

Health Care Information and Management Systems

Atharva Mangeshkumar Agrawal¹, Santhi K²

^{1,2}Vellore Institute of Technology, Vellore, Tamil Nadu, India 632014

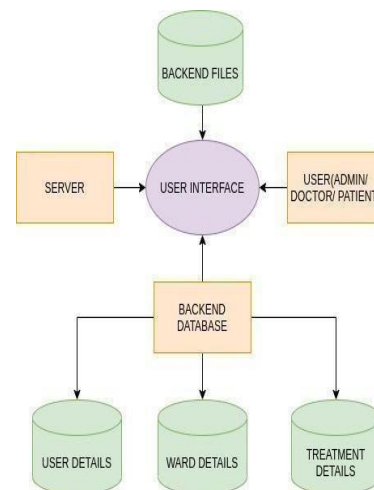
Abstract - A hospital is a very complicated yet the most useful organisation to humanity. Managing a complete hospital is not one-person job. Moreover, managing all the files and having the complete system physically might be easy in small hospitals, but not so in large hospitals. So, the primary objective of the undertaken project is to design a portal for hospitals of any size. A convenient portal with the scalability as a feature is all we need in the existing systems. In this project, we built a Health management system, to be adaptable by any organization. The technologies used are most basic ones, yet the most reliable ones that the industry relies upon. The project consists of all the features that hospitals need and have all modules embedded from admin to patient with precise back-end database connectivity.

1. INTRODUCTION

Medical clinics are perplexing associations, which notwithstanding the specialized help expected with regards to therapy and counteraction of wellbeing dangers, additionally require great administration rehearses pointed toward working on their effectiveness in their center business. In any case, in regulatory terms, repetitive contentions emerge including specialized and administrative regions. One of the significant difficulties existing clinic the board frameworks face is around functional effectiveness and stand by time between various cycles, offices and people. Thinking about late turns of events, innovation has turned into an important mediation to the clinical framework in the Patient enlistment framework, yet even past that, to the phase of patient administration and furthermore in measure the executives of the whole medical clinic. The pattern of e-Health to digitize the administrations related with medical care are turning out to be more continuous similarly clients who access these administrations are individuals with incapacities and the old. A drive that permits working on the personal satisfaction of individuals are sites, however not all sites are available and comprehensive. Disappointments in Web availability make prohibition obstructions in gatherings of individuals. There are a few examinations on openness wherein the rules recommended by Web Content Accessibility Guidelines (WCAG) 2.0 were not sufficiently applied. This review depicts the web availability issues distinguished in 22 medical clinic sites as indicated by the Web measurements positioning. In the assessment interaction, a system was applied to help in the assessment of the sites proposed by the World Wide Web Consortium. In this work, a few medical clinic sites and the degree of availability were approved, the Website Accessibility Conformance Evaluation Methodology was applied to recognize the simplicity with which a site can be gotten to as per WCAG 2.0 standards.[5] A Website is

introduced by this archive, where clients will actually want to discover a manual for execute the mechanical administration at medical clinics and to download the informatics framework for upkeep the executives (SMACOR). This work will fill the vacancy in mechanical administration that exists today in Cuban and Latin America Health care organizations. This item is the aftereffect of over a very long term research work at this branch done by the Bioengineering Center (CEBIO) at the ISPJAE College in Havana City Hence we propose a digitalised medical clinic the executives framework site. The framework can decrease the line totally, incredibly lessening pressure for staff and guaranteeing a decent encounter for patients. Clinic Management System gives the advantages of smoothed out activities, upgraded organization and control, predominant patient consideration, severe expense control and further developed productivity. HMS is incredible, adaptable and simple to utilize. It is planned and created to convey truly possible advantages to clinics and patients.

