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Chatbot

Fredrick B Lyngdoh[1], Raghavendra R.[2]
[1]*PG Student, Department of Master of Computer Applications School of CS &IT, JAIN (Deemed-to-be-University)*
[2]*Assistant Professor, School of CS &IT, JAIN (Deemed-to-be-University)*

Abstract: Chatbot can be understood as a software that can chat with people using artificial intelligence. This software can also perform tasks such as quickly responding to users, informing them, helping to purchase products and providing the customers better services. A chatbot is a computer software program that can conduct a conversation by an auditory or textual methods. Chatbot has become more popular in business group in the present as it can reduce customers service costs and handles multiple users at a time. But it is yet to accomplish tasks that needs to make chatbots as efficient as possible. In this project, we aim to design a chatbot that provides a genuine and accurate answer for queries using Artificial Intelligence Markup Lanugages (AIML) and with the present of python platform.
Keywords: Chatbot, Artificial Intelligence, Computer Software, Services, Users, Artificial Intelligence Markup Languages.

I. INTRODUCTION

Chatbots also known as conversational agents, are designed with the help of AI (Artificial Intelligence) software. They simulate a conversation (or a chat) with users in a natural language via messaging applications, websites, mobile applications or a phone.

A. Web-based application
B. Standalone applications

Chatbots represents a potential shift in the interaction of people with data and services online. With the increase rise of interest in chatbot design and development, we lack the knowledge to know about why humans use chatbots.
They are simulations which can understand human language, can process it and response to human while performing specific tasks, for example, a chatbot can be employed as a helpdesk executive. Chatbots are not considered as a recent development. The first chatbot was created by Joseph Wiesenbaum in 1966 named as Eliza. It first started when Alan Turing published an article named “Computer Machinery and Intelligence” and this raised an intriguing question, “Can machine think?”. Since then we have seen multiple chatbots that are outstanding to their predecessors to become more naturally conversant and technologically advanced. These advancements made an era where conversations with chatbots have become more normal and natural as with another human.

II. LITERATURE REVIEW

Intelligent Machine has become the era of today’s generation. With development of artificial intelligent, machine learning and deep learning, have started to impersonate as a human being. Conversational software agents operated by natural language processing are known as chatbot, which are considered as one of the excellent example of such machine. The approaching of Artificial Intelligence Systems towards human activities such as making a decision at a particular moment, performing day to day task. In an artificial intelligent field, there are few hybrid methods and adaptive methods available that are making the systems more complex. There is a hybrid combination of natural language processing and intelligent systems. These systems can learn themselves and renew their knowledge by reading all electronic articles available on the internet.
Human can act as a user and can ask questions to the systems like they usually ask another person. These systems are called internet answering engines. Adding to the internet answering engines, many applications are also introduced which is known as chatter-robot or is also called as chatbot which is often aimed at giving an automatic reply or can also be used for entertainment. The application work is very simple as the knowledge is already programmed in advance. Some of the methods used in the application are pattern-making, natural language processing, data mining. The chatbot would match the input sentence from the speaker or user with the pattern existed in the knowledge base. The pattern is then compared with the knowledge of chatbot.
The rising of intelligent systems based on methods known from machine learning and artificial intelligence affects information systems in many areas. This is especially true for the domain of knowledge management and technology-enhanced learning. On the one hand, those technologies enable the analysis of massive amounts of data as it is used, for learning analytics. Thus, artificial intelligence and machine learning algorithms improve the data analysis in this domain. On the other hand, the technologies enable the rise of new or massively improved systems for educational purposes.

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The one topic that is specifically promising and receives increasing interest are chatbot- based systems that use natural language processing algorithms. In the domain of education, such systems are known as pedagogical conversational agents in which chatbots are used for educational purposes.

The days of simply engaging with a service through a keyboard are over. Users interact with systems more and more through voice assistants and chatbots.

