Project Synopsis

On

Amrta-Yuj

Submitted as a part of course curriculum for

Bachelor of Technology

in

Computer Science and Engineering

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2020-2021

INTRODUCTION

Health has always been a crucial part of human society. Humans throughout history have invested a lot of resources and time in improving health and healthcare. Although in ancient times only elites had access to premiere medicine and treatment with passage of time healthcare became affordable and available to a large section of the general population. But the Coronavirus pandemic has given some serious challenges to both technological and medical advancements. Although medicine and healthcare have already made commendable strides for longevity of human life, it is having a hard time fighting the COVID-19 virus. Many lost their loved ones during this pandemic, although we cannot go back in time to save them, what we can do is built on our shortcomings.

One of the major deficiencies of our healthcare management system that we recognized during this time of pandemic is the "Ease of Access". As there was an exponential spread of the virus the governments ordered for nationwide lockdown and people were forced to isolate themselves in unfamiliar places. Also, access to the good healthcare consultation was drastically reduced. Additionally, fake news only added to the panic and chaos.

But as the old saying goes "Necessity is the mother of invention", so was the case with our project, it was the need of the hour. A healthcare service which works efficiently even in this time of crisis. A virtual platform to access consultation from healthcare professionals. Our project not only facilitates access to healthcare, but it implicitly aids in curbing false information about medicines and other health related issues during pandemic crises like COVID.

Apart from insulating our healthcare services from crisis situations we also aim at revamping the current structure of the Healthcare industry. We aim to make consultation fast, accessible and easy, no waiting in long queues for taking an appointment. Our vision includes to not only extend services for the Allopathic diagnosis and medical treatment but also for Ayurvedic and Homeopathic and other traditional treatment methodologies.

OBJECTIVE

Easy, fast and accessible healthcare consultation service is the core of our project. Consulting doctors for any kind of symptoms is the first step of diagnosis, getting an appointment is sometimes a long and frustrating process.
Waiting in long queues, schedule clashes, ambiguous diagnosis from some doctors and the list of complications goes on. Our application attempts to resolve following major deficiencies of the system:

- **Hassle-free consultation**: Our society has evolved to be industrious over time and will continue to do so. People want to invest in their health but the whole process of fixing an appointment, getting consultation with premium doctors and buying suitable medicines is annoying and lengthy, here comes our application to the rescue. It makes the whole process of fixing an appointment, tracking of reports and scheduling health check-ups hassle-free with every process only a click away.

- **Economical Factor**: Our Project does not discriminate in providing the health services on the basis of the economic status of any individual. All the features will be provided to every individual unbiasedly to the rich as well as poor. This consultation through our virtual platform will be more economical as the consequence of following reasons:
    - Competition: As numerous medical institutions and independent professionals will be logging one has to maintain their consulting fees according to the market otherwise less patients will choose them as their go-to doctor.
    - Transportation Cost: As most of the consultation will be virtual the need to commute for the appointment will drastically reduce.

- **Multitude of Alternatives**: Our focus is to not only on the Allopathic treatment but also on the more traditional ones. Ayurvedic, Homeopathic and other diagnostic treatments whichever serves our patients.

- **Less frauds**: All the medical professionals logged into our account will go through an extensive background check, reducing the risk for patients to encounter frauds who try to extort money from the general public. Our platform will also feature a sophisticated rating mechanism, which will rate medical professionals according to the feedback provided by the patients.

METHODOLOGY

The proposed project is a Nodejs Web Application built on Express Engine. Features like booking an appointment for consultation, booking for tests, buying medicine are available to the logged in users. Unregistered users can only view general information about the medical professional medicines and diagnostic services.

It will be one of the most helpful systems which keeps a comprehensive database and allows people in rural areas to talk and take advice about their health from the doctors who avoid going in these areas. In doing so, a huge amount of money, time and life of those needy people will be saved.

