

Application of Chatbot for consumer perspective using Artificial Intelligence

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Abstract— ChatBot can be described as software that can chat with people using artificial intelligence. A chatbot is a PC program that reenacts human discussion through voice orders or text visits or both. Chatbot, short for chatter-bot, is a man-made reasoning (AI) include that can be implanted and utilized through any significant informing applications. This software are recycled to achieve tasks such as rapidly responding to consumers, informing them, assisting to purchase products and providing better service to customers. This research paper showing how a chatbot can be created through demonstration as well as their applications of chatbots in numerous areas such as traveling, banking, health, customer call centers and e-commerce. Additionally, the results of an example chatbot for online food order service developed in the e-commerce domain is presented using Dialog-flow engine and Facebook Messenger. This research work represents the Chat flow, components of a chatbot, Implementation using Dialogflow.

Keywords-Chatbot, Artificial Intelligence, Dialogflow, Facebook Messenger, Advantages.

I. INTRODUCTION

ChatBot is a piece of software that conducts a conversion via auditory or textual methods and other advance conversational mode (pictorial, hologram, etc). It is designed to convincingly simulate(perform) how a human would behave for a particular conversation. Chatbot acts like a conversational partner and also as a virtual assistant and many other applications.

The term “ChatterBot” was originally termed by the person named Michael Mauldin in the year 1994, he was the developer of the first verbot (Julia) which is means verbal robot. A chatbot is an artificial intelligence (AI) program that simulates interactive human conversations by using text based signals.

AI is the reenactment of human knowledge measures by machines.

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Natural Language Processing is the thing that permits chatbots to comprehend your messages and react fittingly. Regular Language Processing (NLP) gives setting and importance to message based client inputs so AI can think of the best reaction. Regular Language Processing (NLP) is partitioned into Natural Language Understanding (NLU) and Natural Language Generation (NLG). NLU is used to understand the natural language (any language spoken by a human). NLG is used when after getting the proper response to the previous conversation by using machine learning models , they are converted to natural language by using NLG.

Machine Learning (ML) consists of concepts or methods to develop a model which is used got analysing, processing, mapping and providing a proper response to the conversation transformed by the NLP and also learn from experiences.

A chatbot is also known as chatrobot, talkbot or chatterbox.



Fig 1: Chat flow

This figure 1, tells about the internal structure of chat flow means how user gives the input, how dialogflow analyse that

input and gives output back to the user. Chatbots dependent on fixed principles just react to explicit orders and address a fixed quickness level. In the event that it is provided some order that it doesn't comprehend, it will not have the option to perform suitably.

Nonetheless, a chatbot dependent on AI fuses man-made reasoning and can comprehend the language, not just orders. It can learn with more data or communications.

AI is the framework's capacity to gain from past encounters without human contribution and use what they have realized.

PC frameworks learn by getting presented to different models with AI. The way to deal with gain from models depends on how the cerebrum learns and is called neural organizations. AI utilizes calculations that are arrangements of directions instructing PCs what to do. Calculations can be orchestrated and joined complicatedly.

At the point when a chatbot gets an information brief, it should recognize the provoke and make setting so it can assess the necessary yield. Since the chatbot is prepared with information input, it discovers designs that it can store for reference.

Likewise, profound learning is a kind of AI that utilizes layered calculations called fake neural organizations. Rather than task-explicit calculations, profound learning utilizes strategies where the framework investigates portrayals in the information that empower it to make the setting of the crude information. Each layer of calculations contains interconnected fake neurons. The earlier learning examples and occasions measure the connection between neurons. Calculations can look for designs in enormous amounts of information and close how to react to new information.

Focus	Chatbot with AI	Chatbot without AI
Answer FAQ	Yes	Yes
Learn from past conversations	Yes	No
Personalize response	Yes	No
Understand unique query	Yes	No
Improve future conversations	Yes	No

Table1: Comparision Chatbot with AI and without AI

II. RELATED WORK

Instructive chatbots can possibly help understudies, educators and schooling staff. They give helpful data in instructive areas for inquirers. Neural chatbots are more adaptable and mainstream than prior controlled based chatbots. Repetitive Neural Network based Sequence to Sequence (Seq2Seq) model can be utilized to make chatbots.[1]

Chatbot has been progressively sought after and get famous among the networks of media, end-clients, and even merchants. There are two sorts of Chatbot which are Smart Chatbot and Simple Chatbot. The Smart Chatbot gives more capacities and it is the most utilized in current days. As the Smart Chatbot has turns into the apparatus that facilitates the cooperation between the human and the site, the majority of the organizations, foundations, and surprisingly the individual have search for it. [2]

