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E-Hospicare System

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Abstract: *This project E-Hospicare system includes registration of patients, storing their details into the system, and also computerized billing in the pharmacy, and labs. The software has the facility to give a unique id for every patient and stores the clinical details of every patient and hospital tests done automatically. It includes a search facility to know the current status of each patient. User can search details of a patient using the id. The E-Hospicare system can be entered using a username and password. It is accessible either by an administrator or receptionist. Only they can add data into the database. The data can be retrieved easily. The interface is very user-friendly. The data are well protected for personal use and makes the data processing very fast.*

Keywords: E-Hospicare System, Digital Hospital, Multi-Specialty hospitals, Hospital Management System, Healthcare

I. INTRODUCTION

The project Hospital Management system includes registration of patients, storing their details into the system, and also computerized billing in the pharmacy, and labs. The software has the facility to give a unique id for every patient and stores the details of every patient and the staff automatically. It includes a search facility to know the current status of each room. User can search availability of a doctor and the details of a patient using the id.

The Hospital Management System can be entered using a username and password. It is accessible either by an administrator or receptionist. Only they can add data into the database. The data can be retrieved easily. The interface is very user-friendly. The data are well protected for personal use and makes the data processing very fast. Hospital Management System is powerful, flexible, and easy to use and is designed and developed to deliver real conceivable benefits to hospitals. Hospital Management System is designed for multi-specialty hospitals, to cover a wide range of hospital administration and management processes.

It is an integrated end-to-end Hospital Management System that provides relevant information across the hospital to support effective decision making for patient care, hospital administration and critical financial accounting, in a seamless flow. Hospital Management System is a software product suite designed to improve the quality and management of hospital management in the areas of clinical process analysis and activity-based costing. Hospital Management System enables you to develop your organization and improve its effectiveness and quality of work. Managing the key processes efficiently is critical to the success of the hospital helps you manage your processes.

II. LITERATURE SURVEY

2.1 Background History

As we have many industries turning towards the digital front, and it could be a very great move for the legacy and necessary industry such as Hospitals to move towards that direction. The current existing module is efficient but when the time is not a constraint. We cannot have this system when each and every second matters. This system should include many features in the online front that include the patients' records including his disease history and reports. Above mentioned data can be accessed by the respective doctor from anywhere around the globe. The storage of all these details would be done by setting up a database server. If a patient is admitted to the hospital, all the vital details would be updated for the doctors to check it online. They can even give online prescriptions directly to the pharmacy specific to a particular patient with their patient id. Every person who visits the website can register themselves as a patient and get an unique Patient ID that is referred to in all the future transactions. A patient can take the appointments online and know the availability of the doctor. Notifications regarding the regular health check-ups and medicine reorders. Tips on regular better lifestyle and good Health

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are provided. Now-a-days each and every individual is bound to have a smart device that connects him to the world of the internet and that's when the speed of data transfer or data availability comes into picture. This digital approach would help many people who are in need of medical services for small inconveniences and are unable to travel for the necessary medical treatment.

2.2 Related Work

Aims to tackle the problem of design and implementation of hospital emergency nursing information management system and provide high quality service for patients. Seven function modules are designed in this system, which are 1) Emergency register management, 2) Price making, 3) Charge, 4) Nurse station management, 5) Report printing, 6) Pharmacy dispensing, and 7) Data dictionary maintenance.

There are many software packages about Hospital Information Management Systems in the world. This is a developing field, and many researchers are interested to develop new features and apply them to the software. The technique developed in. Attempts to include the decision factor in the software. The software decides for the patients where to go and what to do before they see a doctor. This saves a lot of time and helps the doctors to concentrate more on the patients. There are not many intelligent software packages similar to the developed one in the market. The software also has a querying system where it can ask various questions to the patient and give them a diagnosis. Many hospital information systems in literature manage inventory of the hospital. This inventory includes patient and staff information, stores and medicines, billing and report generation. This complex application communicates with a background database server and manages all information related to hospital logistics. But our software engages the patients and guides them with a querying mechanism which different and unique in itself. It suggests operational steps to the patients and doctors instead of simple management This software is in modular form and can be adapted to any hospital or clinic. Eventually the developed software will be placed in the internet so that old and disabled patients can also have access to hospitals from the comfort of their homes

The main aim of project is to improve medical services. Their project hospital management system and nearest domain search is a web application which is develop for secure storage of patient's medical history and also search for nearest blood bank, medicals and hospitals. That project is developed by three perspectives i.e., doctor, patient, and nearest domain they have provided security for authenticated user as new user have to register according to their type of perspective and existing user have to login, unique OTP will give to every patient while login so proper authentication is maintained. That project requires internet connection as it runs dynamically. The application stores user account information in the database server and for nearest domain search we are providing GPS. They are also providing search option of doctors as per there specialization so that patients can take appointment. This web application merge many applications like nearest search, user login, doctor login, appointment etc. so it becomes more convenient to user.