An All-in-One system which makes technical things understandable to the patients, like patients can check their reports and also understand what is wrong or what is right in their report. Use of AI-based Chatbots for providing health related information will make sure to curb the spread of fake news and inform the individuals. Also, the same system will be helpful for the doctors so they can communicate with patients in a better way.

General Patients
- Register on the "Patient" panel by filling all required fields.
- Enter medical history for better diagnosis (optional).
- After the above 2 steps the patients are good to go and start using the application after proper authentication.
- Use filters like nearby location, or rating for consultation or testing.
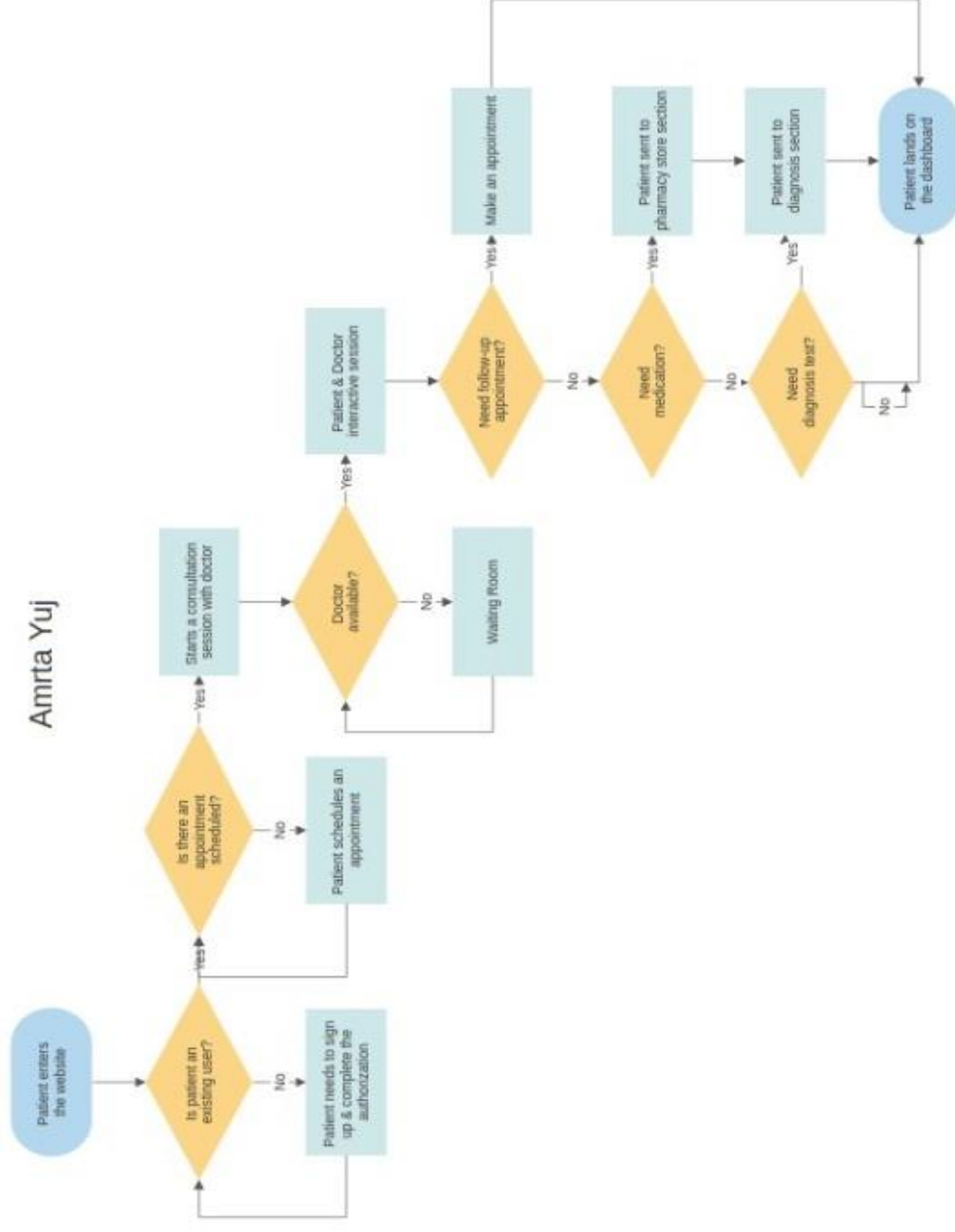
Medical Professionals
- Register on the "Medical Professional" panel by filling all required fields.
- Submit all required documents regarding proof of authenticity of medical training
- After proper verification profiles the medical professional will be live.

