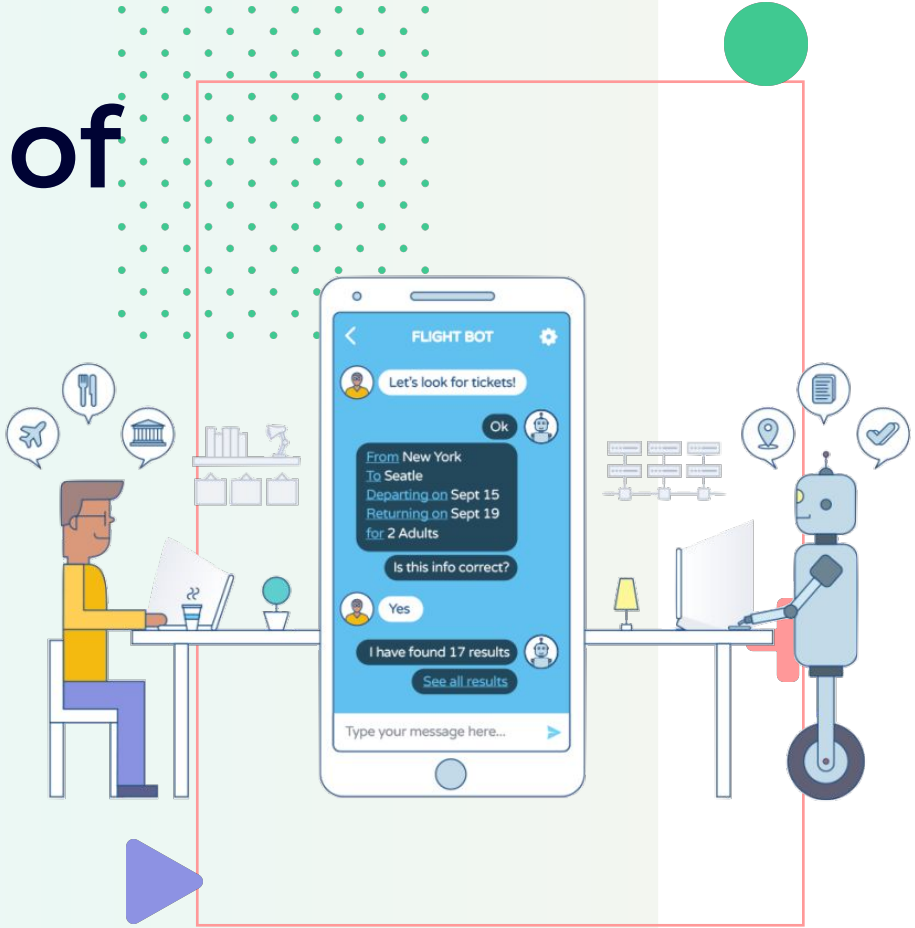
Introduction of Chatbots

Puchong Poomboontrik

22. Dec. 2023



Puchong Poomboontrik

Full Stack Developer

Software Engineering (2010-2014)

King Mongkut's Institute of Technology Ladkrabang International College

Software Engineer (AIS) (2014-2017)

Implementation of Platform transaction network using **HTTP**, **Socket**, **SIP** protocol.
Implement Software to testing Core Network Protocol with GUI using **C++ , python** and **QT UI** framework.

R&D / Chatbot Engineer (SCB) (2017-2019)

Implement **Chatbot** for **customer support**

Full Stack engineer (Deeple.ai) (2019-2021)

Implement **Chatbot** services
Using React and Node.js

Software Developer (ICT LAB KMITL) (2014-now)

Developer and researcher of Web and mobile technology for projects

- SCADA
- Smart-home
- Smart-meter
- Chatbot
- Chatservice Chat application ,WebRTC

Co-founder gamemick.com

We deliver enterprise-grade engagement design services, and customized our platform to match all of your requirements and help you make your product fun and engaging.

Contents

01. Introduction to chatbots

What is a chatbot?

A chatbot is **software** that simulates human-like conversations with users via **text messages** on chat.

Chatbots exist under many names:

conversational agents,
AI assistants,
chatter bots, or
conversational interfaces.

