

# Medical Chatbot

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## ABSTRACT

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The Medical Chat-Bot is a software that is used to interact with users using NLP via text Today in the present era, We have challenges in the country is provision of good quality and affordable healthcare services to its growing population and at the same time, they are not cost efficient. the chat bot are usefull in the all industries. the chatbot using Artificial intellegence , machine Learning and deep learning use for diagnostics of medical. The aim of the project is everyone has the general queries about any topics but we train our Bot for Medical disease and their symtoms.our system mainly focuses on the rural part and general users.our system understand the pattern using machine learning for the given symtoms.our sytem tries to solve the general problems and queries with the help of symtoms provided by user.and help them to guide on correct medicines.

**Index Terms**—Chatbot, COVID-19, Artificial Intelligence, Machine learning, Deep Learning, Natural Language Toolkit (NLTK), Natural Language Processing (NLP), Intent, bag of words, Python.

## I. INTRODUCTION

In this world, all that we want is perpetual joy and happiness. We experience happiness and joy through our sensory organs in the body. We feel happy only when we maintain proper physical health. If health deteriorates our happiness declines which will lead to pain and misery. Nowadays folks are less attentive to their health that results in high risk once it's not renowned. Counting on the accuracy and details their script, they are in the addition able to verify each patients individual complaints, requests and adopt approach to provide the assistance they need. This is a methodology uses the online chatbot to learn. to improve the performance and their interaction.the chatbot system is a system that interact with user

using Natural language processing via text. and text to speech.

## II. LITERATURE SURVEY

An application of counseling chatbot, which provides con- versational service for health care based on emotions recog- nition methods and chat assistant platform. This application doesn't consider the user's psychiatric status through continu- ous user monitoring.

[1] Model of Multi-turn Dialogue Emotional Chatbot  
The intent recognition and natural language understanding of bot is key for the commercialization of chatbots. it is mainly used for the processing of specific tasks and can

introduce products to customers or solve related problems, thus saving human resources.

- [2] The Potential of Chatbots: Analysis of Chatbot Conversations. First algorithms with the aim to accomplish this were already implemented in the early 1960s. In recent years, chatbots have been gaining enormous popularity in various fields. In the context of business applications, they are considered as useful tools for improving customer relationships.
- [3] Yapay Zeka Tabanlı Rehber Robotlara Genel Bir Bakış ve Örnek Bir Rehber Robot Uygulaması An Overview of Artificial Intelligence Based Chatbots and An Example Chatbot Application. In this paper, we present the general working principle and the basic concepts of artificial intelligence based chatbots and related concepts as well as their applications in various sectors such as telecommunication, banking, health, customer call centers and e-commerce.
- [4] Intelligent Chatbot for Easy Web-Analytics Insights. In this paper, I am comparing two widely used analytics tools based on their ease of use. We are proposing an Artificial and machine learning (AIML) driven bot that have analytics, raw data, that enable bots to give Business insights by just asking. related to web analytics and will get response immediately. This is to avoid the time consuming task of mastering a web analytics tool.

### III. METHODOLOGY

We utilized several classic and state of the art methods, including ensemble learning techniques, with a 80% - 20% split for the training and test data.

#### A. Tkinter Module

We used Tkinter to build Graphical User Interface. Tkinter provides a various of Grafical user interface elements that can be used to build interfaces. These

include various kinds of entry fields and display areas ,buttons, menus.

#### B. NLP

NLP algorithms are typically based on machine learning algorithms. Natural language processing helps computers communicate with humans in their own language and scales other language-related tasks.

#### C. Tensorflow Module

TensorFlow is framework developed by google and its give us the flexibility and control with features like the Keras Functional API for creation of complex technologies. Tensorflow 2.0 is used to create the system.

#### D. Keras API

Keras API is a deep learning API written in Python language, running on the top of the machine learning platform is called TensorFlow. It use for create layers in NN. Keras is a high-level, deep learning API for implementing neural networks. It is used to make the implementation of neural network easy. It also supports multiple backend neural network computations.

#### E. Predictive Analytics

Predictive Analytics combines big data, modeling, artificial intelligence and machine learning in order to make more predictions about future events.

#### F. Sentiment Analysis

A sentiment analysis can determine what user "really means" when they type in a certain phrase or perhaps make a common spelling or grammar mistake.

#### G. Text Classification

Text classifications allow NLP to understand human language including phrasing, intent, colloquialisms, etc. and respond in kind through chat, text or voice messaging.

#### IV. TECHNOLOGY USED

##### A. Artificial Intelligence

AI gives touch of human to every conversation chat-bot strikes. This bot understands the user's query and triggers an accurate response. The way humans are able to understand each other's concern and give a response accordingly.

##### B. Machine Learning

Machine learning is the phrase used to describe how computer can receive data, analyze and interpret that data to identify certain patterns, and then used that analysis to make the best logical decisions without input from a human operator.