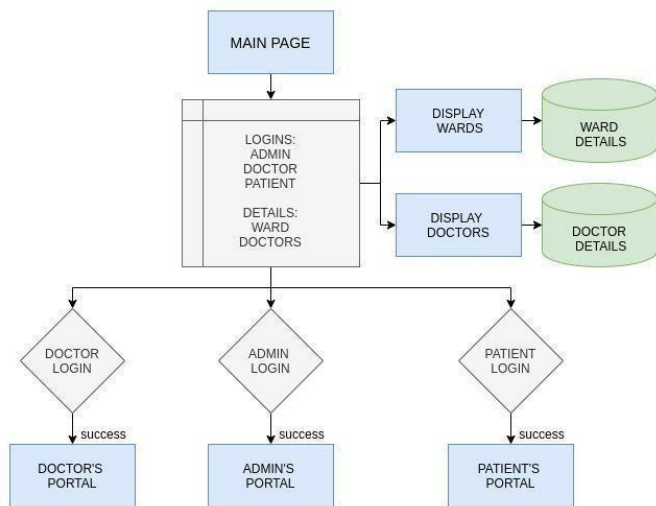
2 ARCHITECTURE DIAGRAM



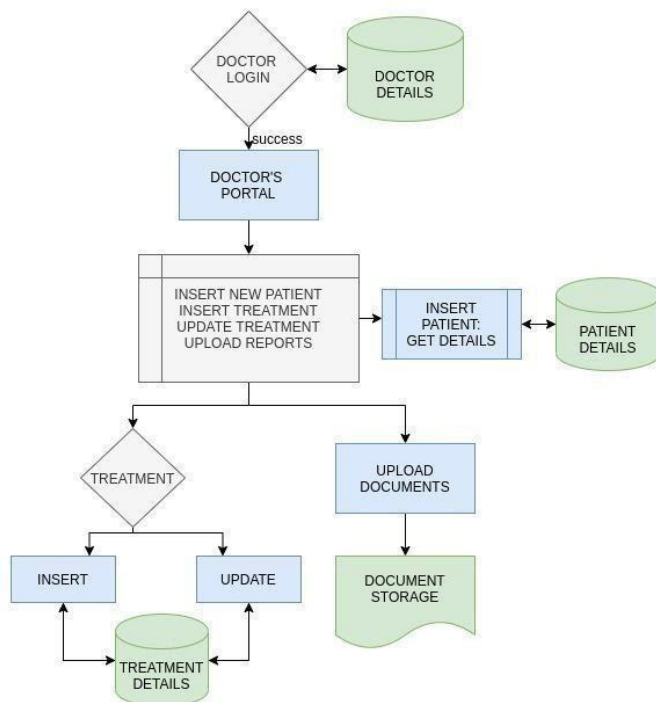
Higher level view or the bird's eye view of the project is simple. Our main page is the main user interface where any user lands first. The back-end databases are connected forwards details, doctor details, treatment details etc.

3. Low Level Design

Main page is for all the users ie Admin, Doctors, Consultants and Patients. There the user gets divided into specific category as Admin, Doctor/Consultant or Patient. Moreover, we provide an option to view the wards and doctor details for those who are not role specific and just landed to get information about the system. There the users have option to login to the system as Admin or Doctor/Consultant or Patient. They are then re-directed to the specific login pages.