What’s the difference between chatbots and bots?

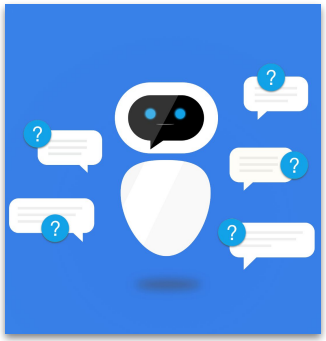
A **chatbot** is a computer program designed to communicate with users.

Chatbots analyze users' **questions** to provide **matching answers**.

Businesses use chatbots to support customers and help them accomplish simple tasks without the help of a human agent.

A bot is an algorithm that interacts with web content.

Bots help businesses and users perform helpful, mundane, or complex tasks faster online.



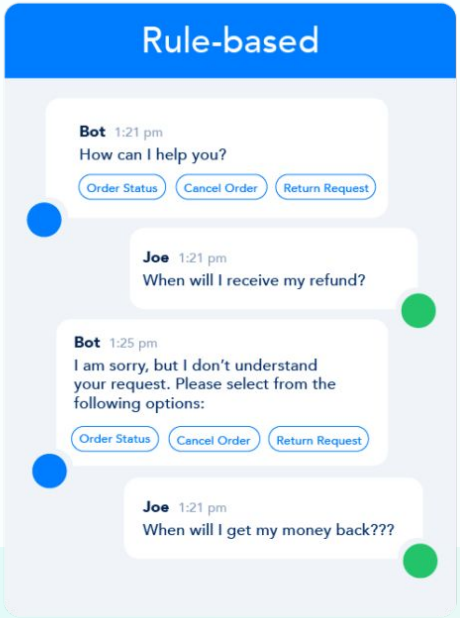
How do chatbots work?

Chatbots are powered by
“pre-programmed responses”,
“artificial intelligence”, or both.

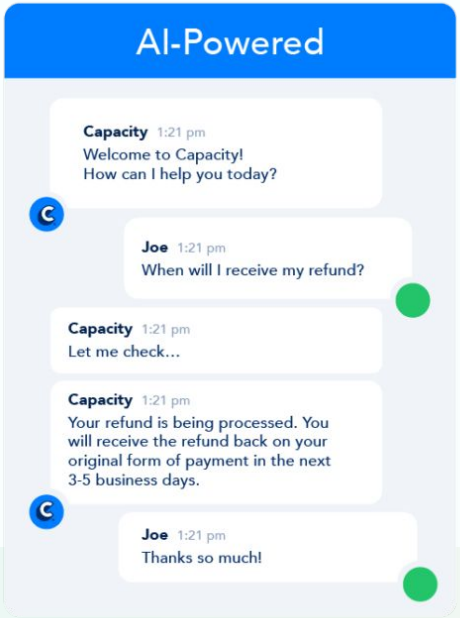
Based on the applied mechanism,
a chatbot processes a **user’s question** to deliver a **matching answer**.

There are two main types of chatbots :

- **Rule-based chatbots**
- **AI chatbots**.



VS



Rule-based chatbots

AI chatbots

Rule-based chatbots

Rule-based (also command-based, keyword, or transactional)

chatbots communicate using **predefined answers**.

AI Chatbots

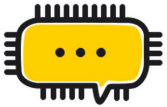
An AI chatbot is a piece of software that can freely communicate with users.

AI chatbots are much better conversationalists than their rule-based counterparts because they leverage **machine learning**, **natural language processing** (NLP), and **sentiment analysis.**

AI Chatbots

Machine learning

allows chatbots to identify patterns in user input, make decisions, and learn from past conversations.



Natural language processing (NLP)

helps chatbots understand how humans communicate and enable them to replicate that behavior.
It's NLP that lets chatbots understand the **context** of the conversation even if a person makes a **spelling mistake** or uses **jargon**.

The sentiment analysis

helps a chatbot understand users' emotions.

How NLP works?

The first step in NLP is **tokenization**. **Tokenization** mean **splitting sentences into words**.
We can just split the words where space occurs.

