



GUJARAT TECHNOLOGICAL
UNIVERSITY

GIDC DEGREE ENGINEERING COLLEGE, NAVSARI

A Project Report

HOSPITAL

Design Engineering – IIB

BE-III SEM-VI

COMPUTER BRANCH

GROUP ID-359528

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Academic Year(2022-2023)



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ACKNOWLEDGEMENT

This satisfaction that accompanies the successful completion of any task would be incomplete without the mention of people whose guidance made it possible, whose constant guidance and encouragement made it successful.

We are grateful to our project guider **Prof. Kushal Patel** for the guidance, inspiration and constructive suggestion that helped us in the preparation of this project.

We would also like to express our gratitude towards our Head of the Department **Prof. Archana M. Nayak** of **GIDC Degree Engineering College** for their valuable guidance and encouragement for making this project successfully completed well within time.

ABSTRACT

A hospital is a health care institution providing patient treatment with specialized medical and nursing staff and medical equipment. In digital era each and every hospital provide digital services & by digitalization to make things easier. Android application and website is the best option for that.

In hospital there are many things to do and manage it properly. For make things easier we make an android application which gave you information about your appointments, reports, health track, patients details and many more. The main idea behind the application is to ease the hospital system in this pandemic situation or in any critical situations.

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1.Basic Introduction

Our domain is Hospital.Hospital is an institution that is built, staffed, and equipped for the diagnosis of disease for the treatment, both medical and surgical, of the sick and the injured.

We have supposed to make an application for the Hospital and medical care. This app will be very much useful and will easy to use to patients coming in hospital. This application will also be helpful for the management of hospital.This app will have the features like e-bil payment ,access to blood bank(information) ,online appointment ,doctor's advice section ,digitalized patient details ,connect with pharmacy, etc.

2.AEIOU Summary Canvas

2.1 Activity Canvas(A)

2.1.1 General Impressions:-

- Appointments/Visiting
- Payments
- Treatments
- Operations
- Medical Examinations
- Doctor Suggestion/Prescription
- Blood Donations
- Reports

2.1.2 Elements:-

- Medical Instruments
- Equipments
- Accessories
- Medicines
- Beds
- Ambulances
- Oxygen Cylinders
- ICU



2.2 Environment Canvas(E)

2.2.1 General Impressions:-

- Silent
- Busy
- Clean
- Serious
- Sanitized

2.2.2 Elements:-

- Medical Instruments
- Equipments
- Accessories
- Medicines
- Beds
- Ambulances
- Oxygen Cylinders
- ICU



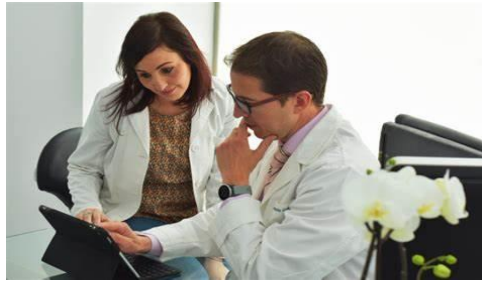
2.3 Interaction Canvas(I)

2.3.1 General Impressions:-

- Doctor Suggestion/Prescription to Patients or their relatives
- Receptionist Interacts with all
- Staff Interacts directly
- Patients talk with each other

2.3.2 Elements:-

- Medical Instruments
- Equipments
- Accessories
- Medicines
- Beds
- Ambulances
- Oxygen Cylinders
- ICU



2.4 Object Canvas(O)

2.4.1 General Impressions:-

- Medical Instruments
- Accessories
- Beds
- Ambulances
- Oxygen Cylinder
- Blood Banks
- Stretchers
- First-Aid Kits

2.4.2 Elements:-

- Medical Instruments
- Equipments
- Accessories
- Medicines
- Beds
- Ambulances
- Oxygen Cylinders
- ICU



2.5 User Canvas(U)

2.5.1 General Impression:-

- Doctors

- Staff
- Patients
- Suppliers
- Medical Students
- Relatives of Patients

2.5.2 Inventory of People:-

- Doctors
- Staff
- Ward Boys
- Patients
- Students
- Expert Surgens
- Police
- Pharmacist



AEIOU CANVAS

AEIOU Summary: Group ID: **359528** Date: **19th JUNE, 2021** Version: **1.0**
Domain Name: **HOSPITAL**

