of location, through the various field such as Location Code, Location Name, Remark. Here, New location can be added through ‘Add Location’.

Fig.7.5 Bed List

In bed list new bed can be added through ‘ Add Bed’. Here, information can be added, deleted, edited.

Fig.7.6 Bed Type List

It stored the details of bed through various fields like bed type code, bed type name remark. Here, information can be added, deleted and edited.

7. Conclusion

Hospital Management System not only provides an opportunity to the hospital to enhance their patient care, but also can increase the profitability of the organization. This would improve the response time to the demands of patient care because it automates the process of collecting and retrieving patient information. This also reduced the spaced occupied by the files and provide adequate security for Room and Bed record.
Based on the finding of this study, the design of hospital patient database record will be a solution.

The new system will take care of the long processes involved in tracing and retrieving a patient’s record in the old system in a nutshell this will improve the efficiency of the management in a daily work as it can provide required records on time

8. Future Scope

In Our software standardized diagnosis code will be added as compared to earlier system. Still it is not implemented in any system. This code will be available further so it can be added in our software to fetch the diagnosis details on just a click.

The proposed system software the system must be used in a hospital for getting an information of an hospital to get the information from the patient and storing for a future use.

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