For the example purposes, consider the following sentence "**Delhi is the capital of India**". After tokenization, we get a set of words {"**Delhi**", "**is**", "**the**", "**capital**", "**of**", "**India**"}

The next step is identifying the **parts of speech** of each token. For example, "**Delhi**" and "**India**" are proper nouns.
Thus, the knowledge gained from this step is that Delhi and India are proper nouns so the sentence must be talking about them.

Next step is to identify the stop words. Stop word is nothing but a list of words that frequently occurs in a sentence. So NLP filters out these stop words. In the given above example "is", "the", "of" is primarily the stop words. Stop words can be identified by just by checking a hard-coded list of the available stop words.
The following step includes dependency parsing where the NLP determines how all the words are related to each other. Next step is NER (Named Entity Recognition) which detects and label these nouns with the real-world concepts that they represent.
For example "**Delhi**" and "**India**" represents the **location**.

How NLP works?

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02. The brief history of chatbots

The brief History of chatbots

To the surprise of many, chatbots aren’t a modern invention.

They were born out of curiosity and creative thinking more than half a century ago.

1950

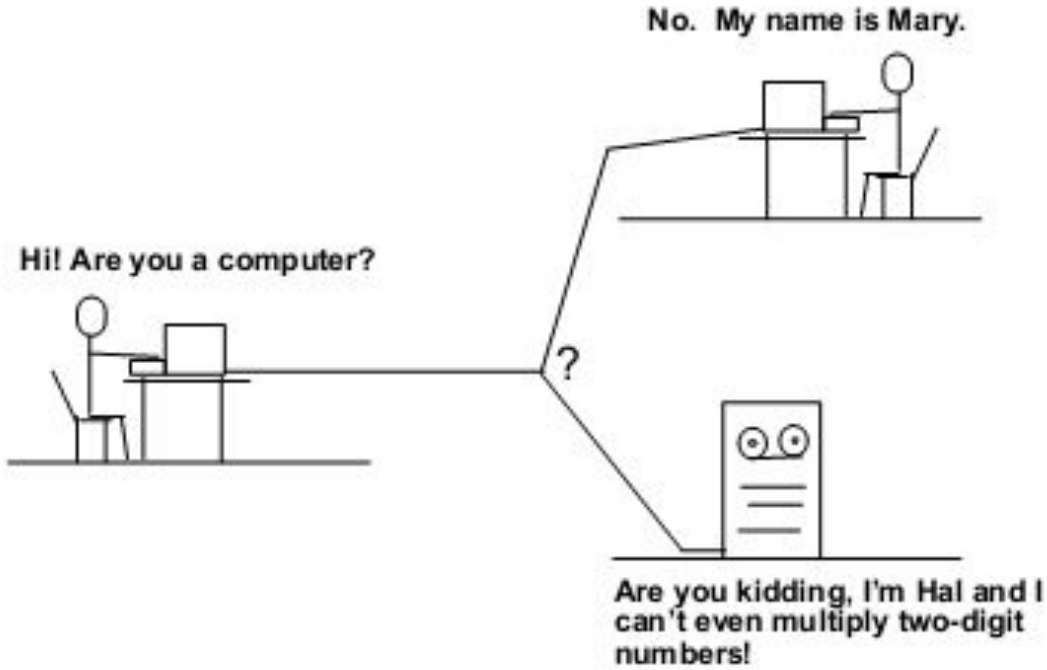
Alan Turing. The man that started it all.