Environment:	Interactions:	Objects:
General Impression / Observation BUSY SILENT CLEAN Scene FLOOR PLAN MEDICAL INSTRUMENTS EQUIPMENTS ACCESSORIES MEDICINES BEDS AMBULANCES OXYGEN CYLINDER ICU	General Impressions / Observations DOCTOR ADVICES PEOPLE RECEPTIONIST INTERACTS WITH PATIENTS Scene of Interaction STAFF INTERACTS STRICTLY PATIENTS TALK WITH EACH OTHER Elements, Features & Special notes MEDICAL INSTRUMENTS EQUIPMENTS MEDICINES BEDS AMBULANCES OXYGEN CYLINDER ICU	General Impressions / Observations MEDICAL INSTRUMENTS ACCESSORIES BEDS AMBULANCES Elements, Features & Special notes MEDICAL INSTRUMENTS EQUIPMENTS ICU OXYGEN CYLINDER BLOOD BANKS STRETCHERS FIRST-AID KITS COMPUTERS FIRST-AID KITS WHEELCHAIRS Inventory of key Objects
Activities: General Impressions / Observations APPOINTMENTS / VISITING PAYMENTS TREATMENTS OPERATIONS Scene MEDICAL EXAMINATION ADVISING BLOOD DONATION REPORTS Elements, Features & Special Notes MEDICAL INSTRUMENTS EQUIPMENTS ACCESSORIES MEDICINES BEDS AMBULANCES OXYGEN CYLINDER ICU	Users: General Impressions of Users DOCTORS STAFF PATIENTS SUPPLIERS Scene of Users in Context MEDICAL STUDENTS RELATIVES OF PATIENTS Inventory of People DOCTORS NURSES WARD BOYS PATIENTS STUDENTS EXPERT SURGENS POLICE PHARMACIST	

3. Empathy Canvas

3.1 User

- Doctor
- Patients
- Staff
- Trustees
- Relatives
- Suppliers

3.2 Activities

- Booking Appointments
- Filling of Forms
- Doctors Giving Suggestion/Prescription
- Making Payments
- Operations & Treatments
- Visiting Hospitals
- Students Learning & Practicing
- Medicine Supplies

3.3 Stakeholders

- Trustees
- Students
- Pharmacist
- Suppliers
- Ambulance Drivers

3.4 Story Boarding:-

Happy:-

- ✓ Rajesh was at hospital. At there he saw an old age couple at there, for treatment of their son. They have not enough money to pay for the best and whole treatment and cure. At that time rajesh helped them and paid remaining amount. It was happy incident.

Happy:-

- ✓ Vivek was at hospital for routine checkup. At there suddenly he noticed a women, who was there for the treatment of his husband. Treatment was necessary

for him, but at that time that woman didn't have enough money to pay. After knowing the matter, Vivek paid the required amount.

Sad:-

- ✓ Mayur, a college student. He was at hospital. He had to appear in exams on that day, but unfortunately he had an injury in leg. Treatment was very necessary. Doctors treated him, it takes nearly 2 hours. Due to this, time for exam was gone. He was willing & confident for exam, but he missed it. It was sad.

Sad:-

- ✓ Vijay has taken his friend to hospital. It was like an emergency case. But at that time doctors were busy and no single bed was available. Minimum time to get any possible bed was about 2-3 hours. Time was going. Finally after 3 hours a bed was free and they got it. If more time was gone then, situations may get critical or worse.

2. Empathy Canvas

Design For **HOSPITAL**

Design By **SONEJI DARSHAN**

DOBARIYA BADAL

Date **3rd JULY, 2021**

Version **1.0**

PATIL UTKARSH

DUDHAT HARSH

USER		STAKEHOLDERS	
DOCTORS	TRUSTEES	TRUSTEES	SUPPLIERS
PATIENTS	RELATIVES	STUDENTS	AMBULANCE DRIVERS
STAFF	SUPPLIERS	PHARMACIST	

ACTIVITIES	
BOOKING APPOINTMENTS	OPERATIONS & TREATMENTS
FILLING OF FORMS	VISITING HOSPITALS
DOCTORS GIVING ADVICES	STUDENTS LEARNING & PRACTICING
MAKING PAYMENTS	MEDICINE SUPPLIES

STORY BOARDING	
HAPPY	Rajesh was at hospital. At there he saw an old age couple at there, for treatment of their son. They have not enough money to pay for the best and whole treatment and cure. At that time Rajesh helped them and paid remaining amount. It was happy incident.
HAPPY	Vivek was at hospital for routine checkup. At there suddenly he noticed a women, who was there for the treatment of his husband. Treatment was necessary for him, but at that time that woman didn't have enough money to pay. After knowing the matter, Vivek paid required amount.
SAD	Mayur, a college student. He was at hospital. He had to appear in exams on that day, but unfortunately he had an injury in leg. Treatment was very necessary. Doctors treated him, it takes nearly 2 hours. Due to this, time for exam was gone. He was willing & confident for exam, but he missed it. It was sad.
SAD	Vijay has taken his friend at hospital, it was like an emergency case. But at that time doctors were busy and no single bed was available. Minimum time to get any possible bed was about 2-3 hours. Time was going. Finally after 3 hours one bed was free and they got it. If more time was gone, then situations may get critical or worse.