A chatbot is a computer program that can be used to converse with humans using Artificial Intelligence in messaging platforms. Each time when the chatbot gets input from the user, it automatically saves input and responses which gives the chatbot with little initial knowledge to evolve using gathered responses. With the increased of responses, the precision of the chatbot also gets increased. (Dr. Ashok Kumar K) [1]

A chatbot is a conversational software system that is made to function to emulate communication capabilities of a human being that makes a connection automatically with a user. It brings out a new modern form of customer assistance assigned by artificial intelligence via a chat interface. Chatbots are interlinked with AI techniques that understand natural language, identifying meaning, emotion and are design for meaningful responses. It makes the work of the customer easier to get responses to their queries in more convenient way without wasting their time waiting in phone queues or send repeated emails. Chatbot was created to reduce the number of customer call, cost of customer care and an average handling time.

However it is rather difficult in achieving the functionalities as it requires various complex interactions between systems. The word 'AI chatbot application system' or 'AI chatbot' are used in this study as a synonym for conversational agent or an advanced dialogue system. The recent interest in chatbots are attributed to two key developments. Firstly, the growth of messaging service has spread rapidly over the last few years. It has features such as payments, ordering and booking, which require a separate application or website.

So rather than downloading a series of separate applications, users can perform tasks such as buy goods, book restaurant and ask questions all through their favourite messaging apps, some of the most popular applications are known as Facebook Messenger, WhatsApp, WeChat and Line. Secondly, advanced AI techniques in combination with machine learning and deep learning techniques have made considerable progress to improve the quality of understanding and decision making on cheap processing power. It can handle the amount of data and process in order to get results that exceeds human performance. The chatbot applications can be under four different categories namely service, commercial, entertainment and advisory chatbot. Service chatbots are designed to provide facilities to customers, logistics firm to respond to questions about deliveries and provide copies of dispatch documents through instant messaging channel rather than emails or phone calls. Commercial chatbots are designed to streamline purchases for customers, a pizza company can take delivery orders or notify promotions via messaging interface. Entertainment chatbots are designed to keep customers engaged with sports, favourite band, movies or other events. It offers the option of placing bets, detail on upcoming events and ticket deals. Advisory chatbots are designed to provide suggestions, give recommendations on service, offer maintenance or repair goods. This type of chatbot can contact people, offer support and advice tips when it is needed.

According to Mohammad Nuruzzaman [2] in his study had discuss the similarities differences and limitations of the existing chatbots. He compared 11 most popular chatbot application systems along with functionalities and technical specifications. Research showed that nearly 75% of customers have experienced poor customer service and generation of meaningful, long and informative responses remains a challenging task. In the past few years, the development of the chatbot methods had relied on hand-written rules and templates. With the increase of deep learning these models were quickly replaced by end-to-end neutral networks. Deep Neutral Networks is considered a powerful generative based model to solve the conversational response generation problem.

Human-Computer Speech as a technique of computer interaction is gaining momentum. There has been a recent increase in speech based search engines and assistants such as Siri, Google Chrome and Cortana. Natural Language Processing (NLP) techniques such as NLTK for Python can be utilise to analyse speech, and intelligent responses can be obtain by designing an engine to provide appropriate human like responses. This type of programme is known as Chatbot, which is the main focus of the study

With the growing popularity of Chatbot it has brought challenges to HCI, as having changed the patterns of human interactions with computers. The increasing need to limit the conversational interaction styles, raises expectations for chatbots to present social behaviours that are habitual in human to human communication. According to Ana Paula Chaves in her survey chatbots should be enriched with social characteristics that cohere with user's expectations, ultimately avoiding frustration and dissatisfaction. The literature brings on disembodied, text-based chatbots to derive a conceptual model of social characteristics for chatbots.

56 papers from various domains in understanding social characteristics can benefit human-chatbot interactions and identify the challenges and strategies in designing them and as results provide relevant opportunities to researches and designers to advance human- chatbot interactions (Ana Paula Chaves) [3]

This project will make us understand how advancement in Artificial Intelligence and Machine Learning technology are being used to improve many services. Most importantly it will be specified in development of chatbot as a channel for information distribution. This program selects the most matching responses for the closest matching statement that matches input utilizing WordNet, which then chooses responses from the known selection of statements for the response. The project also aimed to implement online chatbot system to assist users who access college website using tools that expose Artificial Intelligence methods such as Natural Language Processing. It also allows users to communicate with college chatbot using natural language input and to train the chatbot by using appropriate Machine Learning methods in order to be able to generate a response. There are various applications that are incorporating a human appearance and are intending to imitate a human dialog. In most part of the cases, the knowledge of chatbot is stored in a database created by a human expert.