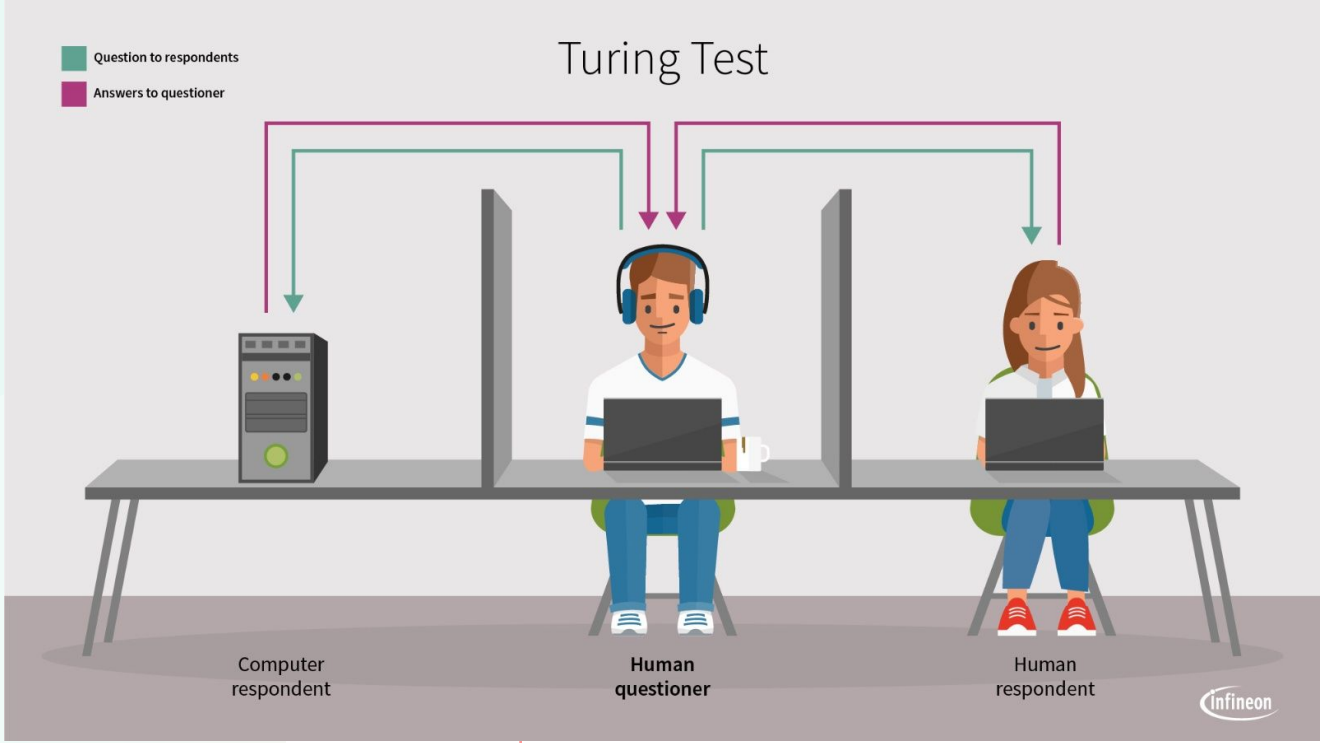
Source: **britannica.com/biography/Alan-Turing**

In 1950 Alan Turing, a computer pioneer, wrote a scientific paper titled, **“Computing Machinery and Intelligence.”** In the paper, the scientist implied that a computer program can **think** and **talk** like a human.

To prove the point, Turing proposed an experiment called the **Imitation Game**, which, today, is known as the **Turing Test**.

In the Turing experiment, the person designated as a **judge** was **chatting** over a computer with a human and a machine who were unable to be seen.


No. My name is Mary.
Hi! Are you a computer?
?
Are you kidding, I'm Hal and I can't even multiply two-digit numbers!


Turing Test
Question to respondents
Answers to questioner
Computer respondent
Human questioner
Human respondent
Infineon

1966

ELIZA. The first chatbot.