Chatbots are essentially utilized for the preparing of explicit errands, and can acquaint items with clients or tackle related issues, in this way saving HR. Text conclusion acknowledgment empowers a chatbot to know the client's enthusiastic state and select the best reaction, which is significant in clinical care.[3]

Man-made consciousness based open antiques are called chatbots. The motivation behind a chatterbot or chatbot is to deliver an association between a human and a robot as discourse or text. They offer the best administrations in an assortment of zones, like instruction, medical services, transportation, and so on According to the examination, almost 85 % of item contributions will be computerized by 2020. [4]

Chatbots are specialists that react with the client in characteristic language similarly as a human would answer. In particular, social chatbots are the ones which build up a forceful enthusiastic relationship with the client. The primary idea driving this chatbot was to give mental alleviation to understudies who go through various degrees of stress and which can be the beginning of an unfriendly depression.[5]

Chatbots are valuable for shoppers to collaborate and do the exchanges joyfully through internet business Sales applications.[6]

The exploration on a chatbot that is helpful for dealing with picture messages by giving item data answers. The chatbot was fabricated utilizing the Convolutional Neural Network technique for the picture arrangement process.[7]

An intelligent Chatbot that expands the pace of client change by noticing the conduct feeling status.[8]

Headway in innovation and development in showing, for example, chatbot and broadened reality can be overwhelming for instructors yet as a teacher, we need to use on these progressions to react to the progressions and difficulties in the educating and learning scene. There are various apparatuses accessible for instructors to use to conquer the difficulties, and one of them is the utilization of man-made reasoning (AI) yet making a chatbot requires complex PC programming abilities, and it is normally worked without any preparation to fit the proposed instructive reason. [9]

There is an apparent enthusiasm in the business local area to incorporate chatbots with their sites and versatile applications. They give an adapted interface to data and can fill in as advanced colleagues that can perform errands for the benefit of a person. There are numerous business stages which give interfaces to construct these chatbots. They are utilized by

both expert programming engineers just as individuals from non-IT foundations. [10]

In this pandemic circumstance, all are learning instruction on the web. There is a great deal of downsides to these strategies, the fundamental disadvantage of this framework is the connection among understudies and educators become low. A chatbot is quite possibly the most helpful methods of reading for understudies and it likewise redresses understudy questions whenever without human support. [11]. Proposed a suitable recommendation system for particular process and task for consumer perspective so that use can navigate with error free.[12]

III. BASIC STRUCTURE OF A CHATBOT:

Chatbot is an application of Artificial Intelligence (AI). In Artificial Intelligence two components plays a major role in developing a Chatbot they are Natural Language Processing, understanding, responding the human understandable language and Machine Learning in which it consists, or we can develop models for reasoning and also processing and providing the right output or response to the user which is accurate.

Process:

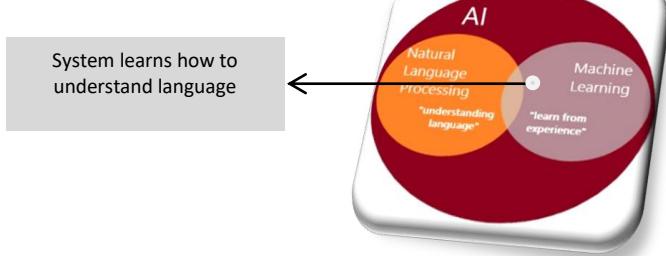


Fig : 2 Basic components of a chatbot

This figure represents basic components of chatbot which is an Artificial Intelligence application that has two components Natural Language Processing (NLP) and Machine Learning (ML).

A. Applications:

- Customer service
- Travel
- Finance
- Health care

B. Advantages of Chatbot

1. Work with Seamless Live Communication
2. Make Customer Service Available day in and day out
3. Set aside Time and Cash
4. Diminish People-to-People Interactions with Customers
5. Wipe out Tedious Time-Consuming Tasks
6. Offer a Smoother Customer Journey
7. Diminish Stress for Consumers
8. Wipe out Interactive Voice Response (IVR) Systems
9. Adapt Your Brand

10. Showcasing is More Targeted
11. Help Grow Your Business
12. Steady Improvement over Time with Machine Learning

1. Chatbot with AI powers makes your bot skilled and smart to answer complex inquiries. The association is connecting with, conversational, and enthusiastic.
2. Chatbot gains from each discussion it has with the clients. It goes through the past communication to improve the current reaction. This action assists with improving the productivity of bot reaction. Also, assists with understanding your client's decisions and inclinations.
3. Savvy communications save client's time by assisting them with tracking down the correct data and address their inquiries.