Testing & Medicinal Services
- Our Website plans to provide these services through licensed third-parties.
- The quality of their services will be frequently rated through a sophisticated feedback mechanism.
- We'll provide a platform from where patients can book their tests or buy medicines.

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Patient enters the website → **Is patient an existing user?**

- No → **Patient needs to sign up & complete the authorization** → (back to Is there an appointment scheduled?)
- Yes → **Is there an appointment scheduled?**
  - No → **Patient schedules an appointment** → (Yes loop)
  - Yes → **Starts a consultation session with doctor** → **Doctor available?**
    - No → **Waiting Room** → (back to Doctor available?)
    - Yes → **Patient & Doctor interactive session** → **Need follow-up appointment?**
      - Yes → **Make an appointment** → **Patient lands on the dashboard**
      - No → **Need medication?**
        - Yes → **Patient sent to pharmacy store section** → **Patient sent to diagnosis section**
        - No → **Need diagnosis test?**
          - Yes → **Patient sent to diagnosis section** → **Patient lands on the dashboard**
          - No → **Patient lands on the dashboard**

LIST OF ACTIVITIES

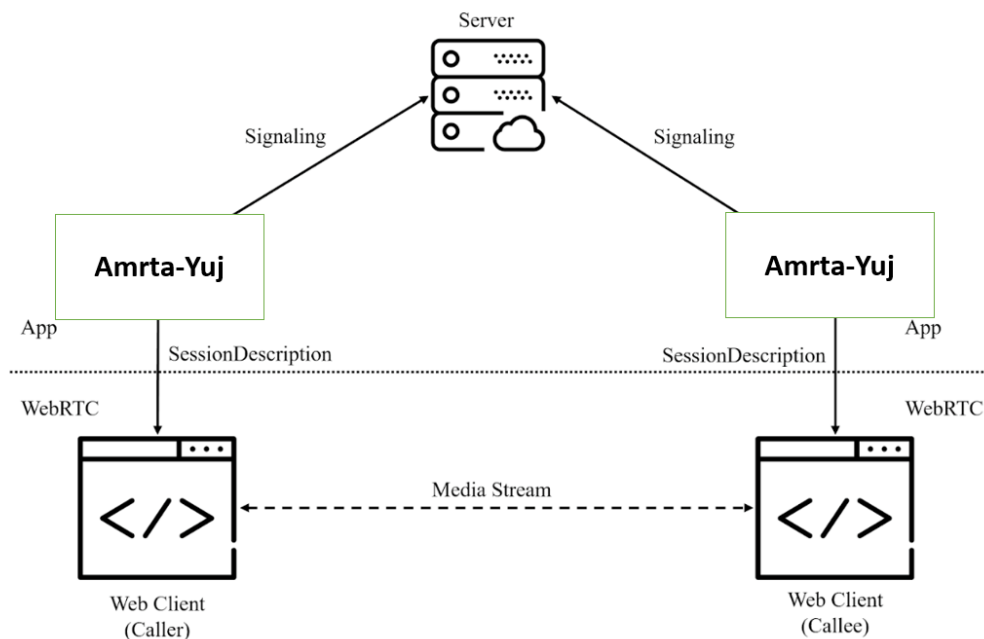Frontend: We choose the HTML, CSS and React combination to develop the frontend.
(a.) Hypertext Markup Language (HTML) is the standard markup language for documents designed to be displayed in a web browser, it defines the whole skeletal structure of the web page.

(b.) Cascading Style Sheets CSS assists HTML technology to increase its visual appeal.

