iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 8 **Issue:** VII **Month of publication:** July 2020

DOI: http://doi.org/10.22214/ijraset.2020.7065

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429
Volume 8 Issue VII July 2020- Available at www.ijraset.com

Anytime Medicine using Machine Learning

Pranav Y S[1], Prashanth C[2], Raghavendra L Achari[3], Ramesh V[4], Sowmya Somanath[5]
[1, 2, 3, 4]*Dept. of Information Science and Engineering, Visvesvaraya Technological University Sapthagiri College of Engineering Bangalore, India*
[5]*Assistant professor, Dept. of Information Science and Engineering, Visvesvaraya Technological University Sapthagiri College of Engineering , Bangalore, India*

Abstract: Artificial intelligence (AI) is creating a new era in the field of medicine. The system which is available now is non interactive, e.g., for anamnesis, and physicians use this in diagnosis for prediction purpose or prognosis. However, there is a wide usage of these systems, e.g., in disease or cancer prediction. In here, The Artificial Intelligence System which we have developed will interact using a text recognition and text synthesis system and the important thing is that it will interact with the patients on its own for, e.g., rural areas requires this kind of system because of their low population density there will be no primary medical care centers. Type 2 disease mellitus (T2DM) can be predicted by using deep neural networking techniques. Any Time Medicine predictor (ATM) is a tool which conveys medicine related suggestions in crisis cases and guarantee services 24x7. This Anytime Medicine Predictor proposes a novel method that aims at finding significant features by applying Machine Learning techniques resulting in improving the accuracy. The implemented prototype demonstrates that our approach is possible and feasible to offer a better service. For knowing about required medicines in emergency cases based on the symptoms. The system helps to interpret probability estimation for T2DM for a patient in an easy way.

Keywords: Artificial intelligence (AI), anamnesis, speech synthesis system, mellitus (T2DM)

I. INTRODUCTION

Millions of people are treated in emergency rooms in hospitals every year. However, a major portion of the patients are non-emergency cases who are forcing the hospitals to provide medical personnel which is not needed for small cases, creating a mediocre use of staff and treatment of real patient emergencies. Nowadays, the growth of physicians in rural areas are declining which can lead to under served patients, in particular, due to the population and a growing number of elderly people. The shortage of specialists and high wrongly diagnosed cases has necessitated the need to develop a fast and efficient detection system. The main objective of this work is to identify the key patterns or features from the medical data using the classifier model and Natural Language Processing (NPL).

The attributes that are more relevant to disease diagnosis can be observed. This will help the medical practitioners to understand the root causes of disease in depth.

One solution to overcome the problem in the future might be the use of artificial intelligence (AI) in health industry as a tool for predicting medicines.

We are using Apple's Siri or Amazon's Alexa as speech recognition system. They are being treated as a personal assistant and can be used as an interface to interact with patient to get the details in live. The other thing is the use of decision support systems in clinical practice, is limited as one must have expert knowledge and most of systems are not comprehensively, clinically evaluated yet. Few examples are, using magnetic resonance in image analysis software. The decision support systems still requires a significant boost, characterized by a proper cycle of systematic links and mutual feedback of modeling and acceptance.

This sought-after revolution will come from a trans-disciplinary effort involving the sharing of common representations and the design of big data acquisition and management, model developing and testing methods. Artificial Intelligence can improve sometimes perfects the medical treatment or diagnosis. However, in an automated unsupervised situation these models cannot be used. For instance, prediction models for T2DM have been studied widely evaluated the performance of T2DM prediction based on ensemble learners.

Although several machine-learning algorithms can improve the precision or accuracy of prediction over the use of other conventional regression models by capturing nonlinear and complex relationships in the data, no amount of algorithmic finesse or power of computing can get or squeeze out information that is not present. Machine-learning approaches are driven by identification of strong, but theory-free associations in the data.

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429
Volume 8 Issue VII July 2020- Available at www.ijraset.com

II. LITERATURE SURVEY

Pahulpreet Singh Kohli et al [1], had used many machine learning algorithms like Logistic Regression, Decision Tree, Random Forest and adaptive Boosting to predict the disease one can have. They also proposed a predictive model for the disease prediction. It contains following procedures.

1) *Exploration of Dataset:* Where dataset is explored in the python environment along with data dictionary.
2) *Data Munging:* Refers to the estimation of missing values, then the missing values are replaced with the mean value or mode value in case of a continuous variable or a categorical variable respectively.
3) *Feature Selection:* It is crucial for any predictive modeling and is done to take care of multicollinearity, remove any redundant features that are highly correlated with each other, hence improving the performance.
4) *Model fitting and Testing:* 5 classifications algorithms as mentioned above are used with the selected feature and a comparison between their prediction and accuracy was done using Train/Test split method.