AI and chatbots are two particular innovations that are shifting the direction of eCommerce and retail. With the expanding use and acknowledgment of chatbots all throughout the planet, various kinds of chatbots rose to the scene.

A different idea of AI chatbots arose and slowly they assumed control over the entire bot situation.

A chatbot is principles-based PC program, which reproduces human collaboration with end-clients through a visit interface. At the end of the day, a chatbot can have a discussion with you very much like a genuine individual; pose inquiries and answer questions dependent on pre-characterized rules and rationale.

Chatbots are like an informing interface where bots react to clients' inquiries rather than individuals. They look like other applications. Be that as it may, its UI layer works in an unexpected way. AI Algorithms power the discussion between a person and a chatbot.

ML calculations separate your questions or messages into human justifiable normal dialects with NLP methods and send the reaction like what you anticipate from a human on the opposite side.

Benefits to Customers:

- 24-hour availability
- Instant answers
- Consistent answers
- Recorded answers
- Endless patience
- Instant transactions
- Programmability
- Personalization

Benefits to Companies

- Cost savings
- Increased sales
- Increased customer interaction
- Reaching new customers
- Gaining a deeper understanding of customers

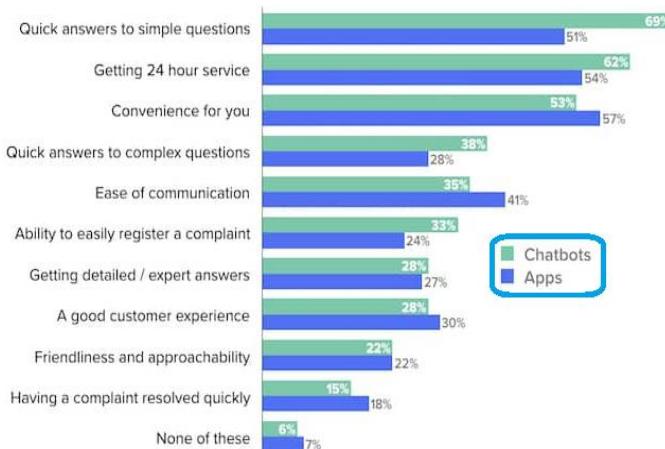


Fig 3: Chatbot versus Apps

Figure 3 shows the Chatbot versus Apps taken resource from 2018 state of chatbots report. In this comparison “Quick answers to simple questions Chatbot response: 69% and Apps 51% so in this sector chatbot is more useful. If we compare twenty-four-hour response chatbot: 62% and Apps 54% secured. So, in this sector chatbot is more useful. Fast answer to complex questions chatbot: 38% and Apps 28% secured. so in this sector chatbot is more useful. Ability to easily register a complaint chatbot: 33% and Apps 24% secured. So in this sector chatbot is more useful. Getting detailed and expert answers chatbot: 28% and Apps 27% secured. So in this sector chatbot is more useful. Remaining Apps are more feasible.

C. Implementation using Dialogflow:

Dialogflow: It is a characteristic language handling (NLP) stage that can be utilized to assemble conversational applications and encounters for an organization's clients in different dialects and on numerous stages.

Agent: A Dialogflow specialist is a virtual specialist that handles discussions with your end-clients. It is a characteristic language understanding module that comprehends the subtleties of human language. Dialogflow interprets end-client text or sound during a discussion to organized information that your applications and administrations can comprehend.

Intent: An aim arranges an end-client's aim for one discussion turn. For every specialist, you characterize a huge number, where your consolidated purposes can deal with a total discussion. At the point when an end-client composes or says something, alluded to as an end-client articulation, Dialogflow matches the end-client articulation to the best purpose in your representative.

Entities: An Entity is a property which can be utilized by Dialogflow to answer the solicitation from the client - the substance will typically be a watchword inside the solicitation like a name, date, area and so on at the point when the client talks or types their solicitation, Dialogflow will search for the element and the worth of the given element can be utilized inside the solicitation.

Training phrases: Training phrases are model expressions for what end-clients may type or say, alluded to as end-client articulations. For every goal, you make many preparing phrases. At the point when an end-client articulation looks like one of these expressions, Dialogflow matches the expectation.

Text-Response: Intents have an underlying reaction controller that can return reactions after the aim is coordinated. This element just backings static reactions, however you can utilize boundary references in these reactions to make them fairly powerful. This is useful for recapping data given by the end-client.