Since the Hospital Management System is essential for maintaining detail about the Doctor, Patient, Hospital staff etc. we understand that by using of Hospital Management System project the work became very easy and we save lot of time.

Hospital administrators would be able to significantly improve the operational control and thus streamline operations. This would enable to improve the response time to the demands of patient care because it automates the process of collecting, collating and retrieving patient information. Accounting sometimes becomes awfully pathetic and complex. The product [4] will eliminate any such complexity.

Hospital Management System [6] not only provides an opportunity to the hospital to enhance their patient care, but also can increase the profitability of the organization. Hospital administrators would be able to significantly improve the operational control and thus streamline operations. This would improve the response time to the demands of patient care because it automates the process of collecting, collating and retrieving patient information.

In [7] Advanced Hospital Management System is for computerizing the working in a hospital. The system takes care of all the requirements of an average hospital and is capable to provide easy and effective storage of information related to patients that come up to the hospital. The system is also distributed thus making it available for every individual. There is no chance of loss of data since we have backup of each and every data. This proposed system has completely reduced the paperwork thus reducing the workload of working staff.

The system in not complex in nature and therefore can be handled very well. Patient's report can be shared online thus saving a lot of time and effort. Also, the system is error free and it avoids manipulation with the record. In order to access lab panel, hospital panel and admin panel every individual requires a unique ID and Password. First panel is admin panel

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which can be accessed only by the admin wherein the admin can update (ON or OFF) the status of the patient. The various performance indicators and standards of E – hospital management solution and HIS are discussed in [9]. Success factors of E – HMS / HIS tend to vary depending upon leadership support, training, technology adoption, user friendliness, etc…HIPAA privacy guidelines and HL7 / RIM framework are identified as the primary determinants and metrics of Global compliance in developing and implementing successful E - hospital management solutions. Also the various case study insights on the broader framework of E – Hospital management solution / HIS paves way for future research on Enhancements in E - Hospital Management domain.

III. Proposed Work

3.1 Proposed Concept

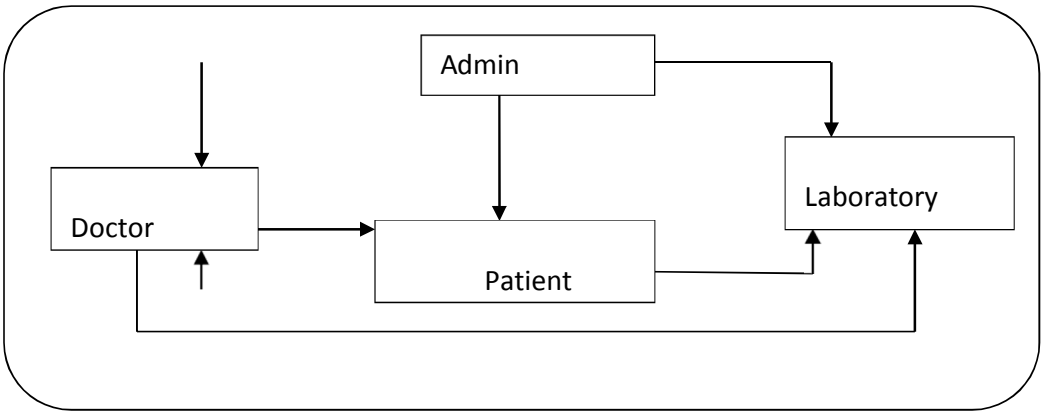

Figure 3.1: Proposed Design

Figure 3.1 shows Proposed Design of existing System which consist of four modulesnamed as Admin, Doctor, Patient, and Laboratory. The description of each module isgiven below:

- Admin: Admin module is responsible to manage all the hospital responsibilities like to manage and view all the working of doctors and laboratory as well as to view all the patient details.
- Doctor: Doctor Module is responsible to manage their profile. Doctors are able to Create and manage appointment with patient, create prescription for patient, provide medication for patients, Issue for operation of patients and create operation report.
- Patient: Patient Module is responsible to manage their profile. Patients are able to View appointment list and status with doctors View prescription details, View medication from doctor, View doctor list, View blood bank status, View operation history, View admit history. like bed, ward icu.
- Laboratory: laboratory module is responsible to manage their profile. They can Watch prescription list, Upload diagnostic report, Preview of report files. like blood report images, ct scan, etc.

3.2 System Design

The existing system is not completely digitized; most of the processes like registration of patients, sharing their reports, sharing the prescriptions are offline. Which involve a lot of paper and consume a lot of time. This project has focused on reducing the amount of paperwork involved and also reducing the time involved in these processes. Also, we have integrated a predictor module which can predict the disease of a patient. Figure 3.2 shows system architecture. This project has been designed into four modules. Named as Admin, Doctor, Patient, and Laboratory. To store all the information of patient, doctor, and laboratory this project designed a database named as myhmsdb.