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4.Ideation Canvas

4.1 People

- Doctors
- Patients
- Suppliers
- Nurses
- Relatives
- Staff
- Pharmasist

4.2 Activites

- Patients coming(visit)
- Sanitization
- Doctor's Suggestion/Prescription
- Treatments & Care
- Operations & Surgery
- Medicine Supply

4.3 Situation/Context/Location

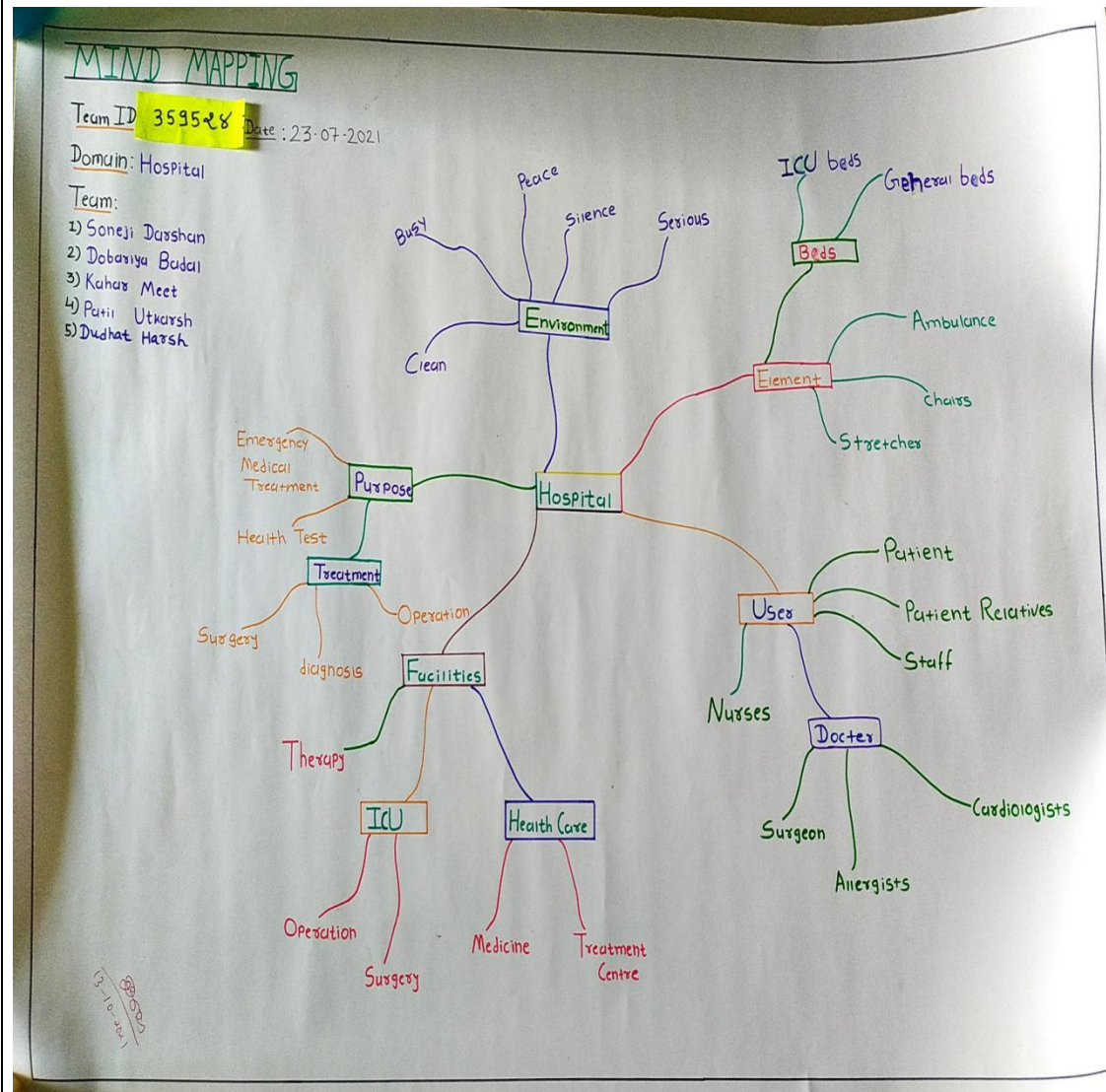
- Emergencies
- Medical Shop
- Parking Zone
- Critical Treatments
- Patients taken to hospitals in ambulances

4.4 Props/Tools/Objects/Equipment

- Platforms
- Firewall
- Android Studio
- Algorithms
- Online meet set-up
- Feedback
- Software
- Computers
- Form & Bills
- Patients details
- Medicine Database
- API
- Programing Languages
- Mobile

5. MindMapping

A mind map is a type of graphic organizer that uses a diagram to visually organize ideas and concepts. The central idea or concept is placed in the centre of the diagram, and then related ideas are added to it in a radial fashion. Mind maps are used to help structure information to gain a better understanding.