http://psych.fullerton.edu/mbirnbaum/psych101/eliza.htm

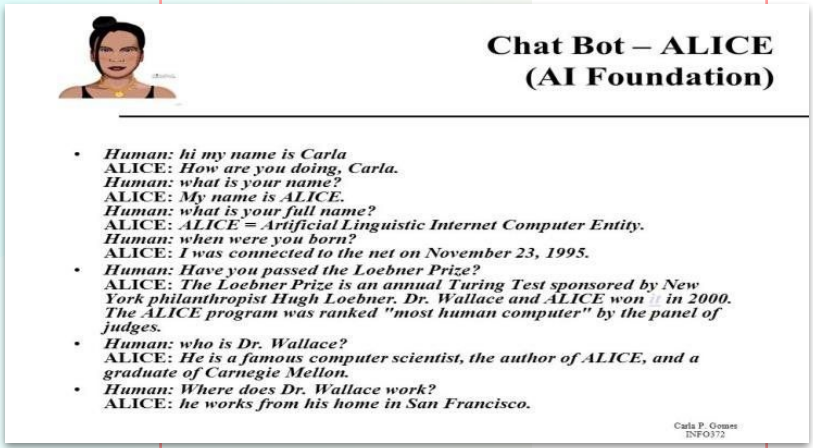
In 1966, an MIT professor, **Joseph Weizenbaum**, developed a computer program called **Eliza**. It's considered to be the first chatbot in history.
Eliza was a **simple keyword-based chatbot** that mimicked a human psychiatrist.

The program communicated by matching user questions with scripted responses entered into its database.

When a patient would say, "My mother loves flowers," Eliza would reply, "Tell me more about your mother."

1995

A.L.I.C.E.



Developed in 1995 by Richard Wallace,

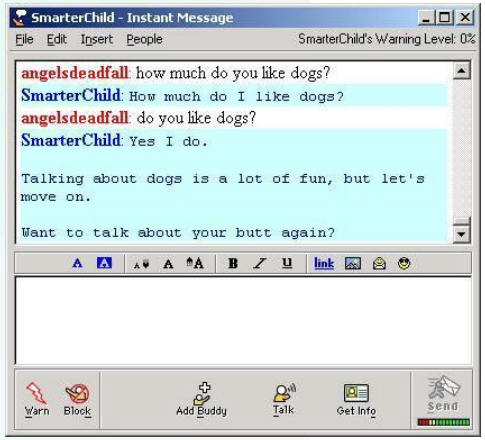
Alice was an **NLP chatbot** that simulated a chat with a woman.

Alice was inspired by **Eliza** and designed to have a natural conversation with users.

Its code was released as **open-source**,
which means it can be reused by other developers to power their chatbots.

2001

SmarterChild



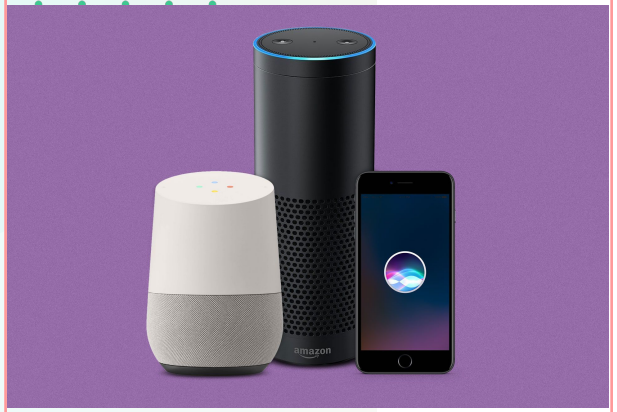
SmarterChild was an **intelligent chatbot** built on **AOL** Instant Messenger in 2001 by ActiveBuddy, the brand creating conversational interfaces.

SmarterChild was designed to have a **natural conversation** with users.

It’s considered to be a precursor to Apple’s Siri.

2010

Virtual assistants



Since 2010, when **Apple** launched **Siri**, **virtual assistants** have been on the rise.

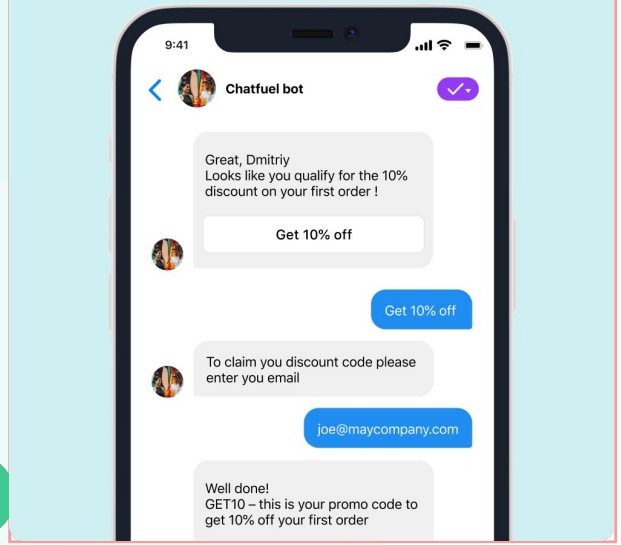
Siri was the first personal assistant available worldwide.