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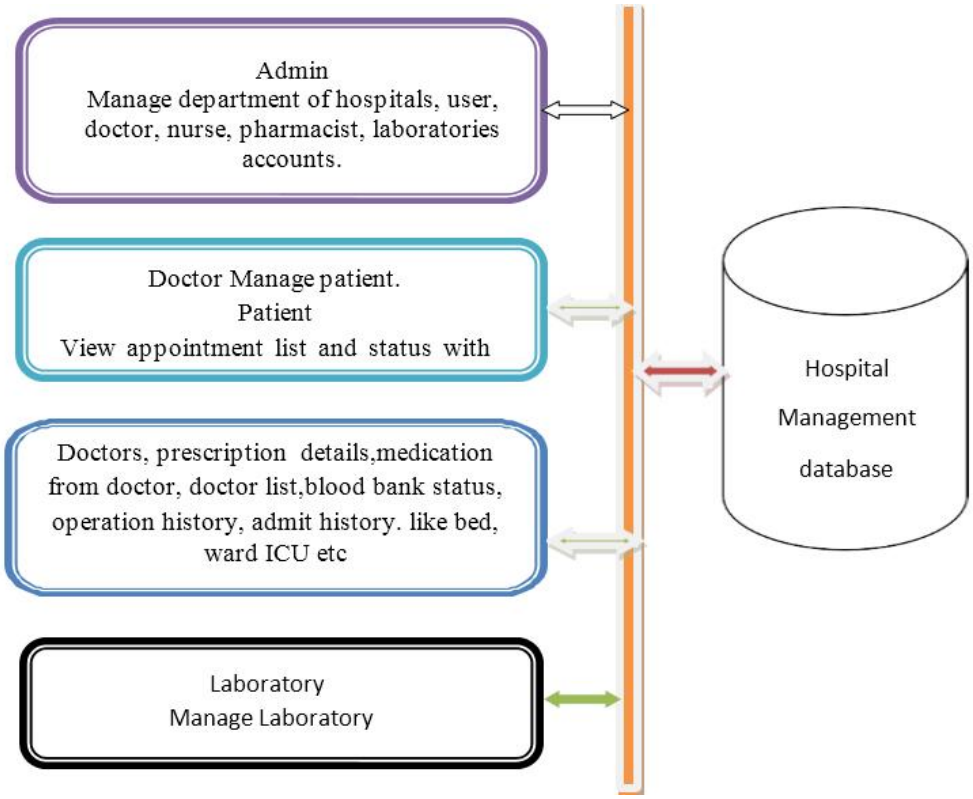

Figure 3.2: System Architecture

3.3 Working of Proposed SystemData Flow Diagram

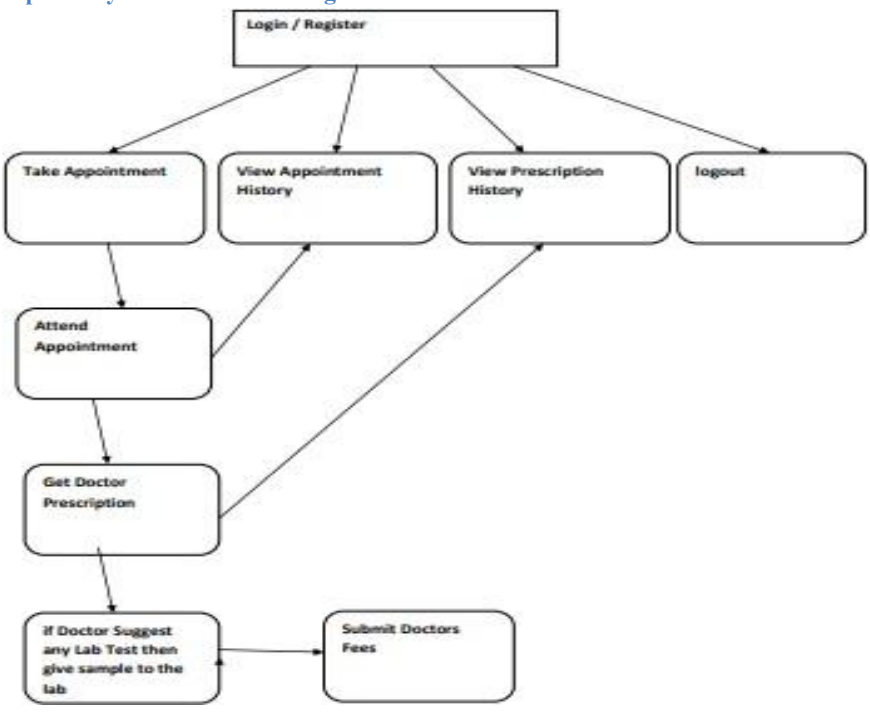

Figure 3.3: Patient DFD

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IV. System Implementation and Testing

4.1 Setting Environment Client Side and Server Side

Environment Client side and server side are web development terms that describe where application code runs. Web developers will also refer to this distinction as the frontend vs. the backend, although client-side/server-side and frontend/backend aren't quite the same. In a serverless architecture, the serverless vendor hosts and assigns resources to all server-side processes, and the processes scale up as application usage increases.