6.Product Development Canvas

6.1 Purpose

- Efficient Healthcare Service
- Management
- Same Treatment For Everyone
- Save Time

6.2 People

- Doctors
- Patients
- Staff
- Pharmasist
- Relatives
- Nurses
- Suppliers
- Trustees

6.3 Product Experience

- Accesseeble to all
- Useful
- Convinient
- Safe & Secure
- Ease of Payment

6.4 Product Functions

- Healthcare
- Suggestion/Prescription
- Online Meet
- Treatment Cure & Support
- Bills & Payments
- Forms Filling
- Government Schemes

6.5 Product Features

- Effective
- Reaching to all
- UPI
- Morden Tech.
- Efficient
- Online

6.6 Components

- Computers
- Mobiles
- Internet
- Software
- Android Studio
- Design Tools
- Testing Tools
- Hospital Database
- Operating System

6.7 Customer Revalidation

- | | | |
|-------------------|-----------|--------------|
| ➤ Doctors | ★ ★ ★ ★ ★ | |
| ➤ Patients | ★ ★ ★ ★ ★ | |
| ➤ Staff | ★ ★ ★ ★ ★ | |
| ➤ Others | ★ ★ ★ ★ ★ | |
| ➤ Over-All | ★ ★ ★ ★ ★ | (4.3) |

6.8 Reject,Redesign,Retain

RETAIN

Product Development Canvas

Team/Date/Version: 958528 / 1 AUGUST, 2021 / 1.0

? Purpose

EFFICIENT
HEALTHCARE SERVICE

MANAGEMENT

SAME TREATMENT
FOR EVERYONE

SAVE TIME

People

DOCTORS

PATIENTS

STAFF

PHARMASIST

RELATIVES

NURSES

SUPPLIERS

TRUSTEES

Product Experience

USEFUL

ACCESSIBLE TO ALL

CONVINIENT

SAFE & SECURE

EASE OF PAYMENT

Product Functions

HEALTHCARE

ADVICES

ONLINE MEET

TREATMENT CURE
& SUPPORT

BILLS & PAYMENTS

FORMS FILLING

GOVT. SCHEMES

Product Features

EFFECTIVE

EFFICIENT

REACHING TO ALL

MODERN TECH.

