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AI Chatbot using Machine Learning

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Abstract : In the modern Era of technology, Chatbots is the next big thing in the era of conversational services. Chatbots is a virtual person who can effectively talk to any human being using interactive textual skills. Currently, there are many cloud base Chatbots services which are available for the development and improvement of the chatbot sector such as IBM Watson, Microsoft bot, AWS Lambda, Heroku and many others. A virtual person is based on machine learning and Artificial Intelligence (AI) concepts and due to dynamic nature, there is a drawback in the design and development of these chatbots as they have built-in AI, NLP, programming and conversion services. This paper gives an overview of cloud-based chatbots technologies along with programming of chatbots and challenges of programming in current and future Era of chatbot.

Keywords:Chatbot,N*aturalLanguage Processing(NLP), Machine Learning(ML), Artificial Intelligence(AI).*

I. Introduction

The Chatbot has become the center of focus in this current era, thus the bots are being utilized to deliver information engagingly and conveniently. A chatbot is standout amongst the most progressive and promising tools of communication among people and machines. Famous chatbots like Google Assistant, Amazon Alexa, Siri, Facebook, Slack, and many more are in trend. These are very much helpful, but in this era of enhancing technology, day by day technology gets updated, and accordingly, user expectations also increase. A user wants more automation in the chatbot. Although every system is not perfect there is always a flaw in the system, so as in the chatbot there are some problems that the user has experienced while using a chatbot. Chatbot can be described as an answering system where a system will be able to answer.

conversation logs which help the chatbot to understand what kinds of questions shoul be asked and answers should be given. While a normal customer service representatives are given manual instructions which they have to go thorough with. The working of chatbots is based on three classification methods: 1. Pattern Matches: The pattern matches to group thr texts are utilized by the bots and it so it produces an appropriate response to the customers. The standard structured model of these patterns is “Artificial Intelligence Markup Language”. 2. NaturalLanguage Processing(NLP): Finding the way to convert the user’s text into structured data is called Natural Language Processing. It is used to get relevant answers for the customers. To develop a chat bot one must be very clear about what one wants from that chatbot. Often they are developed for business platforms like Net Banking sites to handle costumer Q&A. Another type of chatbots widely developed and used are smart assistants like SIRI, Google assistant, Alexa, Cortana etc.

II.Description

A chatbot is a normal application which has a database, it has an app layer and APIs to call the other external administrations. However, bots cannot comprehend about what the customer has planned. It is a very much common problem that must be tackeled. Bots are generally trained according to the past information which is only available to us. So in most of the organizations, chatbot maintains their logs of discussions so that they can understand their customers behavior. Developers utilize these logs to analyze what clients are trying to ask. Developers coordinate their with their client inquiries and reply with the best appropriate answer with the blend of machine learning tools and models. Training a chatbot is very much faster and also on a large scale as compared to human beings.

A.Shortcomings of chatbots

One of the significant limitations of the chatbots is that they do not understand human context. Many times this behavior of chatbots leads to an irate customer because chatbots are programmed in such a way that they can only perform functions that are taught to them.One of the main limitation of the chatbot is that they cannot make decisions. Due to this lack of decision making ability, the are not able to differentiate between what is good and what is bad.

Decision making fails in this case.Chatbots are not able to do customer retention. A customer retention ability plays a very much vital role in every organization. Retaining the customers holds a more important role than making new customers also. A chatbot only tries to help the customers at the level of which it can do. It has a very less capability in retaining customers.Most of the customers do not want to proceed their chat with the chatbot as soon as they understand they are chatting with chatbot because chatbot have a same answer for many type of query and customer goes off unsatisfied.Chatbots can be easily identified because they have same type of answer for most of the query. For the data which chatbot do nat have ,they ask for the apology.Chatbots can surely save a lot of time and money but installing a chatbot canempty your bank account because because it is very much costliar. You will have to hire proper professionals who have knowledge and have rightly programmed the chatbot that can match the integrity of your organization. One of the major limitation of the Chatbots is the lack of emotion. They cannot connect with the customers because they do not understand about the seriousness of any topic or how low is the situation is. This effects the business and crucial growth of the organization.Chatbots have a zero research skills. They cannot research on any topic and give answers.

III. CHATBOT PROGRAMMING CHALLENGES

There are a lot of challenges which are associated with chatbots. Some of them are as follows:

A. Natural language processing

The first and foremost challenge [7] of the chatbot is to handle NLP issue by mastering their syntax. If we ask them that " what's the weather?". You will get an answer but what if we ask "Could you check the weather?" you might not get the proper answer. Such type of programming issues falls in natural language processing category which is a key focus for the companies like Facebook, Google with Deep Text and Syntax Net respectively.

B. Machine learning

Getting NLP is one aspect of designing and development of Chatbots while Machine Learning is another aspect of the Chatbot design and development. Our computer systems should able to learn the correct response should be which can be achieved with efficient programming with AI concepts [8].

IV. LIMITATION AND FUTURE OF NLP AND MACHINE LEARNING

As per our discussion, it is quite clear that chatbot needs to provide vast logic and linguistic resources which are input, output and entities phrases. Chatbot with complex queries handling need high attention in using singular and plural forms, need to take care of synonyms, hyponyms, and finally, the sentimental analysis should be done carefully [11-12].

V. CONCLUSION

A chatbot is a rising trend and chatbot increases the effectiveness of business by providing a better experience with low cost. A simple chatbot is not a challenging task as compared to complex chatbots and developers should understand and consider the stability, scalability and flexibility issues along with high level of intention on human language.

In short, Chatbot is ecosystem and moving quite fast and with the passage of time new features are added in the existing platform. Recent advancements in the machine learning techniques may able to handle complex conversation issue such as payments correctly.

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