III. CONCLUSION

To conclude, Chatbots or smart assistants with artificial intelligence are changing businesses. A wide range of chatbot building platforms are available for various enterprises such as retail, e-commerce, leisure, travel, banking, healthcare and many more.

Chatbots can also reach to a large audience on messaging applications and can be more effective than humans. They can also develop into a more capable information- gathering tool.

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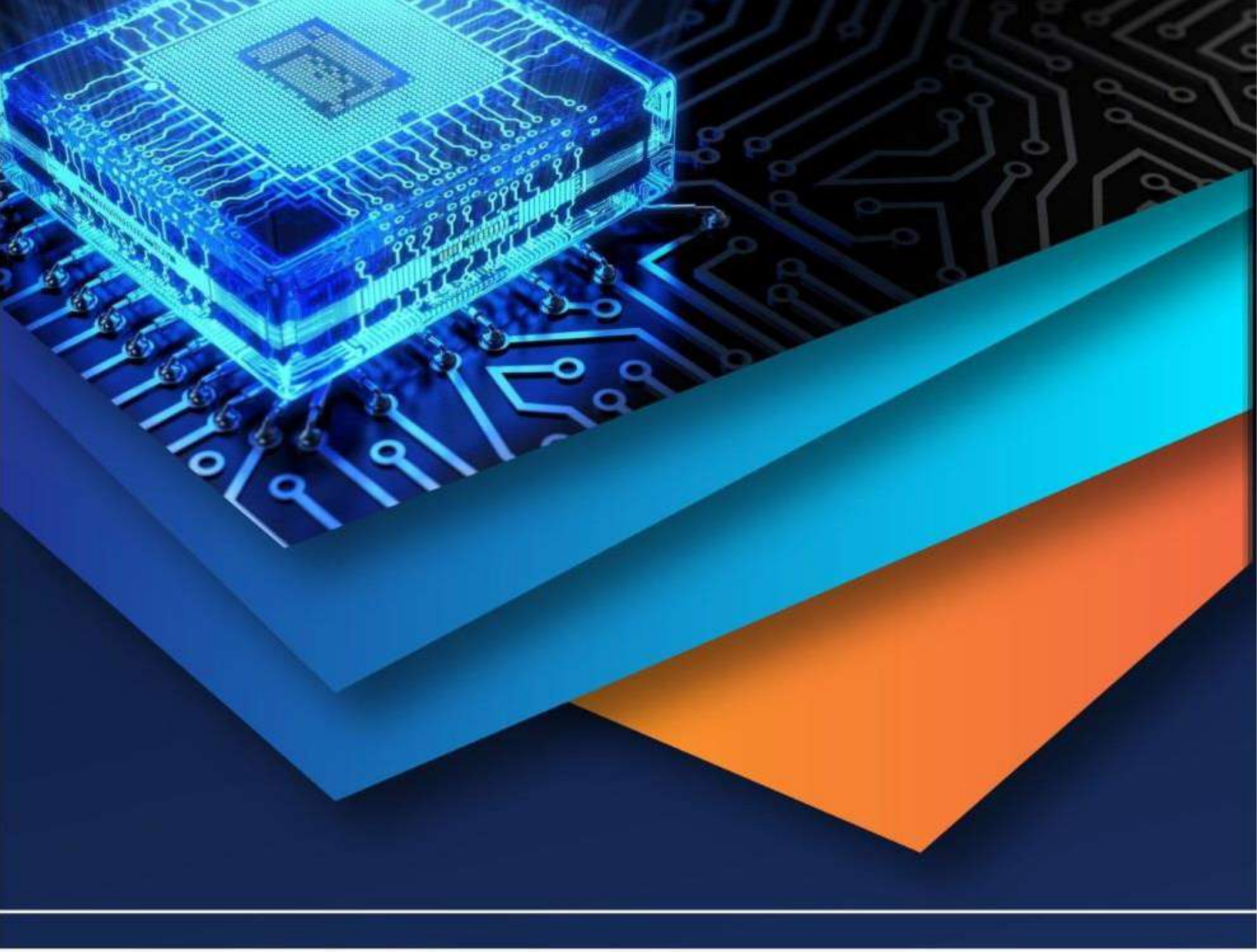

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