Google followed in Apple's footsteps by releasing **Google Now** in 2012.

Microsoft's Cortana and **Amazon's Alexa** were both released in 2014.

2016

Chatbot platforms



In 2016,
Facebook opened its **Messenger platform** for **chatbots**.

This helped fuel the development of chatbot platforms.

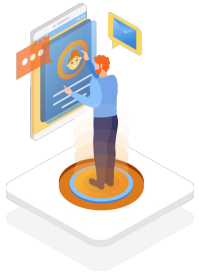
In 2018, LiveChat released ChatBot, a framework that lets users build chatbots without coding.

So far, there have been over 300,000 active bots on Messenger.

03. How to create a chatbot?

How to create a chatbot

from scratch



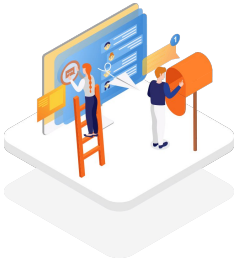
- time-consuming job
- total control over your chatbot
- solve complex problems
- integrate with any platform

Building with a platform

- easiest way to create a chatbot
- low learning curve
- drag and drop predefined elements to design chatbots and launch them without coding

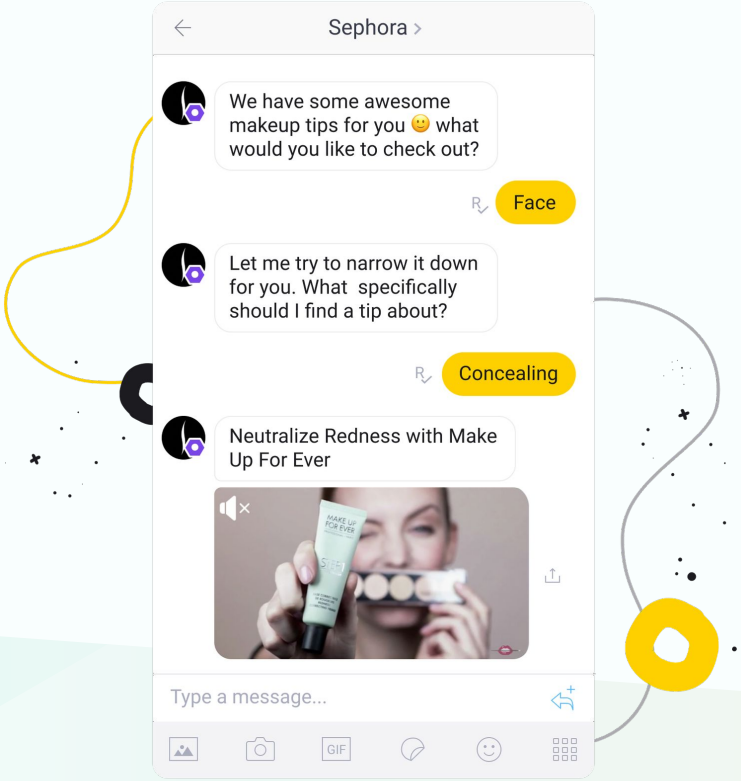
04. Chatbot use cases

use case in marketing



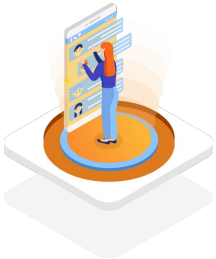
Marketing

Brands use chatbots to diversify their customer-engagement strategy. With chatbots, businesses engage website visitors proactively and, eventually, sell more products.