SenthilKumar Mohan et al [2] propose a method that a finds significant features by applying machine learning techniques resulting in improving the accuracy in the prediction of cardiovascular disease. The model gives several known classification techniques by getting different combinations of features. They also produced an performance level boost with an accuracy level of 88.7% through the prediction model for heart disease with the hybrid random forest with a linear model (HRFLM).

Fariba Shadabi et al [3] technique advances the understanding of the application of Artificial Intelligence and Data Mining tools to clinical data by demonstrating the potential of these techniques in complex clinical situations.

Ahelam Tikotikar et al [4] discusses reviews about data mining techniques, classification techniques, intelligent techniques and feature selection for prediction of disease. The main focus is to discuss about decision parameter, attribute, and features used for predicting the disease. The method also throws lights on importance of different classification methods for prediction of disease in medical dataset.

Feixiong Huang et al [5] tries to apply the data mining process to predict hypertension from patient medical records with eight other diseases.

A sample with the size of 9000 cases were studied. The sample was extracted from a real world Health care Information System database containing over 300 thousands medical records. They observed that the distribution of patient diseases in the medical database is imbalanced.Using the under-sampling technique they generated training data sets. Data mining tool Weka has also been used to generate the Naive Bayesian and J-48 classifiers.

Furthermore, an ensemble of five J-48 classifiers was created trying to improve the prediction performance, and rough set tools were used to reduce the ensemble based on the idea of second-order approximation. The results showed a little improvement of the ensemble approach over pure Naive Bayesian and J-48 in accuracy, sensitivity, and F-measure.

III. PROPOSED METHODOLOGY

Some chat-bots are more advanced that they can be used as a reference book for medical, which are useful not only for patients, doctors etc but also for those who want to learn something about health. Bot can facilitate to get the common medicines regarding health conditions and by prediction of disease without a human interference. The working of the system is as follows.

A. User Opens The System

User opens the chat-bot application. Then ask queries regarding to the health care and medical details.

B. Input the Symptoms

User will give the symptoms as input to the system. Using API the software will send the input data to the server.

C. Output Results

System gets output from medicine API available in the server database and display all data. Then predicts disease using SVM Algorithm.

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429
Volume 8 Issue VII July 2020- Available at www.ijraset.com

IV. ARCHITECTURAL DESIGN

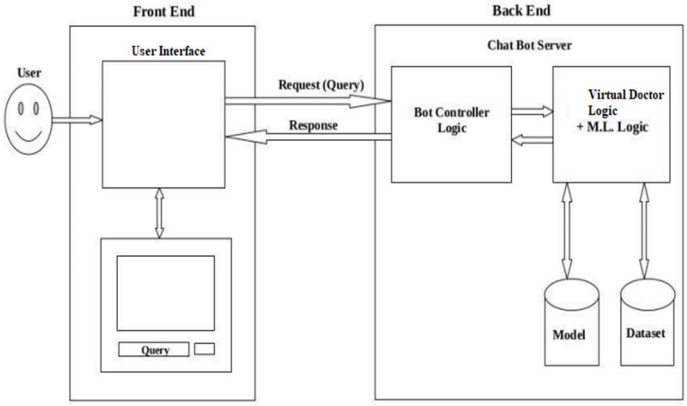


Figure 1.: Architectural Design

Below is the sequence diagram of the system. It gives a detailed overview of the system about how it works.

