

Smart Health Prediction System

**A. Shikhar Pratap Singh¹, B. Subham Kumar Dahiya², C. Syed Imaad Ur Rahman³,
D. Tanmay Gupta⁴**

^{1,2,3,4}Atria Institute Of Technology

Abstract: SMART HEALTH PREDICTION SYSTEM is a system which makes prediction the illness looking at the info or the symptoms the person enters, providing perfect results based of the info. If the user is not too serious and the user just wants to know the type of illness they have. It is a system which gives the user the tips and tricks to maintain the health system of the user and it gives a way to find out the illness using this prediction. In today's world, health industries play a major role in treating the illness of the users so this is also some kind of help for the health areas to tell the user and also it is useful for the user in case they does not want to go to the clinic or any other clinics, so just by entering the symptoms and all other useful info the user may get to know the illness they is suffering from and the health areas may also get benefit from this system by just asking the symptoms from the user and entering in the system and in just few seconds they may tell the exact and up to some extent the perfect illness. This SMART HEALTH PREDICTION SYSTEM is completely done with the help of ML and Python lang. with T-kinter Interface for it and also using the data-set that is available before by the clinics using that we will make prediction of the illness.

Keywords: database, email verification, analysis, prediction, statistics mining, device gaining knowledge of;

I. INTRODUCTION

SMART HEALTH PREDICTION SYSTEM is a diagnostic software based on person records. It additionally makes prediction affected person or user sickness based at the info or symptoms they input into the machine and presents perfect results based totally on the statistics. If the affected person isn't very critical and the consumer desires to realize the kind of disorder, they have got surpassed. it's miles a program that gives the person pointers and tricks to keep a user's fitness plan and offers a way to find out the illness using this prediction. Now a day's health areas play a major role in treating the illness of the users so this is also some kind of help for the health areas to tell the user and also it is useful for the user in case they does not want to go to the clinic or any other clinics, so just by entering the symptoms and all other useful info the user may get to know the illness they is suffering from and the health areas may also get benefit from this system by just asking the symptoms from the user and entering in the system and in just few seconds they may tell the exact and up to some extent the perfect illness. This DPUML is before done by many other organizations yet our intention is to make it different and beneficial for the user who is making use of the system. This SMART HEALTH PREDICTION SYSTEM is completely done with the help of ML and Python Programming lang. with T-kinter Interface for it and also using the data-set that is available before by the clinics using that we will make prediction of the illness. Now a day's Docs were adopting many scientific technologies and methodology for both identification and diagnosing not only common illness, yet also many fatal illness. The successful treatment is always attributed by right and perfect diagnosis. Docs may sometimes fail to take perfect decisions while diagnosing the illness of a patient, hence illness prediction systems which use ML algorithms assist in such cases to get perfect results. The project SMART HEALTH PREDICTION SYSTEM is developed to overcome general illness in earlier stages as we all know in competitive environment of economic development the mankind has involved so much that they is not concerned about health according to research there were 40% peoples how ignores about general illness which leads to harmful illness later. The main reason of ignorance is laziness to consult a doctor and time concern the peoples have involved themselves so much that they have no time to take an appointment and consult the doctor which later results into fatal illness. According to research there were 70% peoples in India suffers from general illness and 25% of peoples face death due to early ignorance the main motive to develop [p this project is that a user may sit at their convenient place and have a check-up of their health the UI is designed in such a simple way that all may with ease operate on it and may have a check-up.

II. LITERATURE REVIEW

Tom-Mitchel says ML as "A computer program is said to learn from experience and from few jobs and other sports, as measured, enhance know-how ". System mastering is a combination of relationships and relationships, a few of the system getting to know algorithms available were related to acquisition and relationships. Making benefit of relation-ships among data-sets. Once ML Algorithms may pin-point on certain co-relations, the structure may use these relation-ships to make predictions in upcoming observation or generalizing data to show interesting patterns. In ML, there were many types of algorithm like Regressions, Linear Regressions, Logistic Regressions, "naive-Bayes" Classifiers, Bayes-theorem, K-NN (K

Nearest-Neighbor Classifier), Decision-Trees, Entropies, ID-3, S.V.M (Support Vectors Machine), K Means-Algorithm, Random Forests etcetera,

The name ML was invented in '59 by Arthur Samuel. ML explores the study of algorithm that may learn and make prediction of data. ML is closely in relation (and often intertwined with) computer info, that makes it special to speculate on the use of computer systems. It has a strong relationship with mathematical performance, that may provide methods, policy and terminology names for the field. Gadget studies were sometimes combined with mathematical mines, where the lower storage area focmakes use of more on the testing of test records and is called unattended awareness. In fields of data analytic, ML is a process made use of to create complex model and algorithm which lends itself to come up with predictions; within commercial use, it is referred as predictive analysis. This analytical model allows a researcher, a data-scientist, an engineer, and an analyst to "create reliable, repeating decision and report" and disclose "unseen insight" by learning historical relationship and trend within data.

III - PROPOSED SYSTEM

The system of SMART HEALTH PREDICTION SYSTEM is that we have made use of a lot of technique, algorithm and many other tools to come up with a system that makes prediction of the illness of the user by making use of the symptom and by procuring that symptom, we compare with the system data-set which is already present. By procuring those data-sets and making comparison with the user's illness we will make prediction of the perfect percentage illness of the patient. The data-set and symptoms go to the prediction model of the system where the data is pre-processed for the upcoming reference and then the feature choose ion is done by the user where they will make entry of the symptom. Then the classification of those data is done with the help of many algorithms and techniques such as Decision-Trees, K-NN, "naive-Bayes", Random-Forests etcetera. The data is then entered in the recommendation models, where its shown the risk's analytics which is present in the systems and it also gives the probabilities estimation of the system such that it shows the many probabilities like how the software behaves when there were n number of predictions were done and it also makes the recommendations for the users from their final report and also from their symptoms like it may show what to use and what not to use from the given data-sets and the final results. Here we have combined the complete structure and non-structured form of data for the complete risk analysis that is required for doing the prediction of the illness. Making use of structured analytics, we may identify the chronic type of illness in any region and any community. In non-structured analytics, we choose the specialities automatically with the help of algorithms and techniques. This system takes symptoms from the user and makes prediction the illness accordingly based on the symptoms that it takes and also from the previous data-sets, it also helps in continuous evaluation of viral illness, heart-rate, B.P, sugar-level and many others that is in the program and along with other external symptoms it makes prediction the right and perfect illness.

Doctor

The doctor is one of the main users of the proposed device. Each doctor has their own end of the system. Docs simply log into the website using their email address and password. Likewise, every time the data subject visits a doctor, he enters the patient's email ID in the terminal. After entering this info, all Medicinal data associated with this email ID will be available in the physician's memory. However, the details of other Docs were not provided and each doctor receives info on chronic users from his analysis. Docs find important statistics such as previous fitness problems, infections, and hypersensitivity reactions. of the patient. Likewise, after receiving this info, the doctor will speak with the people involved to understand the problem. Recall that the patient is sick, has a cough, has no blood, has a viral fever and has a cold. Well, the doctor honestly gives these restrictions as access to the diagnostic equipment in his ward. Also, keep in mind that if the doctor exceeds these limits, he will receive a percentage of possible illness. Hence, this is useful for Docs' diagnosis. In this guessing machine, the proposed gadget makes use of the Aprili algorithm. Predictive gadgets work on the concept of systems management.

It captures the output based entirely on the knowledge base and includes the actual heuristic info to accept when retrieving system info. The Aprori rule set is made use of to find a common set of objects. The steps for a rule set were as follows: 1. Test D for all candidate and produced topics. Lists all units of the candidate element and the extent to which the corresponding candidate support may be calculated. 2.2. Check candidate support with a little help. Generate suggestions using a set of objects. 3. Choose D to count all candidates. Compare the candidate's support number to the counter's minimum support computer. This process continues until the maximum amount of shared material is generated. Now suppose the affected person has a viral fever. Hence, Docs may want to know what medications they have before prescribed for people with viral fever. Consider that a patient has been seen by a doctor 40 times due to viral fever

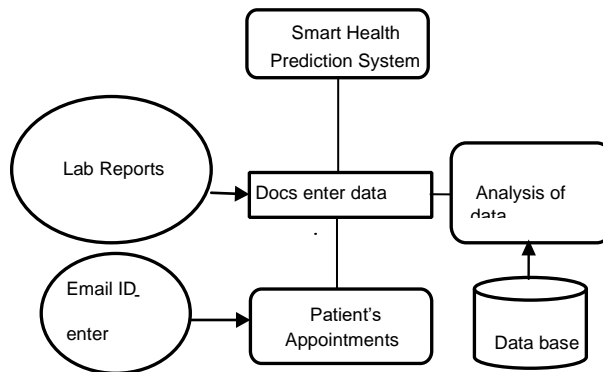


Figure 2: Functioning of Doctor System.

Patient

Patient is the alternative user of the proposed system. each affected character will input their e mail identity and password to get entry to their terminal. first of all, whilst users take a look at in, they'll enter their non-public records including name, age, gender, etcetera. And their preceding hypersensitive reactions. they may additionally enter into their Mediclaim rules. the ones tips might be maintained with the useful resource of the gadget and customers may even offer identity of Indian citizens who need to offer this access. All of it may be in particular useful with conditions consisting of incidents wherein understanding someone's Mediclaim pointers may be useful for charges. in addition, every time a scientific physician diagnoses the affected person, actual-time drug updates could be supplied on the affected character's terminal. further, the proposed machine additionally affords a function in which a patient may view the Medicinal Shops and Clinic(s) in a place relying on their rankings also the consultation expenses. further, sufferers also may view medibots in a positive vicinity. this will provide in addition assistance to customers. sooner or later, the entire scientific info of every man or woman affected individual may be supplied to that precise affected character. this will assist sufferers hold tune of their beyond hospitalizations, allergic reactions, and medications to provide adequate Medicinal history for Medicinal Docs inside the destiny. It also presents an introduced gain that each one info were digitized. This receives rid of the redundant need for paper documents to keep data within a file. All of the functions that were available to users in this gadget were shown . We get right of access to via e mail id research panel beyond scientific history patient Drug schedules Clinics Dispensaries sufferers. " get entry to identification were seeking Panel past facts affected individual treatment Schedules Clinics Dispensaries Fig. three. device abilities to be had to sufferers.

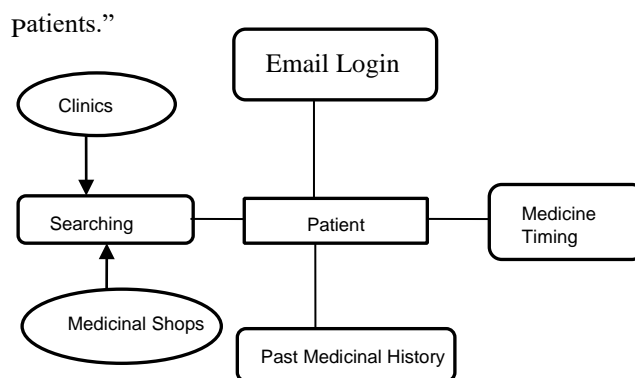


Figure 3: Functioning of Users System.

Medibot

The given machine has capabilities of help to the medibot. the principle intention the device has is digitalization of scientific facts and enhance the every day workflow. To do all this, some specialities were provided to medibot. every medibot may even have its personal terminal via which it will likely be capable of get entry to its personal machine. once more, this will be executed the usage of their email identification and pass-word, after this, the medibot might visualize the earnings in a particular area of a specific drug, for which they will be supplied with an intensive statistical evaluation. this may reduce the troubles they face today, wherein positive entityts stay unsold and then expired ones were wasted. relying on income statistics, the medibot may be able to correctly derive call for in a specific place. The functions for the users in this device were proven in the given figure.

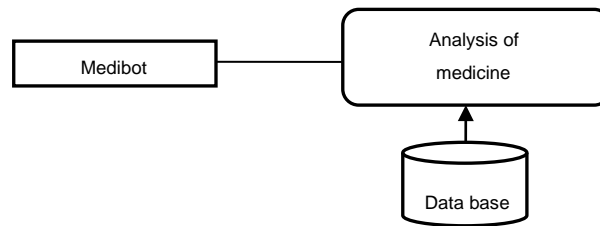


Figure 4. Functioning of Medibot.

IV. RESULTS

The device being built is focmade use of in the direction of offering a digital answer for retaining the clinical info in Hindustan, with the use of electronic mail. There were some screen-shots provided of some of the evolved modules. A patient may view his/her info upon entering their e-mail wide variety. Docs may see all of the appointments that he had on any given day. Finally, a Medibot may view patient's details of a given remedy.

Doctor Login Page

Doctor name
Enter Email
Password
Enter Password
Login
New user [@ididid](#)

User Signup Page

Username
Enter Name
Username
Enter Email
Password
Enter Password
gender
Age
Enter your age
Submit

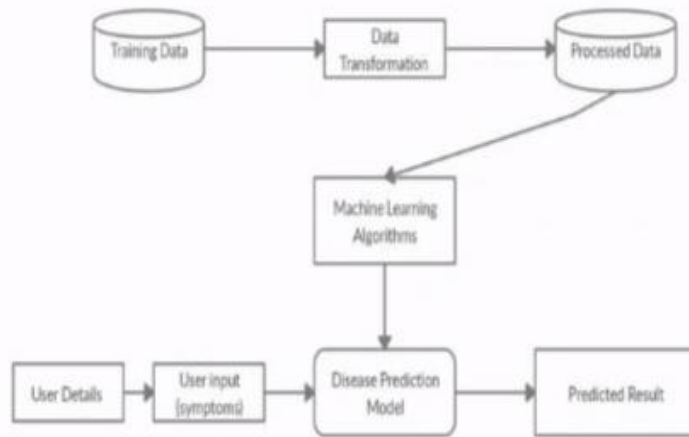


Fig 4.2 System Architecture

To add up on all of this, the entity gives detailed-analysis of the input that may be provided to the Smart Health prediction system and what the outputs the system may make prediction of. This entity also gives a good estimation of the rubrics for the prediction system.

