Abstract - A chatbot is a computer software program that conducts a conversation via auditory or textual methods. This software is used to perform tasks such as quickly responding to users, informing them, helping to purchase products and providing better service to customers. Chatbots are programs that work on Artificial Intelligence (AI) & Machine Learning Platform. Chatbot has become more popular in business groups right now as it can reduce customer service costs and handles multiple users at a time. But yet to accomplish many tasks there is a need to make chatbots as efficient as possible. In this project, we provide the design of a chatbot, which provides a genuine and accurate answer for any query using Artificial Intelligence Markup Language (AIML) and Latent Semantic Analysis (LSA) with python platform1.

INTRODUCTION

Web-based Platform for Collection of Human Chatbot Interactions Author: Lue Lin, Luis Fdo. D’Haro, and Rafael Banchs The paper presents a chatbot design which is work on the web-based framework. Lue Line, Luis Fernando D’Haro and Rafael E. Banchs in HAI 2016 proposed the Web Chat which was a crowd-sourced initiative that could collect and annotate human chatbot interactions. [12] The anatomy of ALICE

A chatbot is an automated software program that interacts with humans. A chatbot is merely a computer program that fundamentally simulates human conversations. A chatbot that functions through AI and machine learning has an artificial neural network inspired by the neural nodes of the human brain. Chatbots are programs that can do talk like human conversations very easily. For example, Facebook has a machine learning chatbot that creates a platform for companies to interact with their consumers through the Facebook Messenger application. In 2016, chatbots became too popular on Messenger. By the consequences is noted that 2016 was the entire year of chatbots. The software industry is mainly oriented on chatbots. Thousands of chatbots are invented on startups and used by the businesses to improve their customer service, keeping them hanging by a kind communication

. According to research, nowadays chatbots are used to solve a number of business tasks across many industries like E-Commerce, Insurance, Banking, Healthcare, Finance, Legal, Telecom, Logistics, Retail, Auto, Leisure, Travel, Sports, Entertainment, Media and many others. Thus that was the moment to look at the chatbots as a new technology in the communication field. Nowadays various companies are using chatbots to answer quickly and efficiently some frequented asking questions from their own customers. AIML and LSA are used for creating chatbots. Artificial Intelligence Markup Language (AIML) and Latent Semantic Analysis (LSA) are used for developing chatbots,

Application

*See also:*[*Virtual assistant*](https://en.wikipedia.org/wiki/Virtual_assistant)

**Messaging apps**

Many companies' chatbots run on [messaging apps](https://en.wikipedia.org/wiki/Messaging_apps) or simply via [SMS](https://en.wikipedia.org/wiki/SMS). They are used for [B2C](https://en.wikipedia.org/wiki/B2C) customer service, sales and marketing.[[25]](https://en.wikipedia.org/wiki/Chatbot#cite_note-25)

In 2016, Facebook Messenger allowed developers to place chatbots on their platform. There were 30,000 bots created for Messenger in the first six months, rising to 100,000 by September 2017.[[26]](https://en.wikipedia.org/wiki/Chatbot#cite_note-26)

Since September 2017, this has also been as part of a pilot program on [WhatsApp](https://en.wikipedia.org/wiki/WhatsApp" \o "WhatsApp). Airlines [KLM](https://en.wikipedia.org/wiki/KLM) and [Aeroméxico](https://en.wikipedia.org/wiki/Aerom%C3%A9xico" \o "Aeroméxico) both announced their participation in the testing;[[27]](https://en.wikipedia.org/wiki/Chatbot#cite_note-tnooz-27)[[28]](https://en.wikipedia.org/wiki/Chatbot#cite_note-28)[[29]](https://en.wikipedia.org/wiki/Chatbot#cite_note-29)[[30]](https://en.wikipedia.org/wiki/Chatbot#cite_note-30) both airlines had previously launched customer services on the [Facebook Messenger](https://en.wikipedia.org/wiki/Facebook_Messenger) platform.

The bots usually appear as one of the user's contacts, but can sometimes act as participants in a [group chat](https://en.wikipedia.org/wiki/Chat_room).