4. Doctor's Page

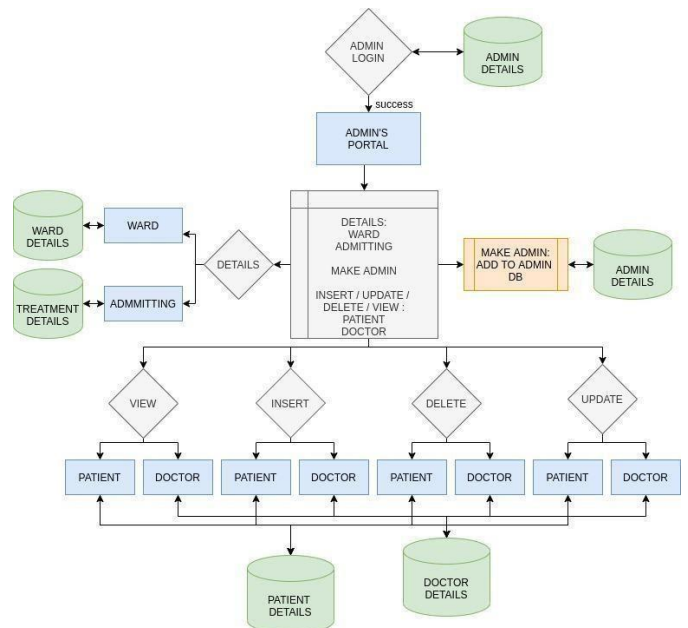


The Doctor's module is kept simple with Login feature initially which makes authentication with Doctor's DB. Doctor is enabled with some tasks like Inserting a patient for which changes are made in Patient Details DB. Doctor can also manage the treatment of patient by inserting a new treatment or updating the existing ones. Both these features are given a separate DB of Treatment Details. Further we provide the Doctor a platform where he/she can upload the Reports or relevant documents into default directories to be viewed by patient later.

5. Admin Page

The admin has various features to do like inserting/ viewing/ Deleting/ Updating the Patients or Doctors. All these features interact directly with the Patient details DB and Doctor's

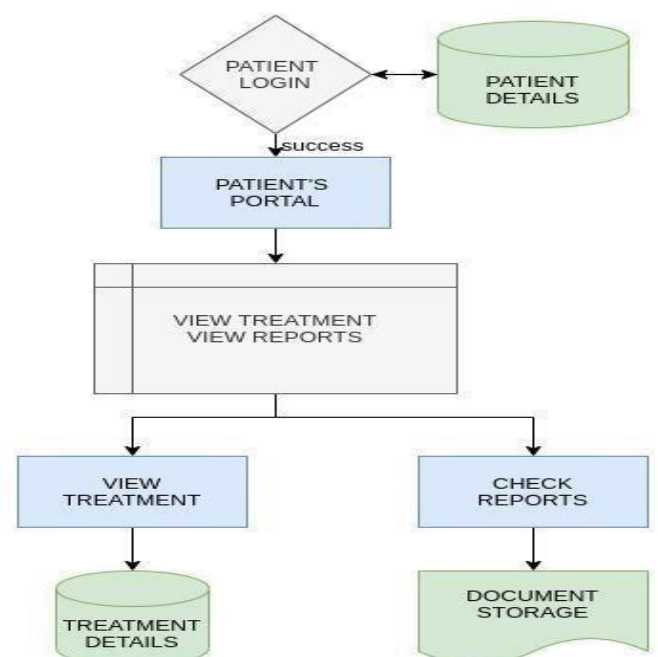
details DB. Moreover, the admin can make an existing employee the new admin. He also has access to treatment and admitting details.



6. Patient Page

The Patient's page is authenticated with the Patient login DB, the plog DB to be accurate. The patient portal is the simplest one. It has the feature to view his/ her treatment details, his/ her own details as well as the relevant reports or documents uploaded by the Doctor.

If nothing is uploaded by the doctor, the Page shows a simple error image in place of report area which asks the patient to wait.



7. Data Base Design

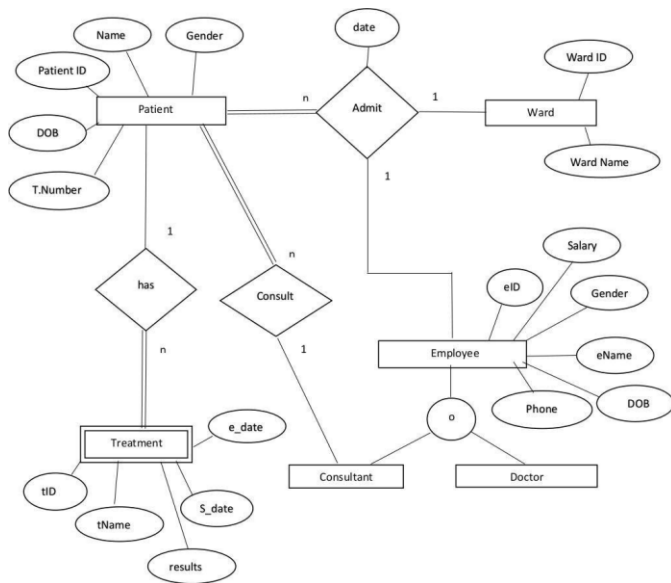


Chart -1: Data Base Design

CHANGE PASSWORD

CHANGE PASSWORD TO YOUR ACCOUNT

Enter Your Login ID :

