



EARLY PREDICTION OF LIFESTYLE DISEASES

Rajput Pruthviraj Dineshsing, Chaudhari Harshada Manohar, Patil Kirti Ravindra, Chouhan Sumit Amarnath

^{1,2,3,4} Department of Computer Engineering SSBT's Collage of Engineering and Technology,
{pruthviraj.rajput011, harshadachaudhari86000, rkpatil5020, sumit.chouhan102020}@gmail.com

ABSTRACT

Lifestyle diseases are common among the population today not only in India but also in almost every country. Lifestyle diseases are caused because of the habits that we have on a day to day basis. The way one lives his life is the major cause of it. It includes heart disease, hypertension, etc. which all may hear of. In our life also, one also comes across at least one person who is either suffering from such diseases or the diseases became the reason for his death. We also came across many such people who died because they were not aware of their disease and were left with no appropriate time for treatment. That is why we decided to develop the portal which will analyse the data entered by the user and will give the predictions of the diseases which he or she may have chances to suffer from. This not only gives the predictions but also gives you the preventive measures that are required to stay safe from the very common lifestyle diseases as well as in case of mild symptoms it provides you with the management techniques also. This project makes the person aware of his health so that he will have the treatment well in time if required and will save the lives of many people. This project covers three main aspects which are prediction, prevention and management of lifestyle diseases.

Index Terms— Lifestyle diseases, death, treatment, common lifestyle, prediction, prevention, management.

1. INTRODUCTION

Today, people do not have time for the regular checkup. They are so busy with their work that they rarely have time for their own health. But the thing is that, they can do the analysis if the appropriate application can provide them the overall health status of the person. This is because they need not to give the time separately for this, rather they can just utilise the time for example the time of travelling, etc. The only thing required is the smartphones which almost everyone has with them in this century. So, this can be considered as the portable health checker which everyone can use easily just through a web application. In this, we have decided to give the sign up page where the user can sign up using his name, id and password. Then further modules will have the diseases portion. Though the whole health check is a somewhat more difficult task, so initially we are adding some of the very common diseases data like heart disease, breast cancer, etc. Later on, we will keep adding more and more diseases.

A. Background

Prediction Of the disease during the pandemic is critical for public health planning of efficient health care allocation and monitoring the effects of policy interventions.

In another study, an algorithm is proposed to achieve local updates and global updates which is critical for the learning process. ML/AI is also used to solve wireless network problems. Chat AI represented how artificial neural networks can be used to solve various problems in wireless networks.

Diabetes has been in society for a very long time. Diabetes is further dependent on an individual's body, diet, and way of living. In another study, pre-diabetes is predicted using different applications on the Korean population.

Death in intensive care units (ICUs) worldwide and its recognition, particularly in the early stages of the disease, remains a medical challenge.

B. Motivation

Lifestyle diseases are common among the population today not only in India but also in almost every country. Lifestyle diseases are caused because of the habits that we have on a day to day basis. The way one lives his life is the major cause of it. It includes heart disease, hypertension, etc. which all may hear of. In our life also, one also comes across at least one person who is either suffering from such diseases or the diseases became the reason for his death. We also came across many such people who died because they were not aware of their disease and were left with no appropriate time for treatment. That is why we decided to develop a portal for showing early disease information and solutions or precautions.

C. Problem Definition

In this platform, the people and doctors are joined and they are registered login logout and also they have early knowledge of what is happening in their area and the true information is given to this platform. About the disease which is a large amount of spreading in this area first of all the people see and their area which diseases is spread and also check their symptoms, also in bottom, and also give what the precaution do for the disease not come, also if you have any other disease then also have a chat box to say your problem there was the best doctor, and they convey you to what to do for these diseases. And also doctors joined this platform as a sub-admin. They solve the people's posted questions, and also add current disease information and safety tips and what precautions we do for these diseases and also know about these doctors who give this information. Admin doctor verifies this doctor's added information and verifies the doctor's status and manages the site settings.

D. Scope

This project will help the user to overcome the lifestyle diseases which are in themselves a big threat to humans, will reduce the unawareness about the diseases and will help people to remain healthy which is of utmost importance in today's fast-growing world. It will also change the lifestyle of people for the better. It will also give clarity about the health of a person or his current status.

In future mostly AI and ML is going to be implemented everywhere. Everyone will get so busy with their work that they will not get enough time to visit the doctor. Exceptionally when they get serious. But will ignore the minor and common disease which will eventually become more serious in future. Like in tuberculosis, a person starts to cough and only with preventive measures they can be submerged at that time. So this app will become more and more common in future. Without visiting doctors' people will get to know about their symptoms.

E. Objective

Objective of this project is as follows;

- Easily predicate diseases possibilities.
- Show diseases information.
- Clear people doubts about any disease.
- Installable in Mobile or iOS as well as Desktop.

LITERATURE SURVEY

After a survey of this topic. We are developing this project using a machine learning concept that is Data Mining. Also another concept like speech recognition, many others.