Many banks, insurers, media companies, e-commerce companies, airlines, hotel chains, retailers, health care providers, government entities and restaurant chains have used chatbots to [answer simple questions](https://en.wikipedia.org/wiki/Question_answering), increase [customer engagement](https://en.wikipedia.org/wiki/Customer_engagement),[[31]](https://en.wikipedia.org/wiki/Chatbot#cite_note-31) for promotion, and to offer additional ways to order from them.[[32]](https://en.wikipedia.org/wiki/Chatbot#cite_note-32)

#### As part of company apps and websites

Previous generations of chatbots were present on company websites, e.g. Ask Jenn from [Alaska Airlines](https://en.wikipedia.org/wiki/Alaska_Airlines) which debuted in 2008[[35]](https://en.wikipedia.org/wiki/Chatbot#cite_note-nytimes.com-35) or [Expedia](https://en.wikipedia.org/wiki/Expedia)'s virtual customer service agent which launched in 2011.[[35]](https://en.wikipedia.org/wiki/Chatbot#cite_note-nytimes.com-35)[[36]](https://en.wikipedia.org/wiki/Chatbot#cite_note-:0-36) The newer generation of chatbots includes [IBM Watson](https://en.wikipedia.org/wiki/IBM_Watson)-powered "Rocky", introduced in February 2017 by the [New York City](https://en.wikipedia.org/wiki/New_York_City)-based [e-commerce](https://en.wikipedia.org/wiki/E-commerce) company Rare Carat to provide information to prospective diamond buyers.[[37]](https://en.wikipedia.org/wiki/Chatbot#cite_note-37)[[38]](https://en.wikipedia.org/wiki/Chatbot#cite_note-38)

#### Chatbot sequences

Used by marketers to script sequences of messages, very similar to an [autoresponder](https://en.wikipedia.org/wiki/Autoresponder" \o "Autoresponder) sequence. Such sequences can be triggered by user opt-in or the use of keywords within user interactions. After a trigger occurs a sequence of messages is delivered until the next anticipated user response. Each user response is used in the decision tree to help the chatbot navigate the response sequences to deliver the correct response message.

### Company internal platforms

### Other companies explore ways they can use chatbots internally, for example for Customer Support, Human Resources, or even in [Internet-of-Things](https://en.wikipedia.org/wiki/Internet_of_Things) (IoT) projects. [Overstock.com](https://en.wikipedia.org/wiki/Overstock.com), for one, has reportedly launched a chatbot named Mila to automate certain simple yet [time-consuming](https://en.wikipedia.org/wiki/Cost) processes when requesting sick leave.[[39]](https://en.wikipedia.org/wiki/Chatbot#cite_note-39) Other large companies such as [Lloyds Banking Group](https://en.wikipedia.org/wiki/Lloyds_Banking_Group), [Royal Bank of Scotland](https://en.wikipedia.org/wiki/Royal_Bank_of_Scotland), [Renault](https://en.wikipedia.org/wiki/Renault) and [Citroën](https://en.wikipedia.org/wiki/Citro%C3%ABn) are now using automated online assistants instead of [call centres](https://en.wikipedia.org/wiki/Call_centres) with humans to provide a first point of contact. A [SaaS](https://en.wikipedia.org/wiki/Software_as_a_service) chatbot business ecosystem has been steadily growing since the [F8](https://en.wikipedia.org/wiki/Facebook_F8) Conference when Facebook's Mark

### Customer service

Many high-tech banking organizations are looking to integrate automated AI-based solutions such as chatbots into their customer service in order to provide faster and cheaper assistance to their clients who are becoming increasingly comfortable with technology. In particular, chatbots can efficiently conduct a dialogue, usually replacing other communication tools such as email, phone, or [SMS](https://en.wikipedia.org/wiki/SMS). In banking, their major application is related to quick customer service answering common requests, as well as transactional support.

