

ABSTRACT

During this pandemic situation, most the people's health care is in the need of medicine and doctors' suggestions to improve and protect their health. Also, have seen many such cases where many people have been infected by COVID. To reduce physical contact and help the people from the spread of diseases the proposed methodology is to implement the medibot in hospitals. A medical bot is a Chatbot that uses NLP (Natural Language Processing) by text format. The medibot is supported by AI and Deep Learning for Medical Diagnostics. The goal of the project is to create a medibot that overcomes the proposed methodology. Many people could not meet the doctors for simple problems such as cold and fever. To reduce these cases will implement the medibot. This medibot can communicate with the patients and understand the symptoms, it will also give them medicines.

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CHAPTER 1

INTRODUCTION:

1.1 Outlet of The Project:

This is an automated chat robot design to answer users frequently asked questions, earlier natural language processing techniques were using to design this robot but its accuracy of giving correct answer was less and now due to Deep Learning algorithms accuracy of giving correct answer increase, so here using python deep learning project we are building CHATBOT application to answer users questions.

To implement this technique first we train deep learning models with the train data (all possible question's answers) and whenever users give any question then application will apply this test question on train model to predict exact answer for given question.

Earlier companies were hiring humans to answer user's queries but by using this application we can answer user's question without using any manpower.

Chabot can be described as software that can chat with people using artificial intelligence. Chabot's are generally used to respond quickly to users. Chabot's, a common name for automated conversational interfaces, present a new way for individuals to interact with computer systems. Traditionally, to get a question answered by a software program involves using a search engine or filling out a form. A Chabot allows a user to simply ask questions in the same manner that they would address a human. There are many well-known voice-based catboats currently available in the market: Google Assistant, Alexa and Siri. Chabot's are currently being adopted at a high rate on computer chat platforms.

To implement this project, we are using python deep learning neural networks and NLTK (natural Language Processing API) to process train and test text data.

1.2 Software Requirements

- Good Internet speed
- Javascript enabled browser

1.2.1 Programming Language

Python

1.2.2 Python Libraries & Packages

- Tensorflow
- Keras
- NLTK
- Pickle

1.2.3 Algorithm – Architecture

RNN - LSTM(Deep Neural Networks)

1.3 Hardware Requirements

RAM- minimum 4gb/Above

Processor- minimum intel i5 core/Above

Windows- 7/Above

CHAPTER 2

LITERATURE SURVEY:

In today's world, health is the major key in the development of each sector. Health also needs modern technology and their implementations in order to boost the development in this area. As we know that it is the most important field in each country, need to provide sufficient technological development. A lot of researches have been done in this field in order to modernize the methods of health status. Old methods of diagnosing are still a major hindrance in the advancement of medical facilities. The best way to overcome this problem is using a medical chatbot with self-diagnosis using Artificial Intelligence.

The proposed method can use deep learning algorithms to increase the capabilities of computers and by enhancing it can understand what humans can do, which includes speech and text recognition. In this will use text-text in mediators to contact the patients and teach the chatbots to process natural language text. It discusses about processing natural language using Recurrent Neural Network (RNN). The sequence to sequence long short-term memory cell neural network (LSTM) is used to train the model. In addition, it also talks about the challenges of implementing a Recurrent Neural Network based chatbot. Disease diagnosis system using several machine learning algorithms is proposed. A detailed comparison of four Machine Learning algorithms to predict disease based on symptoms provided, is also presented in this paper.

The purpose was to find the best Machine Learning algorithm to diagnose diseases early to help doctors and patients, as early prediction of disease can improve treatment efficiency. The chatbot will start questioning the patients regarding their symptoms and problems they are suffering and suggest an effective method to reduce the disease or give the medication according to the disease user suffering. Deep learning is a subset of machine learning in artificial intelligence that has networks capable of learning unsupervised from data that is unstructured or unlabeled. Also known as deep neural learning or deep neural

network. Recurrent Neural Network (RNN) are a type of Neural Network where the output from the previous step is fed as input to the current step. ... It uses the same parameters for each input as it performs the same task on all the inputs or hidden layers to produce the output [8]. In this can build algorithms to make the computer automatically analyze the given data and also make it understand human language. In this, mainly use text recognition using deep learning. Deep learning algorithms are used to enhance the capability of a chatbot. The main focus of the review is to implement medibot using both deep learning and neural networks.

2.1 Machine Learning

Machine learning is an application of artificial intelligence (AI) that provides systems the ability to automatically learn and improve from experience without being explicitly programmed. Machine learning focuses on the development of computer programs that can access data and use it learn for themselves.

The process of learning begins with observations or data, such as examples, direct experience, or instruction, in order to look for patterns in data and make better decisions in the future based on the examples that we provide. The primary aim is to allow the computers learn automatically without human intervention or assistance and adjust actions accordingly.

2.1.1 Some machine learning methods

Machine learning algorithms are often categorized as supervised or unsupervised.

2.1.1.1 Supervised machine learning algorithm

Can apply what has been learned in the past to new data using labeled examples to predict future events. Starting from the analysis of a known training dataset, the learning algorithm produces an inferred function to make predictions about the output values. The system can provide targets for any new input after sufficient training. The learning algorithm can also compare its output with the correct, intended output and find errors in order to modify the model accordingly.

2.1.1.2 Unsupervised machine learning algorithm

Are used when the information used to train is neither classified nor labeled. Unsupervised learning studies how systems can infer a function to describe a hidden structure from unlabeled data. The system does not figure out the right output, but it explores the data and can draw inferences from datasets to describe hidden structures from unlabeled data.

2.1.1.3 Semi-supervised machine learning algorithm

Fall somewhere in between supervised and unsupervised learning, since they use both labeled and unlabeled data for training – typically a small amount of labeled data and a large amount of unlabeled data. The systems that use this method can considerably improve learning accuracy. Usually, semi-supervised learning is chosen when the acquired labeled data requires skilled and relevant resources in order to train it learn from it. Otherwise, acquiring unlabeled data generally does not require additional resources.

2.1.1.4 Reinforcement machine learning algorithm

Is a learning method that interacts with its environment by producing actions and discovers errors or rewards. Trial and error search and delayed reward are the most relevant characteristics of reinforcement learning. This method allows machines and software agents to automatically determine the ideal behavior within a specific context in order to maximize its performance. Simple reward feedback is required for the agent to learn which action is best; this is known as the reinforcement signal. Machine learning enables analysis of massive quantities of data. While it generally delivers faster, more accurate results in order to identify profitable opportunities or dangerous risks, it may also require additional time and resources to train it properly. Combining machine learning with AI and cognitive technologies can make it even more effective in processing large volumes of information.

2.3 Python

Python is an easy to learn, powerful programming language. It has efficient high-level data structures and a simple but effective approach to object-oriented programming. Python's elegant syntax and dynamic typing, together with its interpreted nature, make it an ideal language for scripting and rapid application development in many areas on most platforms.

The Python interpreter is easily extended with new functions and data types implemented in C or C++ (or other languages callable from C). Python is also suitable as an extension language for customizable applications.

2.4 Package Installer

PIP - pip is a command line application written in Python. PIP is a package management system used to install and manage software packages written in Python. It stands for "preferred installer program" or "Pip Installs Packages." PIP for Python is a utility to manage PyPI package installations from the command line.

Syntax: pip install tensorflow, keras, pickle, nltk

2.5 TensorFlow

It is an open-source artificial intelligence library, using data flow graphs to build models. It allows developers to create large-scale neural networks with many layers. TensorFlow is mainly used for: Classification, Perception, Understanding, Discovering, Prediction and Creation. TensorFlow offers multiple levels of abstraction so you can choose the right one for your needs. Build and train models by using the high-level Keras API, which makes getting started with TensorFlow and machine learning easy.

If you need more flexibility, eager execution allows for immediate iteration and intuitive debugging. For large ML training tasks, use the Distribution Strategy API for distributed training on different hardware configurations without changing the