Enter Your New Password :

Please confirm your password

UPDATE

USER LOGIN

LOG IN

Enter Patient ID

Password

LOGIN

DELETE PATIENT

DELETE PATIENT DETAILS

Patient ID :

DELETE

INSERT PATIENT REPORT

INSERT PATIENT TREATMENT REPORT

Patient ID :

Treatment Report :

 No file chosen

SUBMIT

Hospital Management System

 User Log In	 Ward Details	 Doctor/Consultant Details
 Doctor/Consultant Log In		
 Admin Log In		

UPDATE PATIENT

UPDATE PATIENT DETAILS

UPDATE DOCTOR/CONSULTANT DETAILS

Patient ID :

What detail to be updated :

New Data :

encounter for patients. Health Management System gives the advantages of smoothed out activities, upgraded organization and control, prevalent patient consideration, exacting cost control and improved gainfulness.

So, through this project, we conclude that scalability and ease of use is still the reason why most of the hospital management systems are time-consuming to adapt. Our project can be used not only as a Desktop application like most of the hospitals have, but we basically host the application to make things realtime. The hospital staffs can utilize this fully functioning web-application which only needs a browser to run. No need to configure the networks externally throughout the hospitals, normal internet can serve the purpose.

REFERENCES

- [1] Dyro, J., Equipment control and asset management, computerized maintenance management systems. Clin. Eng. Handb. 1:122-130, 2004.
- [2] Wang, B., and Levenson, A., Equipment inclusion criteria—a new interpretation of JCAHO’s medical equipment management standard. J. Clin. Eng. 25(1):26-35, 2000.
- [3] Wang, B., and Rice, W. P., JCAHO’s equipment inclusion criteriarevisited—application of statistical sampling technique. J. Clin.Eng. 28(1):37-48, 2003.
- [4] Wang, B., Furst, E., Cohen, T., Keil, O. R., Ridgway, M., and Stiefel, R., Medical equipment management strategies. Biomed. Instrum. Technol. 40(3):233-237, 2006.
- [5] Youssef, N. F., and Hyman, W. A., A medical device complexity model: a new approach to medical equipment management. J.Clin. Eng. 34(2):94-98, 2009.
- [6] Taylor, K., and Jackson, S., A medical equipment replacement score system. J. Clin. Eng. 30(1):37-41, 2005. J Med Syst

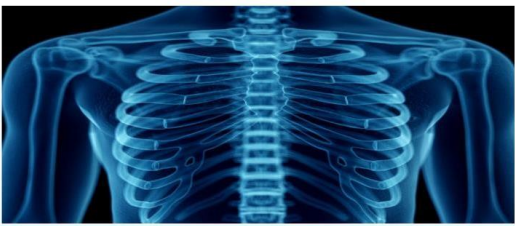
User Login Interface

Patient ID	Patient Name	Phone Numebr	DOB	Gender	Ward ID
PID0001	Krishantha Senarath	0715698425	1983-04-15	M	WID05

Patient Treatment and Test Details

Treatment ID	Treatment Name	Result	Star Date	End Date
TID01	Dengue	Pending	2017-05-28	2000-01-10

XRAY



View Patient Details

Patient ID	Patient Name	Phone Numebr	DOB	Gender	Ward ID
PID0001	Patient 1	1111111111	1990-01-01	M	WID05
PID0002	Patient 2	2222222222	1990-01-02	M	WID05
PID0003	Patient	3333333333	1990-01-03	M	WID06
PID0009	Demo 9	1231231231	2001-01-01	M	WID05

8. CONCLUSIONS

The project aimed to develop a general Health Management System portal was implemented using PHP as the back-end to handle all users. One of the major challenges existing hospital management systems face is around operational efficiency and wait time between different processes, departments and persons. This challenge is overcome by our project. The framework can lessen the line totally, incredibly diminishing worry for staff and guaranteeing a decent