##### C. Deep Learning

This chatbot is created using machine learning and deep learning algorithms. Deep learning chatbots learn everything from patients data and human-to-human dialogue. A chat-bot learns simply by recognizing patterns during conversations it has with humans combined with predetermined chat scripts and a database of answers for responses. The more that program operates, the more it learns from database and the more intelligent chatbot becomes.

#### V. DATASET AND IMPLEMENTATION DETAILS

here, we collect the data of disease and their symptoms with the proper precautions .the dataset consists over 300+ entries.the data set is 60 percent trained and 40 percent testing data.we use that data to predict the diseases.An epoch of machine learning is one pass entry.we use machine leaning algorithm to train the dataset.we used tensorflow and keras libraries. SGD optimizer used for optimizing the model.we train the model and get the pickle file of words and classes of phrases.after that the system recognize the pattern from dataset and match the input with the pattern and give proper result.

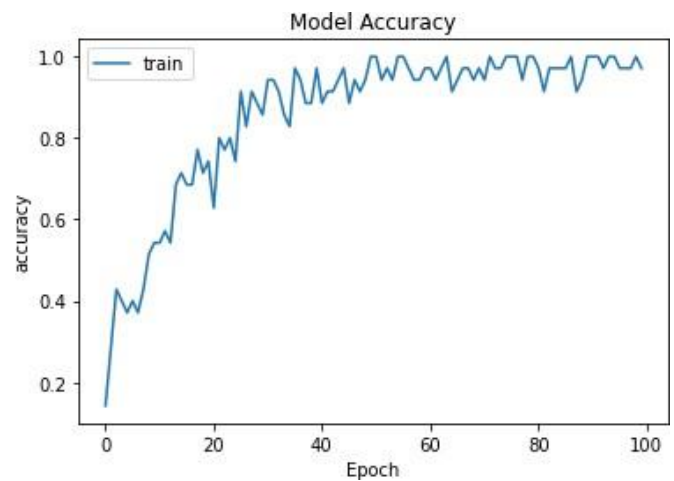


Fig. 1. Accuracy Model

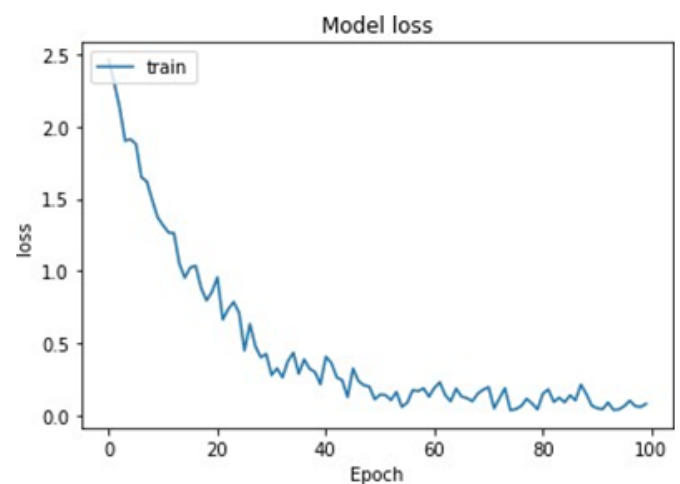


Fig. 2. Data loss model

#### VI. RESULT AND DISCUSSION

The proposed system is an efficient, cheap, easy and a quick way to help patients to have a one to one conversation with the Chatbot that helps and assists them to take care of their health effectively. Our system is capable to understand the symptoms of the patient and communicate with patient through web User Interface. With the help of Chat bot users can post their symptoms and get the solutions from the bot. The system can be accessed from anywhere and at anytime conveniently. The chat bot is available 24/7.

## VII. ACKNOWLEDGEMENT

We had a great experience working on this project and we got to learn new skills through this project. However, it would not have been possible without support and help of many individuals.

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## VIII. FUTURE WORK

By taking the advantages of the machine learning algorithm medical Chat-Bots can be extended and used deeply with other medical systems where predictions can be done. It can be further extended to schedule doctor visits and remind patients of a next appointment or routine check-up. Also it can be extended to collect patients' feedback and this will help medical organizations to improve their processes.

## IX. CONCLUSION

we have presented an AI Chat-bot using applications of Deep Learning including various viral diseases faced by human being in day to day life. Keeping in mind, the situation of the rural population and imbalance between the demand and healthcare services currently provided, so by developing this Chat Bot will bridge a gap by creating this Chat-Bot application with natural language processing.

We have shown how the Data is given as input to the Deep Neural Network and how task is constructed as learning problem. We have covered all the solutions to the user's query which will be beneficial for proper understanding of the patients. We have successfully implemented speech to text conversation type for better use of Medical Chat-bot.

## X. REFERENCES

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