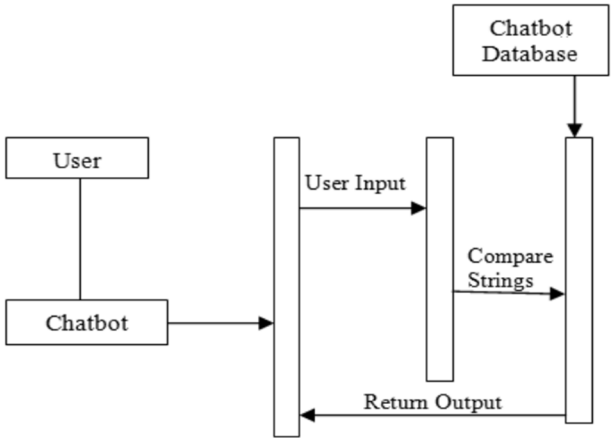


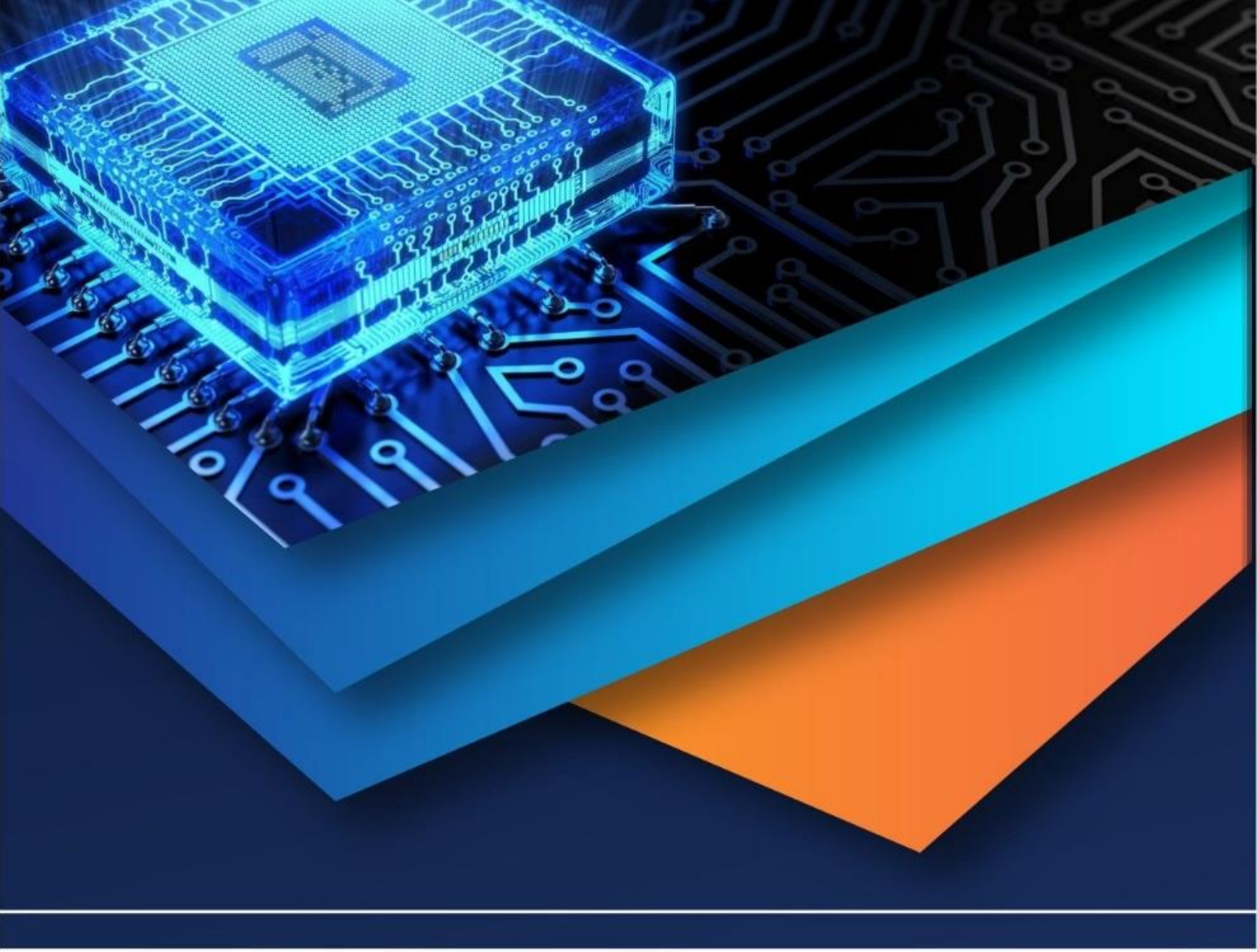
Figure 2.: Sequence Diagram

V. CONCLUSION

The main purpose of the project is to predict the medicine according to the symptoms entered by the patients anywhere and anytime. If there is a condition like normal sickness, generally all the families will be having household medicines at home, but the problem is everyone would not be having complete idea about the medicine which they are consuming. And by using this tool, one can know the exact medicine to help during emergency conditions. It gives ease of access even in rural areas where people would not be knowing the exact name of the medicine. As result of this project the people would be able to access Any Time Medicine Predictor 24x7. Prospective Customer Survey / study has been planned in order to understand Indian users for such a machine.

REFERENCES

[1] P. S. Kohli and S. Arora, "Application of Machine Learning in Disease Prediction," 2018 4th International Conference on Computing Communication and Automation (ICCCA), Greater Noida, India, 2018
[2] S. Mohan, C. Thirumalai and G. Srivastava, "Effective Heart Disease Prediction Using Hybrid Machine Learning Techniques," in IEEE Access.
[3] F. Shadabi and D. Sharma, "Artificial Intelligence and Data Mining Techniques in Medicine – Success Stories," 2008 International Conference on BioMedical Engineering and Informatics, Sanya, 2008.
[4] A. Tikotikar and M. Kodabagi, "A survey on technique for prediction of disease in medical data," 2017 International Conference On Smart Technologies For Smart Nation (SmartTechCon), Bangalore, 2017.
[5] F. Huang, S. Wang and C. Chan, "Predicting disease by using data mining based on healthcare information system," 2012 IEEE International Conference on Granular Computing, Hangzhou, 2012.



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY