Intelligent Chatbot

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Abstract— **A Chat-bot is a software application used to conduct an online chat conversation via text or text-to-speech, instead of providing direct contact with a live human agent. Designed to convincingly simulate the way a human would behave as a conversational partner. In the proposed system, we presented a chatbot that generates a dynamic response for online client's queries. The Proposed System is based on Artificial Intelligence-powered Chatbot. The web-based platform provides a vast intelligent base that can help simulate problem- solving for humans. This proposed chatbot identifies the user context which triggers the particular intent for a response. Since it is responding dynamic response the desired answer will be generated for the user. The proposed system used machine learning algorithms to learn the Chatbot by experiencing various user's responses and requests. After referring to 17 IEEE papers and 13 Standard papers our research finding a state that the strong point of Chat-bot is that it comes to use in numerous fields of our daily life. Nowadays chat-bot is started to becoming so robust because Artificial Intelligence aids the human touch in every conversation, chat-bot understand the user's query, and trigger an accurate response. The objective of this project is that chatbots can help to reduce the dependency of an organization on humans and also minimize the need for a different system for different processes.**

Keywords—Chatbot, Artificial Intelligence, Machinelearning, Web-based

I. INTRODUCTION

Artificial intelligence (A.I.) has grown in popularity for simulating conversations between bots and humans, particularly on mobile platforms. The functionality of these chatbots ranges from utilitarian to entertainment, but the value is often not clearly defined. The purpose and need for these chatbots are often not clearly defined. Curiosity and interest may spark an initial interaction with a chatbot, but to add more value to ongoing interactions we should identify a broadly acceptable role that has a defined purpose. What a chatbot is, and how to use one effectively, are new conceptsthat many struggle to define.

Chatbot experiences can happen through text or voice interactions, and can be more or less valuable depending on the context. Determining the preferred input modality means understanding the entire context of the individual involved, user end goal, and environmental variables. Rather than defining a purpose based on the chatbot creator's perspective, we take a user-centered approach to understand how chatbots are perceived and experienced by people in their everyday lives.

By understanding how chatbot experiences live up to expectations and how chatbot services compare to alternatives, we can begin to evaluate their performance and purpose. Now that chatbots are available on mobile devices, we can expect greater accessibility to this technology. The number of chatbot apps on mobile has steadily grown, as has the number of chatbot functions that live in communication platforms like Facebook Messenger, Slack, Telegram, and Skype.

II. LITERATURE SURVEY

Chat bots, or conversational interfaces as they are also known, present a new way for individuals to interact with computer systems. Traditionally, to get a question answered by a software program involved using a search engine, or filling out a form. A chat bot allows a user to simply ask questions in the same manner that they would address a human. The most well-known chat bots currently are voice chat bots: Alexa and Siri. However, chat bots are currently being adopted at a high rate on computer chat platforms.

The technology at the core of the rise of the chat bot is natural language processing ("NLP"). Recent advances in machine learning have greatly improved the accuracy and effectiveness of natural language processing, making chat bots a viable option for many organizations. This improvement in NLP is firing a great deal of additional research which should lead tocontinued improvement in the

effectiveness of chat bots in the years to come. the Chatbot has a very bright future because in recent years we are going to see that it will become very common as a website. And it is not that much costly so anyone who has a website can afford it. As the prevalence of chat bots in society has reached a new high. Most of the studies on chat bots is using different algorithms and how to create an advanced chat bot. This study is mainly dependent on expert personnel's results or any software or applications. Chat bots can reach out to a large audience on messaging apps and be more effective than humans. They may develop into a capable information- gathering tool in the near future. The aim of the present studies is to create a chat bot with different features, and information regarding different algorithms based on natural language processing.

<div align="center">III.   PROBLEM STATEMENT</div>

All the companies want their clients to know about them and they can get more projects or sell their products. So the most primary way to do this is to have a good interactive website in the advanced world of digital marketing. But in this advanced world, just having a website is not enough as it does not cover all the details and can not solve the queries of the clients. Maybe a comment section is an answer, but it's tedious work, and 'time is money' your client will not wait too long for your response. And you can not assign humans to answer everyone at the same time twenty-four by seven. So for that, you need a chatbot, not a normal one "An Intelligent ChatBot" with Artificial Intelligence technology.

"Artificial intelligence chatbot is a technology that makes interactions between man and machines using natural language possible. A chatbot can give different responses from the same input given by the user according to the current conversation issue". By using our "Intelligent ChatBot" you can overcome all the above-given issues, you do not need humans to do manual work, your clients will be happy. A chatbot is a conventional agent that is capable to communicate with operators by using natural languages. As numerous chatbot platforms already exist, there are still some problems in building data-driven system because a huge amount of data is required for their development.

<div align="center">IV.   EXISTING SYSTEM</div>

Chatbots are used in many organizations instead of humans when this is possible. Most of the time systems like that are based on the ways ELIZA or ALICE communicates.

1.   ELIZA:
The first chat bot developed was ELIZA. It was developed by Joseph Weizenbaum using a keyword matching technique. The idea was to read the user input and search for certain keywords, if a keyword was found then the answer was retrieved. If a keyword was not present then ELIZA would try, according to specified

rules, to get more information from the user to keep the conversation going. Consider the following example to understand how this would work.

User: How can I get in touch with my mother?

Then the chatbot would identify the keyword mother and would find a connection between mother and family and it would respond with a question.

ELIZA: Tell me more about your family

The chatbot doesn't understand what it is saying. It only produces results according to rules and in this case there was a rule connecting mother and family. Then it had to produce an answer that would encourage the user to submit another question with the hope of finding a keyword. However most of the time there are some standard replies that ELIZA would use if a keyword is not found. Some examples would be "Very interesting, please go on" or "Can you think of a special example?"

The following figure gives a good example of chatting with ELIZA:

ELIZA: What's on your mind today? Please let me know your opinion.
YOU: About family.
ELIZA: I see.
YOU: I think Sazae's family is good.
ELIZA: What caused you to feel that way?
YOU: Because the family members believe in themselves.
ELIZA: What other reasons might there be?
YOU: Well, I don't know.
ELIZA: I'd like to know more about your opinion.
YOU: I don't like my family so much.
ELIZA: That is quite interesting.
YOU: Yeah.
ELIZA: I'd like to know more about your opinion.
YOU: My family members aren't friendly, so I can't talk with them.
ELIZA: I see.
YOU: Do you have family?
ELIZA: Why do you think that?
YOU: I don't know who you are.
ELIZA: Why do you ask?
YOU: I'm sorry.
ELIZA: That's okay. Please continue.

Fig: A sample conversation with ELIZA

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2 A.L.I.C.E :

ALICE was implemented by Richard Wallace in 1995. It uses pattern matching and stores the information in Artificial Intelligence Mark-up Language, or else known as AIML, files. An AIML file is similar to an XML file that was developed to store pattern knowledge for chatbots. There are three types of AIML categories, atomic categories, default categories and recursive categories, which are described below.

Atomic categories: Is a type of AIML category where there is an exact match.

<category>
<pattern>What is your name</pattern>
<template>My name is Nick</template>
</category>

In the above example if the user submits "What is your name" then the chatbot will reply with "My name is Nick". Default categories: Is a type of AIML category where the use of a wild character such as * is used to match any input.

<category>
<pattern> What is * </pattern>
<template>It is my name </template>

If ALICE does not find a solution using the first category itwill proceed to the second. In this case if a user submits "What is a name" then ALICE will do a check until the wild char and if there is a match it will come with the answer.

Recursive categories: Is a type of an AIML category where special tags are used to refer to a recursion to convince the user to be more specific.

<category>
<pattern>Do you know what the * is</pattern>
<template>It is my name
<srai>What is<star/></srai>
</template>
</category>

In this case the wild character * is used to reduce the inputsubmitted by the user. If the user submits "Do you know what the time is" then this becomes "What is the time".

The following figure gives an example of aconversation between a human and ALICE:
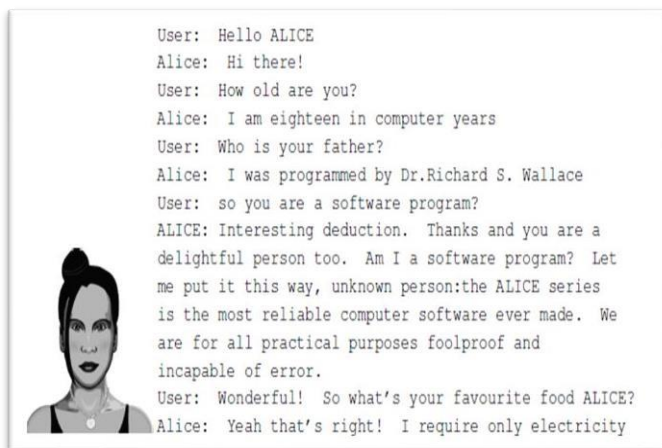
A sample conversation with ALICE (Shawar and Atwell, 2007)

V. PROPOSED SYSTEM

Our project is based on Artificial Intelligence- powered Chatbot. A python is software that provides a user-friendly interface to make the connection easier and convenient with the internet providing valid and reliable web services. We've created a sample chatbot using the same with a twitch as an online platform that provides a chatbot platform to the online clients. The web-based platform provides a vast intelligent base that can help simulate problem-solving for humans. We can help if the user wants to have any query or he wants to enquire about something. Our methodology includes API of Chatbot that will be developed with Cascading style sheet which covers all the styling part and the Javascript is used for functioning the chatbot Back end part will be done with Python programming language. It also contains various machine learning algorithms to learn the Chatbot by experiencing various user's responses and requests.

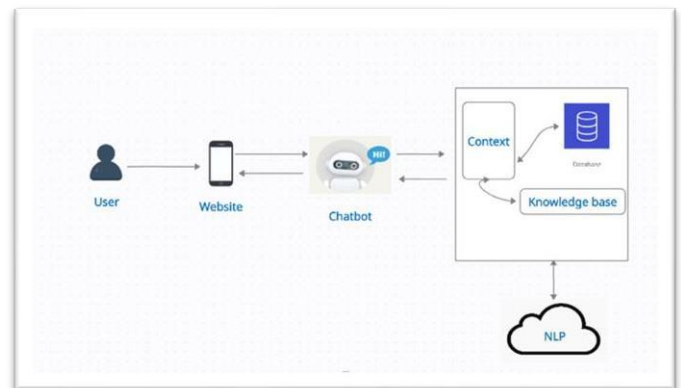The following diagram shows thecomplete System Architecture:

Fig. System Architecture Diagram

The above image clearly explains how a chat chatbot handles costumer Q&A in a business platform.
With the help of following block diagram we can understand the functionalities of a chat bot. The following diagram shows the complete Block Diagram:
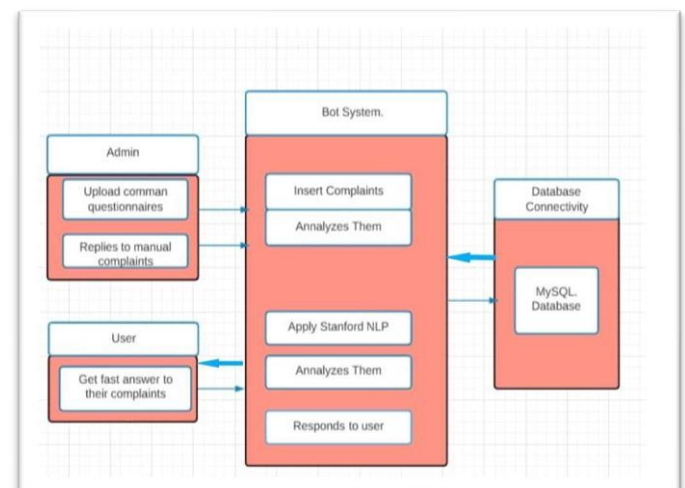

Fig. Block diagram for Chat bot

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