Data Mining is a technique of analyzing the huge amount of data in different aspects to discover useful information or knowledge discovery. It combines the concepts of artificial intelligence, statistics, probability, machine learning, deep learning and database system technology. The processes of data collection, selection, cleaning, handling the missing values, transformation, mining, evaluation of pattern, and knowledge visualization involved in the data mining process.

The data is increasing exponentially as in the case of the health sector. It is also a major data producing sector which is not only heterogeneous but also valuable as it stores the sensitive health information of the person which can even cost the life of a person. The majority of the methods are used to predict, prevent and manage the diseases appropriately and efficiently. The medical diagnosis is subjective and important in other aspects and depends upon the data available and in this case the data entered by the user.

Healthcare related data mining is a difficult field as some minor changes may lead to the huge difference in the predictions and will further affect the output. It explores the hidden patterns which further helps in discovery and extracting knowledge in a database to predict diseases that a person may suffer from. We will use both the core models of data mining i.e., descriptive as well as predictive in big data. In case of descriptive data analysis, it uses user data to identify the patterns in the data and analyze the relationship between various variables and samples. Descriptive models are priority association rule, data clustering, summarizing and visualization. These models are generally developed by using complete data set but we will try to reduce the number of variables or samples required to predict the output which increases its performance as well as the efficiency.

While in case of predictive data analysis, it uses historical data and current data for predicting the probabilities of the future lifestyle diseases or used for diagnosing and curing the diseases as well. But in case of severe symptoms, it will always suggest the user to consult the doctor as soon as possible. Further enhancement of the model can include the nearby hospitals or the clinics available using the google maps. This can be done by several techniques like Dijkstra's algorithm. CART Decision trees, artificial neural network (ANN), random forecasting and the regression (linear, logistic and ridge) are the commonly used predictive data models

ANALYSIS

System Analysis is the process of gathering and interpreting facts, diagnosing problems and using the facts to improve the system. System analysis chapter will show overall system analysis of the concept, description of the system, meaning of the system. System analysis is the study of sets of interacting entities, including computer system analysis. The development of computer-based information systems includes the system analysis phase which produces or enhances the data model which itself is to create or enhance a database. There are a number of different approaches to system analysis. The analysis is the process which is used to Analyze, Portal for Early Prediction Of Lifestyle Diseases. Analysis activity provides a graphical view of the entire System.

A. Requirement Collection and Identification

We have identified some requirements during the requirements collection phase;

- User means people check the symptoms , View all diseases information, search disease information using text enter otherwise speak and they also post questions and give the feedback.
- Doctors can register themselves also login. They can add disease details, update details, delete details. They solve people's questions.
- Admin can be verifying the register doctor details. Also they can verify diseases with added details. Also see all the user details and doctors details. Manage site settings.

B. Software Requirement Specification

1) Product Features:

- The website is easy to navigate.
- The website content is fully authoritative.
- The website has a fast load time.
- The website has Browser consistency which is helpful in user interference.
- The website has a Contrasting color scheme which is very attractive from a presentation point of view.

C. External Interfaces

1) Hardware Requirements:

- **System** : Any.
- **RAM** : 4 Gb or above.
- **Hard Disk** : 1Tb or above.
- **Input Device** : Keyboard or Mouse.
- **Output Device** : Monitor, PC or Laptop.

2) Software Requirements:

- **Operating System** : Any.
- **IDE** : Visual Studio Code.
- **Front End** :
 - HTML (Hypertext Markup Language).
 - CSS (Cascading Style Sheets).
 - Java Script.
- **Back End** : Node Js.
- **Library** :
 - React Js.
 - Chart Js.
- **Framework** : Express.
- **Ui Framework** : React-Bootstrap.
- **Database** : MongoDB.
- **Project Managed** : GitHub Git.

D. Modules

1) User Modules:

- Registration
- Login
- Contact

- Profile
 - Diseases Display
 - Disease Details
 - Comments Display
 - Ask Question
 - Gives Feedback (Comments)
 - Feedback Display
 - Symptoms Checker
 - Question Ask Details Display
 - Gives Feedback Details Display
 - Contact Details Display
 - Chat common module
 - Home Page
- 2) *Doctor Module:*
- Registration
 - Login
 - Add / Edit Disease Information
 - Reply Question
 - Update Comments Verify
 - Display Added Diseases Record
 - See Profile Edit Profile
- 3) *Admin Module:*
- Login
 - Verify Doctor
 - View All Doctor and Users Details
 - Add Disease / Edit Disease / update Disease
 - Verify Disease
 - Verify Feedback
 - Reply to contact
 - Reply Question
 - Remove Doctor or User Account

DESIGN

A. System Architecture

The system architecture is the conceptual model that denotes the structure, behavior and more views of a system. An architecture description is a formal description and representation of a system. It provides a broad understanding of the portal.