Several studies report significant reduction in the cost of customer services, expected to lead to billions of dollars of economic savings in the next ten years.[[42]](https://en.wikipedia.org/wiki/Chatbot#cite_note-WSBanks-42) In 2019, [Gartner](https://en.wikipedia.org/wiki/Gartner) predicted that by 2021, 15% of all customer service interactions globally will be handled completely by AI.[[43]](https://en.wikipedia.org/wiki/Chatbot#cite_note-43) A study by Juniper Research in 2019 estimates retail sales resulting from chatbot-based interactions will reach $112 billion by 2023.[[44]](https://en.wikipedia.org/wiki/Chatbot#cite_note-44)

**Healthcare**

*See also:*[*Artificial intelligence in healthcare*](https://en.wikipedia.org/wiki/Artificial_intelligence_in_healthcare)

Chatbots are also appearing in the healthcare industry.[[52]](https://en.wikipedia.org/wiki/Chatbot#cite_note-52)[[53]](https://en.wikipedia.org/wiki/Chatbot#cite_note-53) A study suggested that physicians in the United States believed that chatbots would be most beneficial for scheduling doctor appointments, locating health clinics, or providing medication information.[[54]](https://en.wikipedia.org/wiki/Chatbot#cite_note-54)

[Whatsapp](https://en.wikipedia.org/wiki/WhatsApp) has teamed up with the [World Health Organisation](https://en.wikipedia.org/wiki/World_Health_Organization) ([WHO](https://en.wikipedia.org/wiki/World_Health_Organization)) to make a chatbot service that answers users' questions on [COVID-19](https://en.wikipedia.org/wiki/Coronavirus_disease_2019).[[55]](https://en.wikipedia.org/wiki/Chatbot#cite_note-55)

In 2020, [The Indian Government](https://en.wikipedia.org/wiki/Government_of_India) launched a chatbot called MyGov Corona Helpdesk,[[56]](https://en.wikipedia.org/wiki/Chatbot" \l "cite_note-56) that worked through [Whatsapp](https://en.wikipedia.org/wiki/WhatsApp" \o "WhatsApp) and helped people access information about the Coronavirus (COVID-19) pandemic.[[](https://en.wikipedia.org/wiki/Chatbot#cite_note-57)

**Politics**

*See also:*[*Government by algorithm § AI politicians*](https://en.wikipedia.org/wiki/Government_by_algorithm#AI_politicians)

In New Zealand, the chatbot SAM – short for [Semantic Analysis Machine](https://en.wikipedia.org/wiki/Semantic_analysis_(machine_learning))[[60]](https://en.wikipedia.org/wiki/Chatbot#cite_note-60) (made by Nick Gerritsen of Touchtech[[61]](https://en.wikipedia.org/wiki/Chatbot" \l "cite_note-61)) – has been developed. It is designed to share its political thoughts, for example on topics such as climate change, healthcare and education, etc. It talks to people through Facebook Messenger.[[62]](https://en.wikipedia.org/wiki/Chatbot#cite_note-62)[[63]](https://en.wikipedia.org/wiki/Chatbot#cite_note-63)[[64]](https://en.wikipedia.org/wiki/Chatbot#cite_note-64)[[65]](https://en.wikipedia.org/wiki/Chatbot#cite_note-65)

In 2022, the chatbot "Leader Lars" or "Leder Lars" was nominated for [The Synthetic Party](https://en.wikipedia.org/wiki/The_Synthetic_Party) to run in the [Danish](https://en.wikipedia.org/wiki/Danish_Realm) parliamentary election,[[66]](https://en.wikipedia.org/wiki/Chatbot#cite_note-66) and was built by the artist collective Computer Lars.[[67]](https://en.wikipedia.org/wiki/Chatbot#cite_note-67) Leader Lars differed from earlier virtual politicians by leading a [political party](https://en.wikipedia.org/wiki/Political_party) and by not pretending to be an objective candidate.[[68]](https://en.wikipedia.org/wiki/Chatbot#cite_note-68) This chatbot engaged in critical discussions on politics with users from around the world.[[69]](https://en.wikipedia.org/wiki/Chatbot#cite_note-69)