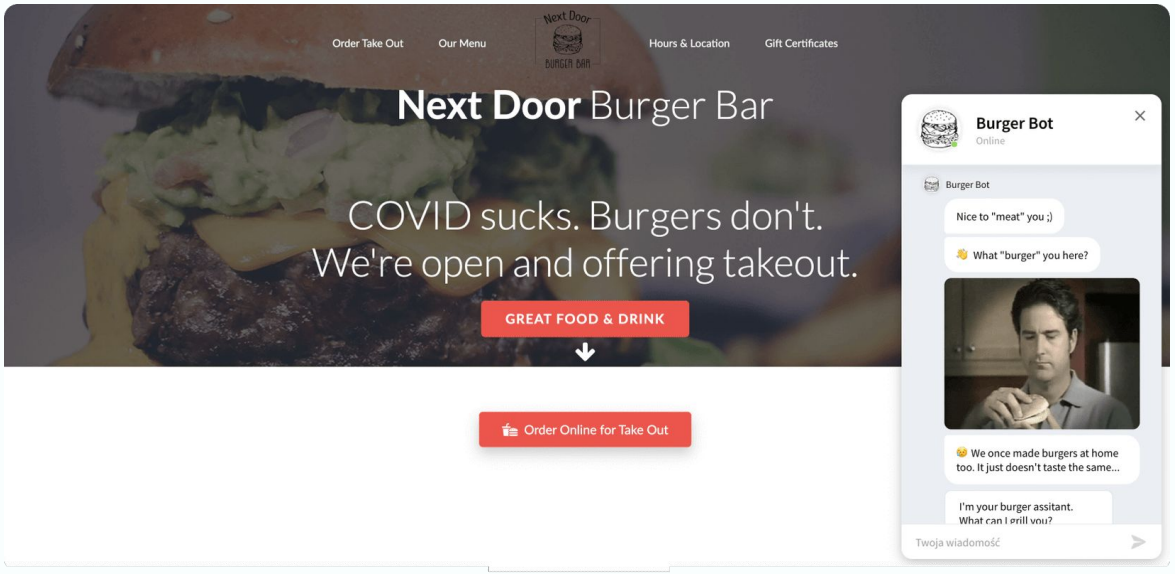
Sephora chatbot on Kik

use case in customer support



Customer support

Customers want their problems handled immediately and via the channels they prefer. Chatbots make that possible by redefining the customer service people have known for years.

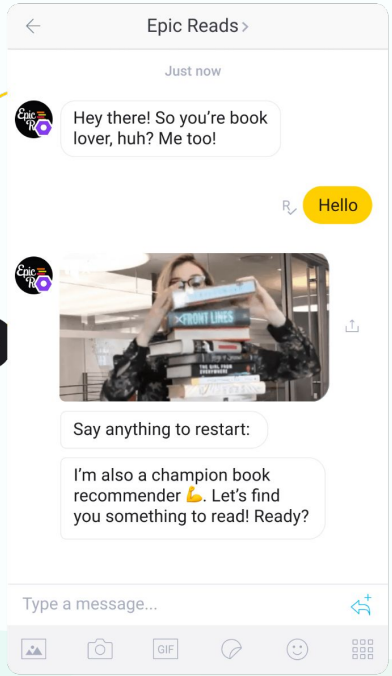


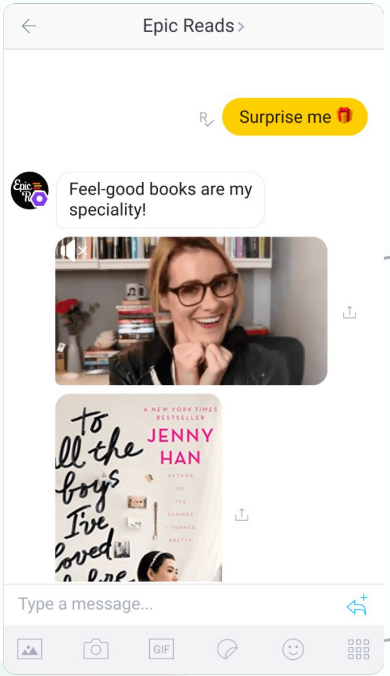
Next Door Burger Bar

use case in sales

Sales

Before purchasing a product, every customer must go through the sales funnel. Chatbots can take customers by the hand and walk them through all the stages of that process: awareness, interest, decision, and action.





Epic Reads chatbot on Kik

Thanks !