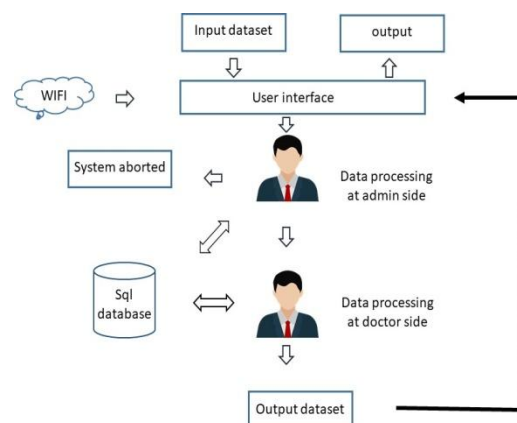


Fig. 1. System Architecture

B. Use Case Diagram

The Use Case diagram of the project disease prediction system consists of all the various aspects a normal use case diagram requires. The use case diagram shows the various actors like users (Peoples), Doctors, admin doctor and the relation and dependency between them. It also shows the functionality of the entire system.

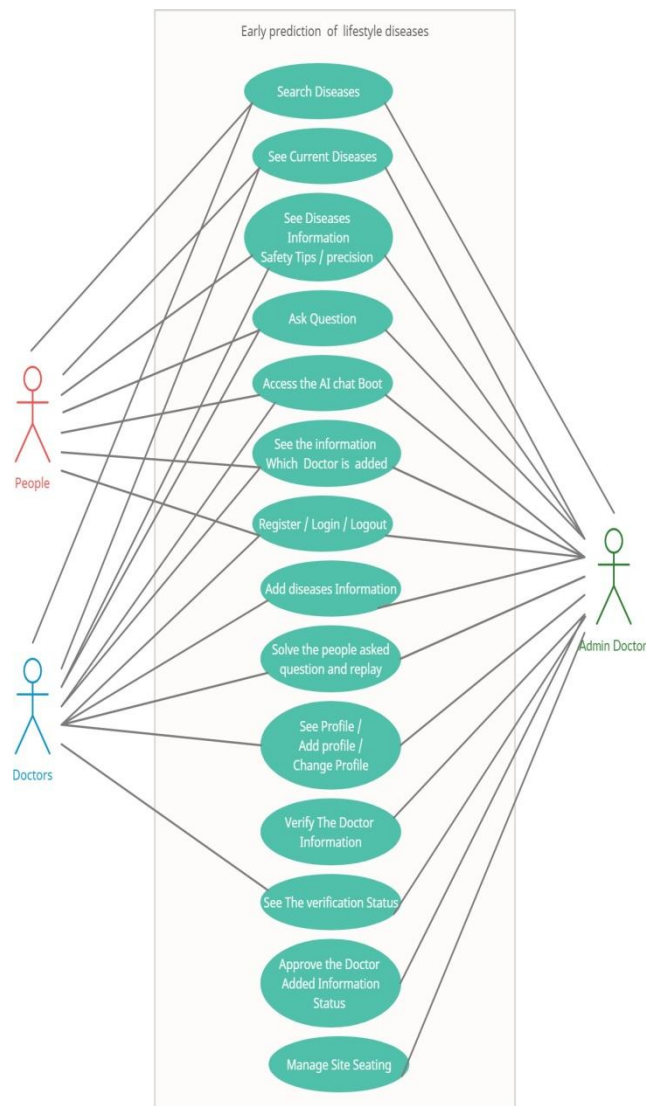


Fig. 2. Use Case Diagram

RESULT AND ANALYSIS

A. Overall System Structure

We implemented actual health care system according our research. This project is managed using git and GitHub. That's why we used the GitHub organization for implementing this project.

- GitHub Project organization link is given for coding <https://github.com/Full-Stack-Warriors>
- Deployment link Client Side (Preview of project) <https://ehealthcareforeveryone.netlify.app>
- Deployment link Admin Side (Preview of Project) <https://ehealthcarefordoctor.netlify.app>

CONCLUSIONS

So, Finally we conclude by saying that, this project early prediction of lifestyle diseases. Learning is very much useful in

everyone's day to day life and it is mainly more important for the healthcare sector, because they are the one that daily uses these systems to predict the diseases of the patients based on their general information and their symptoms that they are been through. Now a day's health industry plays major role in curing the diseases of the patients so this is also some kind of help for the healthy industry to tell the people and also it is useful for the user in case he/she doesn't want to go to the hospital or any other clinics, so just by entering the symptoms and all other useful information the user can get to know the disease he/she is suffering from and the health industry can also get benefit from this portal by just asking the symptoms from the user and entering in the system and in just few seconds they can tell the exact and up to some extent the accurate diseases. If the health industry adopts this project then the work of the doctors can be reduced and they can easily predict the disease of the patient. The Disease prediction is to provide prediction for the various and generally occurring diseases that when unchecked and sometimes ignored can turn into fatal disease and cause a lot of problems to the patient and as well as their family members.

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