

Project Synopsis
on
HEALTHSTACK

Submitted as a part of course curriculum for

Bachelor of Technology
in
Computer Science and Engineering



Under the Guidance of
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INTRODUCTION

Brief Introduction

HealthStack is a Web Application Design and developed for maintaining a medical record of patients, helping doctors to fetch previous medical history of the patients, helping user to find out the disease he is suffering from and much more.

Any User Can Logon to the Application using his Aadhaar Card. Personal details & Medical history of a patient will be stored through Blockchain to ensure Security and decentralization.

We can apply Data Analysis to get the overall health condition of citizens of the country.

A doctor can access his patient account after scanning his Aadhaar card through his phone and can update or add a medical prescription along with his reports. This will help other doctors and his family member to track the medical history of the patient.

This application will have two interfaces, 1) User Interface (For patients) and 2) Professional Interface (for Doctors).

1)User Interface

User Interface is used by Patients. They can scan their Aadhaar card to check their medical history, search medicines according to symptoms they are having, chat with bots to ask any health related questions and to see prescription given by any doctor.

Here are some of the features that are available in the user interface

1.1 Chat with Expert

A Chatbot build using Machine Learning Algorithm is integrated on the landing page itself. So if the user is having any type of confusion or want to ask about the disease he is suffering from, he can ask by typing the symptoms.

Along with this he will be shown the medicines and Diet he should take.

1.2 Scan Aadhaar Card

Any user can scan Aadhaar card of his own or any family member to check the medical history of the person, the disease he is or was suffering from, the treatment he has gone through and what are drugs & vaccines he has intake.

2)Professional Interface

The professional interface is used by doctors. After registering on the application doctor can scan the Aadhaar of any of his patient and see his medical history, previous treatment records, previous drugs & vaccines records and add new prescriptions or treatment record.

2.1 Registration

To access the application as “Doctor”, a person needs to fill a registration form where he will be asked about his details, qualification, area of interest, year of experience, and license number and some identity cards. Once these details are filled, the doctor can access his interface.

2.2 Scan & Add

Doctor can access his patient record after scanning his Aadhaar card and then can view or add new prescription, his treatment information, and drugs and vaccines records.

Technology Used

This is a Block chain based web application built to enhance the healthcare industry.

Node JS is used as a Backend Language to retrieve and update data. **Machine learning** algorithm is used to predict the diseases a patient is having by his symptoms and also suggest medicines and treatment accordingly. **BlockChain** is used to store and mining the data and increase the security of the database through decentralization. **Angular JS** is used to make the frontend of the application mobile responsive and interactive, and also to support Scan feature.

Field of Project

The project is built for the health care and since we had focused the security of the database by using Blockchain, thus the field of the project is Health Tech & BlockChain.

OBJECTIVE

To provide secure ledger to store sensitive medical information on the blockchain server also providing crucial data analysis like most common disease in particular area, age group, gender which can be useful for the development of any country.

To also ensure that medical, treatment, drugs & Vaccines record of any patient is linked with his Aadhaar card so that he didn't need to store his previous reports anymore. And any doctor or his family member can access this crucial information.

FEASIBILITY STUDY

Implementation & Technical Feasibility

As per now, the government is focusing on Linking every detail of a person with his Aadhaar card. Such as linking his bank account, pan card, Mobile number, Gas Connection, Property Record. Thus we aim to link his Medical reports to his Aadhaar card to create a unique identity of any person.

This will help a lot to a patient or his family member, tracking his medical, treatment & drugs and vaccine history. Also, reduce dependency on Hard copy or papers. Use of machine learning will help any user to find out what disease he is having and its proper treatment without going to doctor and spending time and money. The project will help mankind and Government and thus this will be feasible to implement.

Talking about Technical Feasibility, we are not using any rocket science, it is just the use of some popular and tested technology in an innovative manner and thus we guarantee 100% feasibility of the project.

Need & Significance

As discussed above, we need a unique identity of a person, so that all of his details such as personal, financial and even Medical details can be tracked. We need this project to provide secure ledger to store sensitive medical information on the blockchain server also providing crucial data analysis like most common disease in particular area, age group, gender which can be useful for the development of any country.

We also need to ensure that medical, treatment, drugs & Vaccines record of any patient is linked with his Aadhaar card so that he didn't need to store his previous reports anymore. And any doctor or his family member can access this crucial information.

METHODOLOGY

Since there is no client or end-user interaction in the project, we are using Waterfall model for this project.

Requirements: The first phase involves understanding what needs to design and what is its function, purpose, etc. Here, the specifications of the input and output or the final product are studied and marked. we will conduct a small survey among the user and also will interview some doctors to find out the problems they are having and the best solution we can provide.

System Design: The requirement specifications from the first phase are studied in this phase and system design is prepared. we will prepare a mock flow for the system and also design use case, dataflow, class and sequence diagram to understand the overall system architecture.

Implementation: With inputs from system design, we will start developing the front end, followed by the backend part. In parallel machine learning algorithm for Chatbot and blockchain architecture will be developed. Each unit is developed and tested for its functionality which is referred to as Unit Testing.

Integration and Testing: All the units developed in the implementation phase will be integrated into a system after testing of each unit. And then followed by integration testing.

Deployment of System: Once the functional and non-functional testing is done, the product will be deployed and will try to make it public for 100 users to test the overall success of the application.

FACILITIES REQUIRED

We will be requiring a Laptop with a good internet connection so that we can start the project. And all of us is having their laptop and thus we are good to start the project once we collect detailed requirement from the survey.

BIBLIOGRAPHY

To successfully develop and deploy the above-discussed project which is to be built using different technologies such as Blockchain, Machine learning, Node JS, Angular JS, here are some links to the study material recourses:

1. Angular JS: <https://docs.angularjs.org/guide>
2. Node JS: <https://nodejs.org/en/docs/>
3. BlockChain: <https://bitcoin.org/en/developer-documentation>
4. Image to Text: <https://medium.com/@InDataLabs/ocr-algorithm-improve-and-automate-business-processes-c212c7e355a5>