In [India](https://en.wikipedia.org/wiki/India), the state government has launched a chatbot for its Aaple Sarkar platform,[[70]](https://en.wikipedia.org/wiki/Chatbot" \l "cite_note-70) which provides conversational access to information regarding public services managed.[[71]](https://en.wikipedia.org/wiki/Chatbot#cite_note-71)[[72]](https://en.wikipedia.org/wiki/Chatbot#cite_note-72)

### Toys

Chatbots have also been incorporated into devices not primarily meant for computing, such as toys.[[73]](https://en.wikipedia.org/wiki/Chatbot#cite_note-virtualagentchat-73)

*Hello*[*Barbie*](https://en.wikipedia.org/wiki/Barbie) is an Internet-connected version of the doll that uses a chatbot provided by the company ToyTalk,[[74]](https://en.wikipedia.org/wiki/Chatbot" \l "cite_note-74) which previously used the chatbot for a range of smartphone-based characters for children.[[75]](https://en.wikipedia.org/wiki/Chatbot#cite_note-75) These characters' behaviors are constrained by a set of rules that in effect emulate a particular character and produce a storyline.[[76]](https://en.wikipedia.org/wiki/Chatbot#cite_note-76)

The [My Friend Cayla](https://en.wikipedia.org/wiki/My_Friend_Cayla) doll was marketed as a line of 18-inch (46 cm) dolls which uses [speech recognition](https://en.wikipedia.org/wiki/Speech_recognition) technology in conjunction with an [Android](https://en.wikipedia.org/wiki/Android_(operating_system)) or [iOS](https://en.wikipedia.org/wiki/IOS" \o "IOS) mobile app to recognize the child's speech and have a conversation. It, like the Hello Barbie doll, attracted controversy due to vulnerabilities with the doll's [Bluetooth](https://en.wikipedia.org/wiki/Bluetooth) stack and its use of data collected from the child's speech

## Limitations of chatbots

The creation and implementation of chatbots is still a developing area, heavily related to [artificial intelligence](https://en.wikipedia.org/wiki/Artificial_intelligence) and [machine learning](https://en.wikipedia.org/wiki/Machine_learning), so the provided solutions, while possessing obvious advantages, have some important limitations in terms of functionalities and use cases. However, this is changing over time.

The most common limitations are listed below:[[82]](https://en.wikipedia.org/wiki/Chatbot#cite_note-Meet11-82)

* As the input/output database is fixed and limited, chatbots can fail while dealing with an unsaved query.[[51]](https://en.wikipedia.org/wiki/Chatbot#cite_note-BornBane-51)
* A chatbot's efficiency highly depends on language processing and is limited because of irregularities, such as accents and mistakes.
* Chatbots are unable to deal with multiple questions at the same time and so conversation opportunities are limited.[[82]](https://en.wikipedia.org/wiki/Chatbot#cite_note-Meet11-82)
* Chatbots require a large amount of conversational data to train. Generative models, which are based on deep learning algorithms to generate new responses word by word based on user input, are usually trained on a large dataset of natural-language phrases.[[3]](https://en.wikipedia.org/wiki/Chatbot#cite_note-:1-3)
* Chatbots have difficulty managing non-linear conversations that must go back and forth on a topic with a user.[[83]](https://en.wikipedia.org/wiki/Chatbot#cite_note-Grudin-Jacques-83)
* As it happens usually with technology-led changes in existing s

## Chatbots and jobs

Chatbots are increasingly present in businesses and often are used to automate tasks that do not require skill-based talents. With customer service taking place via messaging apps as well as phone calls, there are growing numbers of use-cases where chatbot deployment gives organizations a clear return on investment. Call center workers may be particularly at risk from AI-driven chatbots.[[84]](https://en.wikipedia.org/wiki/Chatbot#cite_note-84)

**Chatbot jobs**

Chatbot developers create, debug, and maintain applications that automate customer services or other communication processes. Their duties include reviewing and simplifying code when needed. They may also help companies implement bots in their operations.

CONCLUSION.

 A chatbot is one of the simple ways to transport data from a computer without having to think for proper keywords to look up in a search or browse several web pages to collect information; users can easily type their query in natural language and retrieve information.