(c.) React Js is an open-source, front end, JavaScript library for building user interfaces or UI components and its used along with HTML and CSS.
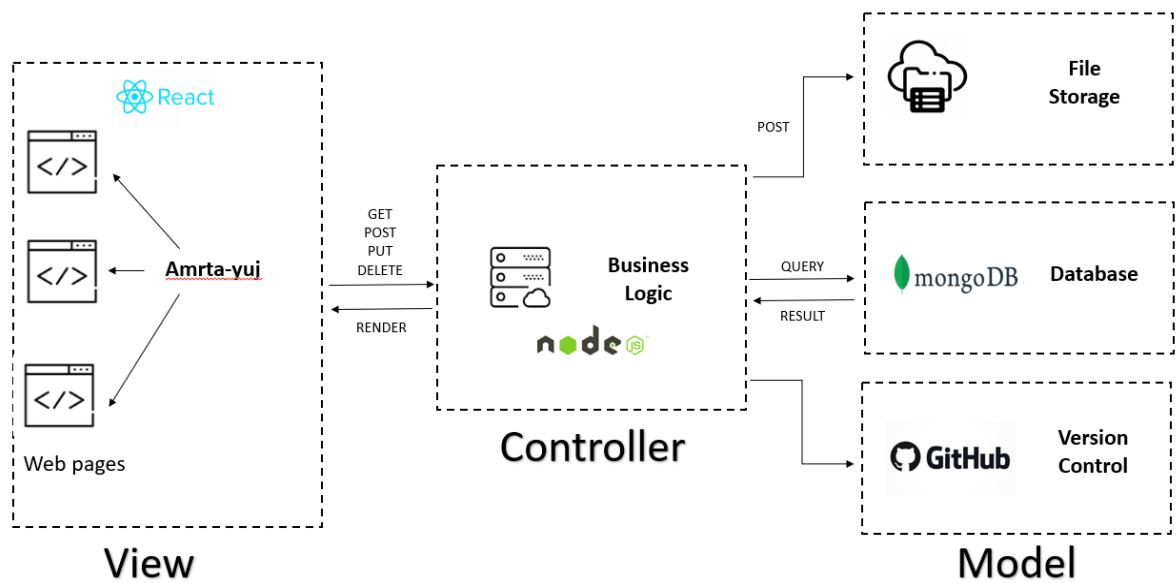
Backend: The backend of our web application is purely developed on Node Js. Node.js is an open-source, cross-platform, back-end, JavaScript runtime environment that executes JavaScript code outside a web browser.

Hosting & Miscellaneous services: For hosting and other miscellaneous services we used AWS. Amazon Web Services is a subsidiary of Amazon providing on-demand cloud computing platforms and APIs to individuals, companies, and governments, on a metered pay-as-you-go basis.

Model–view–controller (usually known as MVC) is a software design pattern commonly used for developing user interfaces that divides the related program logic into three interconnected elements. This is done to separate

internal representations of information from the way's information is presented to and accepted from the user

TECHNOLOGIES/TOOLS USED

Our team extensively used the following technologies/tools for the purpose of development of the website:

HTML & CSS   Mongo DB Database   Amazon Web services

React JS   Node JS

Backend
- Node JS
- Express JS

Frontend
- HTML
- CSS
- React JS

Database
- MongoDB
- Mongoose

Real-Time Communication
- WebRTC
- Socket.io

Cloud Platform
- Heroku
- Amazon Web services
- AuthO

Version Control
- Git/Github
- Npm

REFERENCES

1. SIH Problem Statement by Ministry of Health and Family Welfare
(excerpted from
https://www.sih.gov.in/sih2020PS/NA==/U29mdHdhcmU=/QWxs/QWxs)

2. Jaysawal Neelmani, "Rural Health System in India: A Review", Vol.3.
No.1, Feb, 2015, pp. 29-37 (excerpted from
https://www.researchgate.net/publication/276922077_Rural_Health_System_i
n_India_A_Review)