4.2 Client-Server Model

Much of the Internet is based on the client-server model. In this model, user devices communicate via a network with centrally located servers to get the data they need, instead of communicating with each other. End user devices such as laptops, smartphones, and desktop computers are considered to be 'clients' of the servers, as if they were customers obtaining services from a company. Client devices send requests to the servers for webpages or applications, and the servers serve up responses. The client-server model is used because servers are typically more powerful and more reliable than user devices. They also are constantly maintained and kept in controlled environments to make sure they're always on and available; although individual servers may go down, there are usually other servers backing them up. Meanwhile, users can turn their devices on and off, or lose or break their devices, and it should not impact Internet service for other users.

Servers can serve multiple client devices at once, and each client device sends requests to multiple servers in the course of accessing and browsing the Internet. Multiple clients and servers interact: Suppose a user is browsing the Internet and types 'netflix.com' into their browser bar. This results in a request to DNS servers for the IP address of netflix.com, and the DNS servers respond to this request by serving the IP address to the browser. Next, the user's browser makes a request to Netflix servers (using the IP address) for the content that appears on the page, such as the movie thumbnail images, the Netflix logo, and the search bar. Netflix servers deliver this to the browser, and the browser loads the page on the client device.

4.3 Client Side of Application

In web development, 'client side' refers to everything in a web application that is displayed or takes place on the client (end user device). This includes what the user sees, such as text, images, and the rest of the UI, along with any actions that an application performs within the user's browser. Markup languages like HTML and CSS are interpreted by the browser on the client side. In addition, many contemporary developers are including client-side processes in their application architecture and moving away from doing everything on the server side; business logic for dynamic webpages*, for instance, usually runs client side in a modern web application. Client-side processes are almost always written in JavaScript. In the netflix.com example above, the HTML, CSS, and JavaScript that dictate how the Netflix main page appears to the user are interpreted by the browser on the client side. The page can also respond to 'events': For instance, if the user's mouse hovers over one of the movie thumbnails images, the image expands, and adjacent thumbnails move slightly to one side to make room for the larger image.

V. Advantages and Disadvantages

5.1 Advantages

- Specifically, the integration of the software into the system has made communication much more effective in the case of the health care system. As a result, it is possible to access every data from anywhere in the world specifically via. authorized login. This mode of communication has become relatively cheaper.
- The effective usage of technology has contributed to minimizing many of the limitations. One of the biggest issues in the health care system is the geographical limitation. This has been effectively managed with the addition of the hospital management system. The integral reports can be sent through instant messages, emails, etc.
- In the case of the hospital management system, the information is available 24 hours throughout the week. This indicates that the reports can be sent anytime on any particular day. So, there is no such possibility for the delay in getting the treatment. Apart from that, the communication mode has become relatively cheaper. Therefore, no report will be delayed from reaching the hands of the authorities.

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- Improved productivity and cost-effectiveness are considered to be another important advantage of the hospital management system. Currently, it has been productive to manage the things automatically when compared to the old day manual set up.
- In recent days, many of the modifications are brought to the specific system. One of the integral things is considered to be the change in the education system. This has ultimately given shape to a completely new type of system.

5.2 Disadvantages

- One of the greatest disadvantages of the hospital management system is generally related to security. It is considered to be a matter of concern in case you go online without enough protection which can create some big problems related to security.
- Another greatest problem that is associated with the health care industry is the data breach. Not only that, but it is also known to be a sophisticated problem.
- Lack of employment is another such thing. The chances of employment usually become less with the automation of the system. Also, the gradual need for manual data drafting becomes an irrelevant aspect.
- Therefore, the overall procedure of the software implementation is considered to be a difficult task. Another difficulty faced is associated with the process of getting training properly.

VI. Conclusion and Future Scope

6.1 Conclusion

Since the Hospital Management System is essential for maintaining detail about the Doctor, Patient, Hospital staff etc. It is understood that on the introduction of the Hospital Management Project into play, the work at the hospitals would be seamless and efficient. Transferring the patient data would take only seconds compared to the traditional way of sending the file manually. Usually boring and mundane accounts work will also be automated and simplified.

6.2 Future Scope

Some basic algorithms like ID3 have been used for the allotment of doctors and prediction of disease. Further some complex algorithms can be used to improve the performance of the system.

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