UPI

ONLINE

Components

COMPUTERS

SOFTWARES

TESTING TOOLS

MOBILES

ANDROID STUDIO

HOSPITAL DATABASE

INTERNET

DESIGN TOOLS

OPERATING SYSTEM

APP DEVELOPMENT KIT

PROGRAMMING LANGUAGE

SERVER

Customer Revalidation

DOCTORS ★★★★★

PATIENTS ★★★★★

STAFF ★★★★★

OTHERS ★★★★★

OVERALL
★★★★★ 4.3

Reject, Redesign, Retain

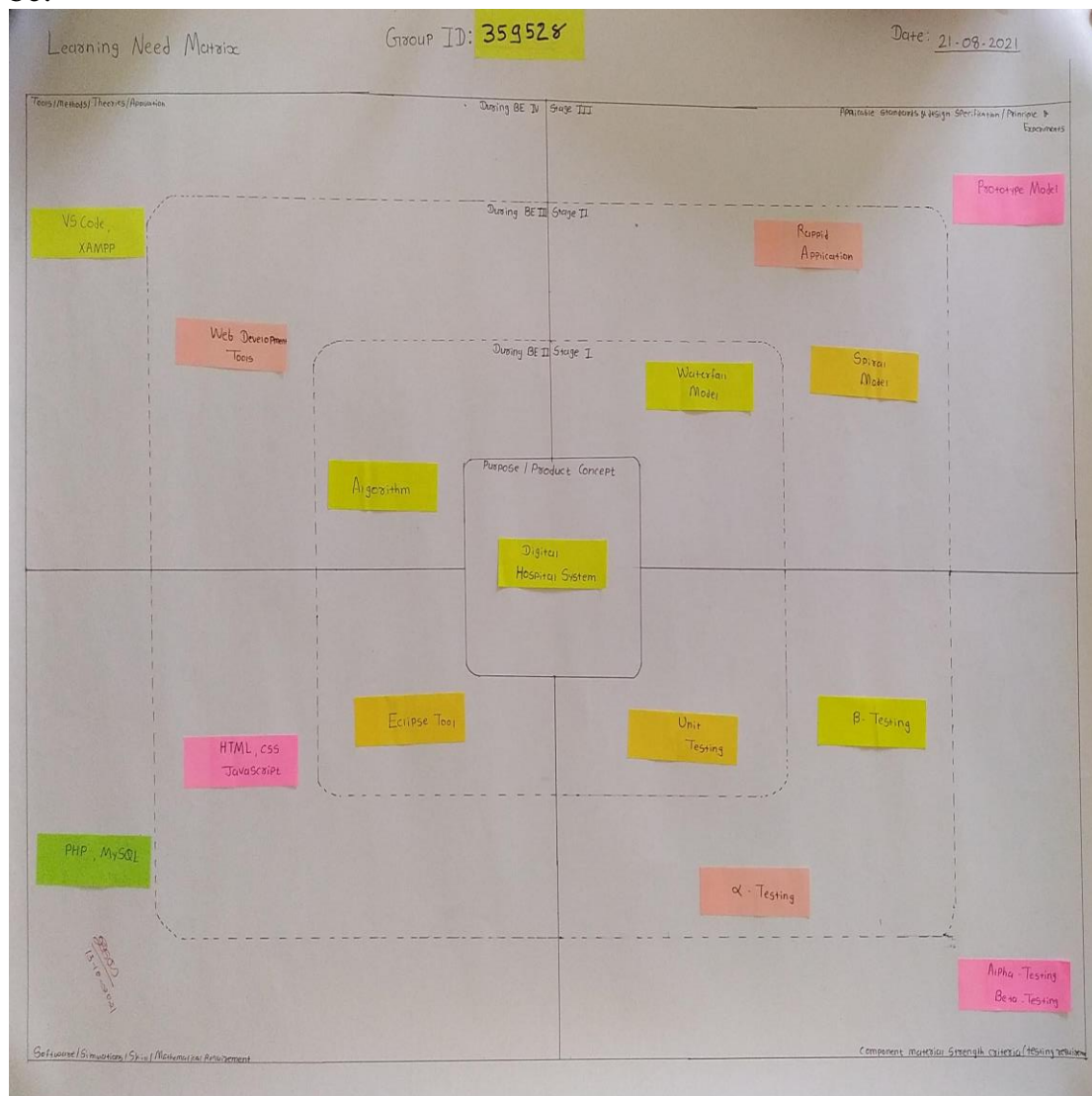
RETAIN

7. Learning Need Matrix

The purpose of LNM is to identify the requirements of learning among the team members. While a new product is under development based on a unique idea, the team members need to learn and explore a lot of new skills and documents, methods and guidelines.

The LNM is containing a quadratic layout. From centre, it needs to have mention of exploring requirements in each quadrant representing a specific type of skill acquisition. The team members can develop their own learning path to contribute to the efforts of the team for developing the concept underlying at the centre of the LNM.

This Canvas will be useful for students to analyse their progress throughout their project. And it will be helpful to them to identify that where they are in project and what they will use in future and where they will be.