Activity and Parameter's: The activity field is a basic comfort field that helps with executing rationale in your administration. At the point when plan is coordinated at runtime, Dialogflow gives the extricated values from the end-client articulation as boundaries. Every boundary has a sort, called the substance type, which directs precisely how the information is extricated. Dissimilar to crude end-client input, boundaries are organized information that can without much of a stretch be utilized to play out some rationale or create reactions.

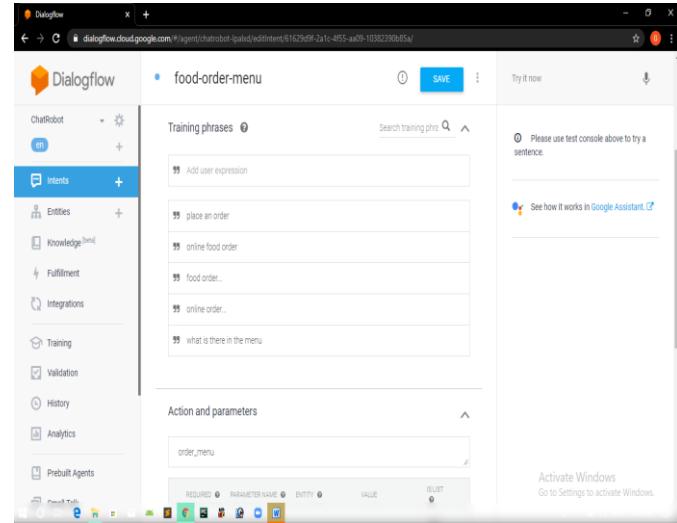


Fig No.4 Dialogflow window

This figure 4 shows a window of dialogflow which is a platform to build and train a chatbot using its attributes such as agent, intents, entities, action parameters, quick replies etc.

D. Execution in Facebook Messenger:

“Facebook Messenger” used for a conversational platform so that the user could have the conversation.

How the chatbot does know that it's alive:

When the chatbot is prepared and is live cooperating with clients, brilliant criticism circles or fast reaction can be carried out. During the discussion when clients pose an inquiry, chatbot intelligently offer several responses by giving various choices.

That data can be utilized to retrain the AI model, henceforth improving the chatbot's precision. The limitation is that model should not change based on any new replies. It does not just rephrase what people say, but indeed taught to answer things what they wanted.

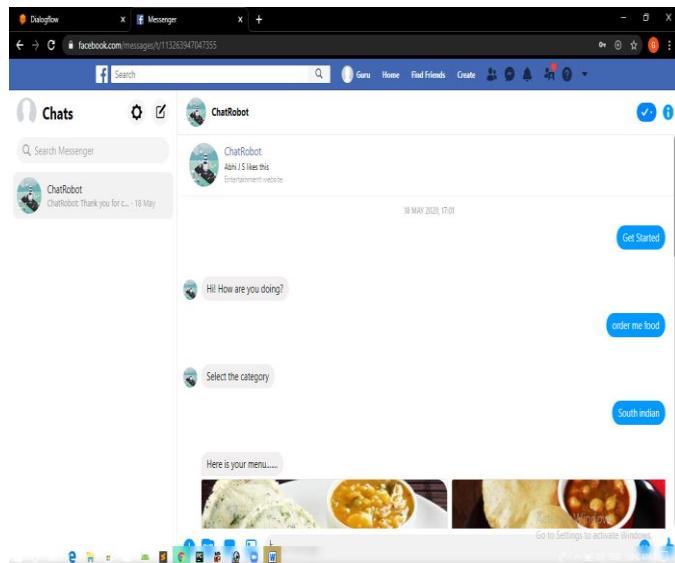


Fig.5 Facebook Messanger

This figure 5 shows how chatbot is used in facebook messenger, here user interact with a chatbot to order food online, where chatbot provides quick responses to the user to help him to order food as quick as possible.

IV. CONCLUSION

A chatbot is a PC program that allow user to cooperate with revolution using a mixture of info techniques like voice, text, motion and communication, all day, every day 365.

For quite a long while chatbots were commonly utilized in client support conditions however are currently being utilized in an assortment of different jobs inside undertakings to improve client experience and business efficiencies. Chatbots are the present and fate of correspondence among organizations and clients. The opportunity has already come and gone that online organizations receive bots as a significant pinion in their client care technique.

- Any framework or application that depends upon a machine's capacity to parse human discourse is probably going to battle with the intricacies innate in components of discourse like analogies and comparisons.
- Despite these impressive constraints, chatbots are getting progressively refined, responsive, and more normal. Now a days chatbots are found in every single domains we come across and they're becoming more human.
- For implementation of chatbots, there are many platforms and easy to work with.

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