Input and Output for Illness Prediction

itching	skin_rash	nodal_skin	continuous	shivering	chills	joint_irregular	abdominal	diarrhoea	milk_sinus_p	bruising	oi	weaknes	history_of	fluid_silver	like_small	derm	inflamm	blister	red_sore	yellow_cn	prognosis				
1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Fungal infection		
0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Allergy	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	GERD	
1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Chronic cholestasis	
1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Drug Reaction	
0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Peptic ulcer disease	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	AIDS	
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Diabetes	
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Gastroenteritis	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Bronchial Asthma	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Hypertension	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Migraine	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Cervical spondylosis	
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	Paralysis (brain hemorrhage)	
1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Jaundice
0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Malaria
1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Chicken pox
0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Dengue
0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Typhoid
0	0	0	0	0	0	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	hepatitis A
1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Hepatitis B
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Hepatitis C
0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Hepatitis D
0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Hepatitis E
0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	Alcoholic hepatitis
0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Tuberculosis
0	0	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Common Cold
0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Pneumonia

CONCLUSION AND UPCOMING SCOPE

So, Finally I conclude by saying that, this project SMART HEALTH PREDICTION SYSTEM is very much useful in all’s everyday life and it is mainly more important for the health-care sector, because they were the one that daily makes use of these systems to make predictions the illness of the users based on their general info and there symptoms that they were been through. Now a day’s health areas play a major role in treating the illnesses of the users so this is also some kind of help for the health areas to tell the user and also it is useful for the user in case they does not want to go to the clinic or any other clinics, so just by entering the symptoms and all other useful info the user may get to know the illness they is suffering from and the health areas may also get benefit from this system by just asking the symptoms from the user and entering in the system and in just few seconds they may tell the exact and up to some extent the perfect illness. If health areas adopts this project then the work of the Docs may be reduced and they may with ease make prediction of the illness of the patient. The Illness prediction is to provide prediction for the many and generally occurring illnesses that when unchecked and sometimes ignored may turns into fatal illness and cause lot of problem to the patient and as well as their family members.

REFERENCES:

1. MA.Nisara Baanu, B.Gomathy, "Illness Predicting System Using Data Mining Techniques", Internationale Journal of Technical Research and Applications e-ISSN: 2320-8163, www.ijtra.com Volume 1.0, Issue 5.0 (NovDec 2013), PP. 41:45.
2. R.Vijayakumar, R.Mohan Kumar, D. Hari Shankar, "Computer based diagnosis using ANN", Engineering in Medicine and
3. Biology Society, 1995 and 14th Conference of the BioMedicinal
4. Engineering Society of India.
5. Sanaa Bharati, Dr.Shaylendra Narayana Singh, "Analytical Studies of Heart Illness Prediction Comparison With Different Algorithm",
6. Internationale Conference on Computings, Communications and Automations (ICCCA2015)
7. A.Ravi Shankar Rao, Daniele Clark, "A fully integrated open source tool-kit for mining health care big data: architectures and application", 2016 IEEE Internationale Conference on Health Care Informatic.
8. Finkelsteine, M., "A Medicinal Applications to Bridging the Gaps among Clinician and Clinical Data.", Study in health-technology and informatic 210 2015: 681.
9. A.Kemphila, V.Bonjing, "Hearts Illnesses Classifications Using Neural Networks and Specialities Chooseions", Proceeding of 21th Internationale Conferences on System Engineering.
10. K.Srinivasa, B.Kavita Raani, Dr.A.Goverdhan, "Application of Data Minings Technique in Health Care and Predictions of Heart Strokes",
11. Internationale Journals on CSE Vol 02, No 02, 2010, 250:255.
12. Akshaya Raol, Atharv Paatil, Prema Rahejaa, Rupaali Saawant, "Knowledge,
13. Discoveries, Analytics and Predictions in Health Care using Data Mining and Analytics", 2016 2nd Internationale Conference on Next Generations Computing Technology (NGCT-2016) Dehradun, India 14-16 October 2016.
14. R. Buya, C.S.Yeeo, S.Venoogopal, J.Breoberg, I.Braandic, "Cloud computings and emerging I.T platform: vision hype, and reality for delivering computing as the fifth utility, Upcoming Generation Computer System", 25 Jun 2009, 599:616.