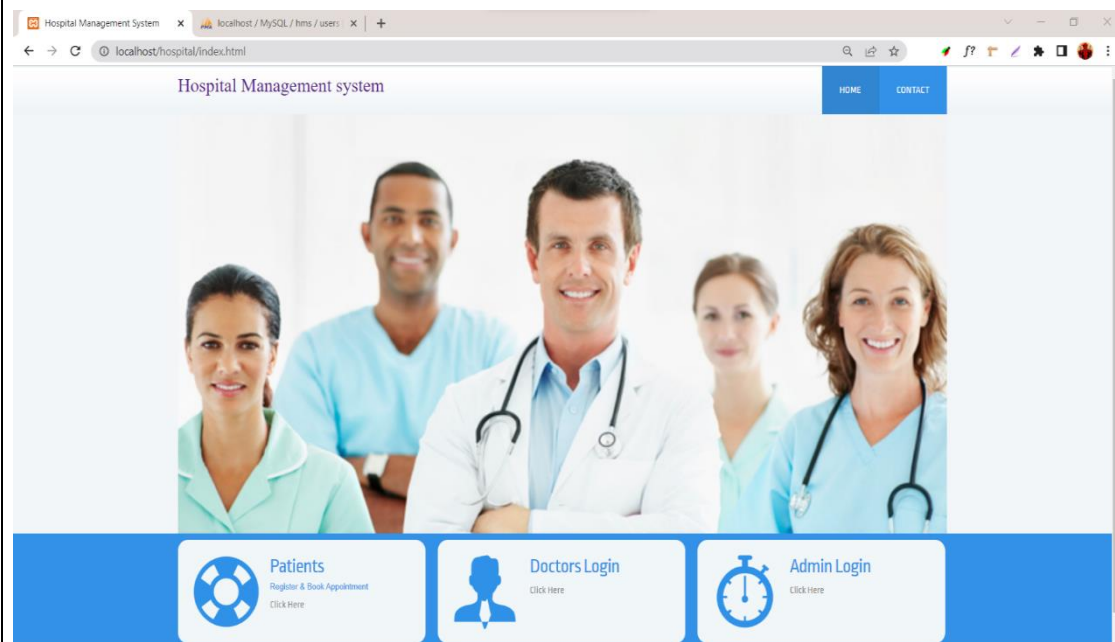
8. Prior Arts Search

Research Paper 1:

It is very easy to make HMS system using simple softwares but it is extremely hard to maintain it.

We use following Software and Languages:

- HTML
- PHP
- Bootstrap
- CSS
- SASS
- JQuery
- Javascript



Research Paper 2:

Using a Hospital Management System we site we can:

- Maintain the medical records of the patient
- Maintain the contact details of the patient
- Keep track of the appointment dates
- Save the insurance information for later reference
- Tracking the bill payments.

Research Paper 3:

Visiting a hospital is simple but we have to book an appointment first. Because of this we have to visit hospital before to get an appointment.

Due to Covid Pandemic, hospital were already busy so it was difficult to get early appointment except it was an emergency. Hospital Management System can avoid that by providing appointment booking system.

Research Paper 4:

Hospital Management System is not just beneficial to Patients and users but also Doctors and Hospital Staff. This is because doctors can just check the HMS website for next appointment or even get a notification. We visited the Hospitals and asked doctors and the answer we got was that it was really convenient to get just check website for information rather then offline method.

Research Paper 5:

Due to Corona Pandemic, it was not convenient for Patients to visit the hospital for just appointments but that's not the only inconveniency. It was not safe as well because hospital had many Patients with Positive Corona.

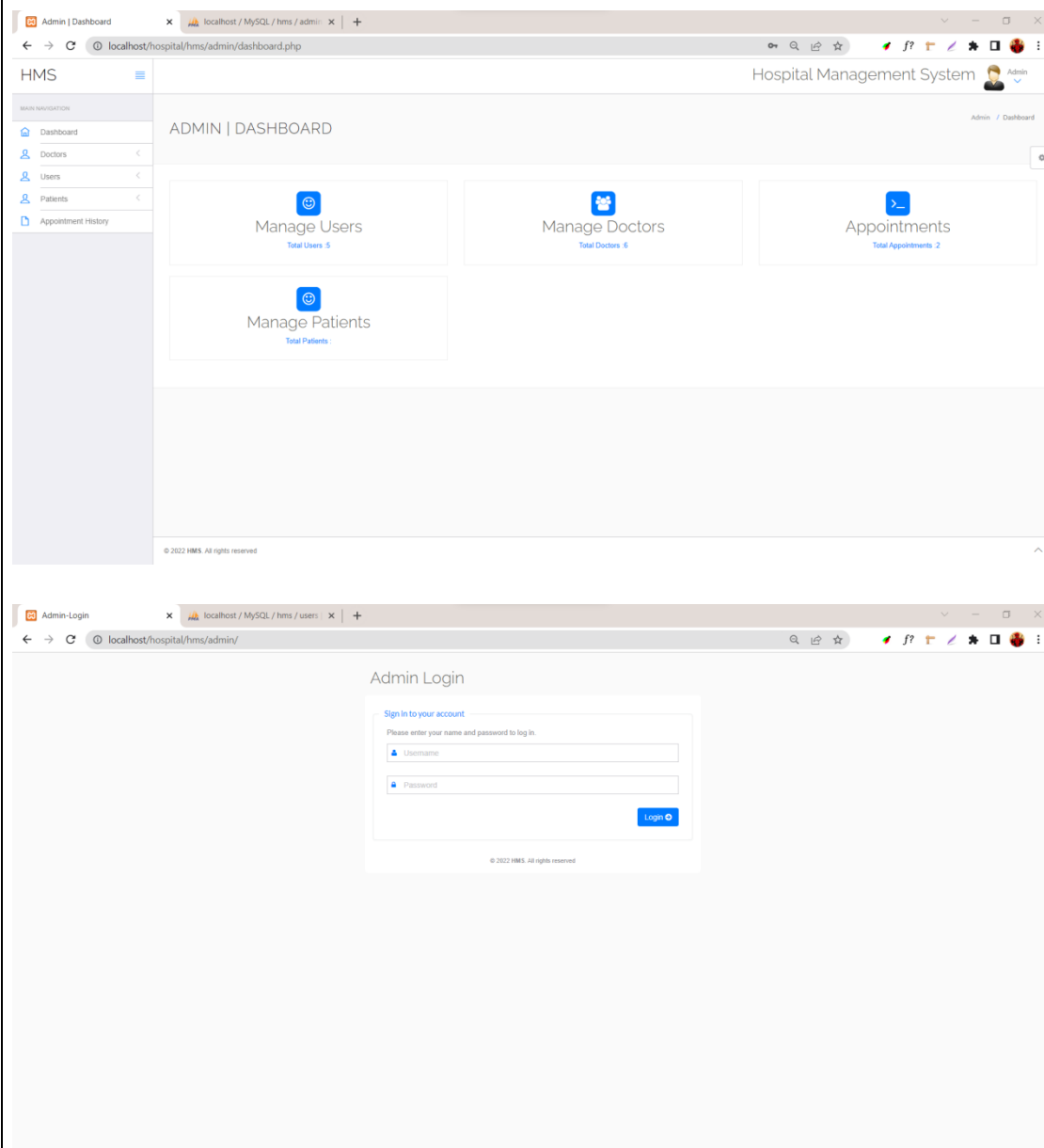
Thus, we can be safe while avoiding visiting hospitals for no results at all.

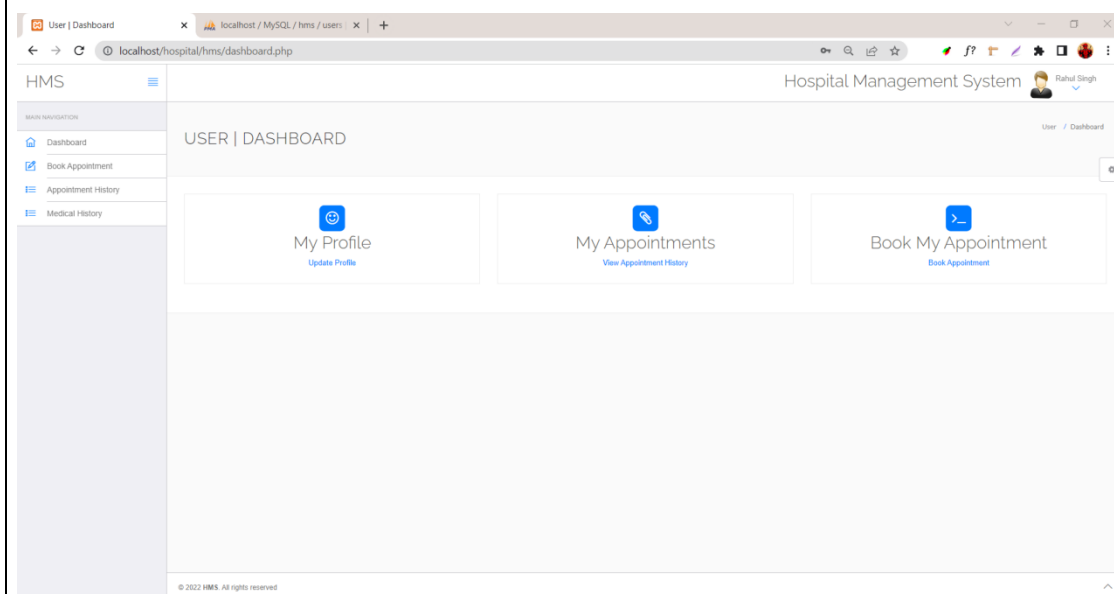
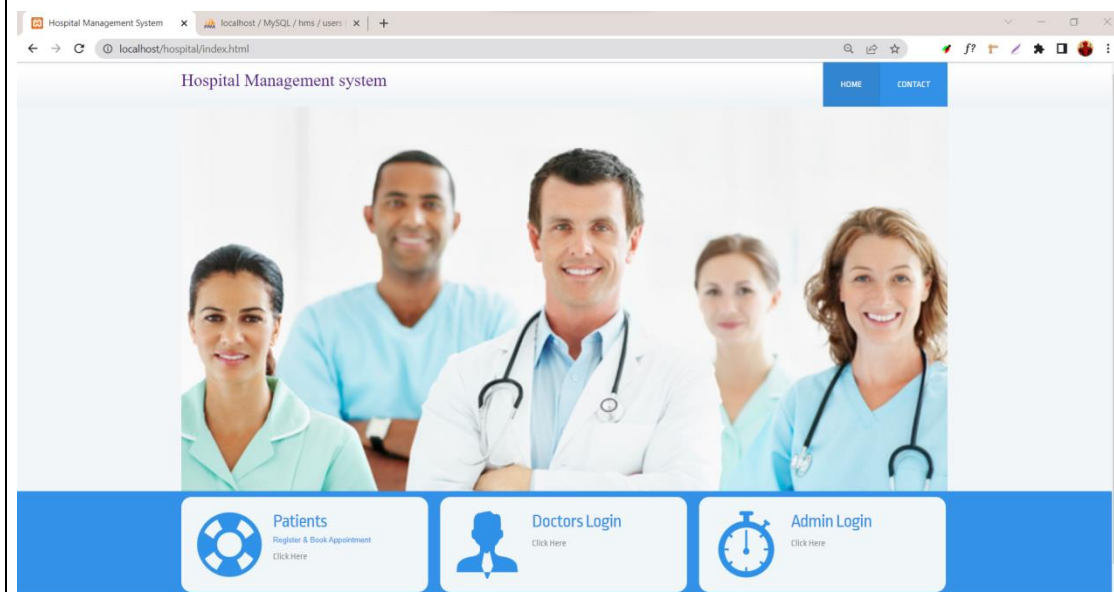
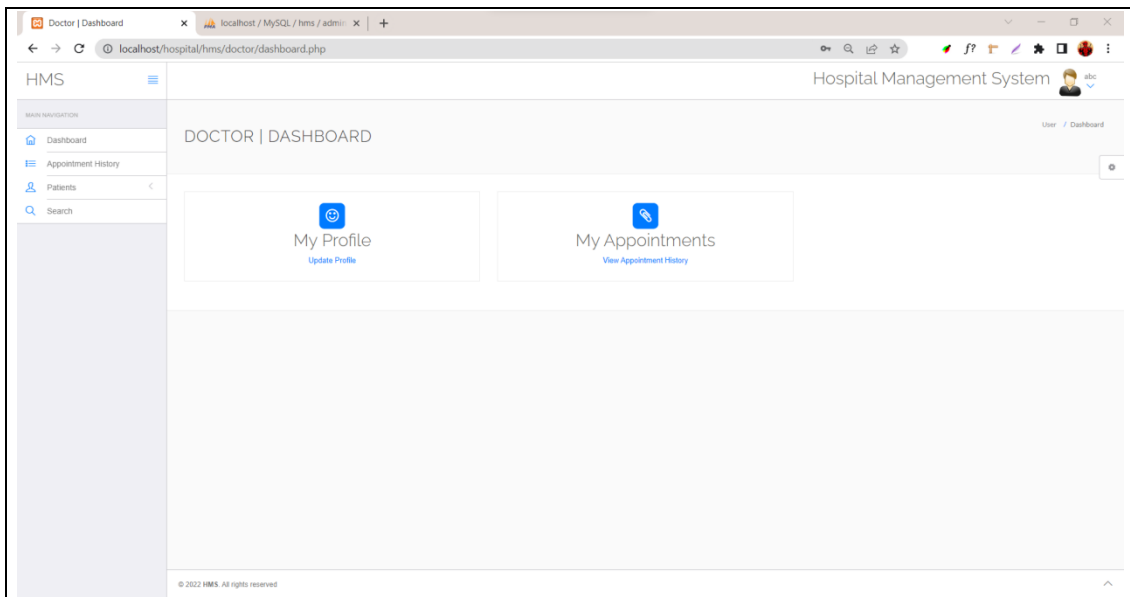
Link:

<https://mocdoc.in/blog/a-detailed-view-of-hospital-management-system-hms#:~:text=Hospital%20management%20system%20is%20a,Laboratory>

8. Prototype

A prototype is an early sample or mock up of the product we wish to build. A prototype is a quick model explaining the actual plans for the final product. The main motive behind prototyping is to validate the design of the actual product. Sometimes, creating a prototype is called materialization as it is the first step of transforming the virtual or conceptualized design into the real physical form. Prototype is an object oriented based framework.





9.Conclusion and Future Work

Conclusion

This application will gave online inforamtion about appointments, reports,health track,patients details etc,so that we can not go for a hospital.This application will save time.

This application will reduce crowd in critical situation like COVID-19 situation.

This Application has online medical shop feature to buy medicine online.by that people can save their time.

Future Work

In future we will add the features like online medical shop.By this feature people can by medicine online.we also add a online meeting option to stay connect with doctor and solve the patient query about their health.