# VOICE ASSISTANTS

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The paper discusses the types of technologies that make life easier for people, with a focus on voice assistants. We give a definition of what a voice assistant is and how it is arranged, different voice assistants stand out, the differences between them are outlined. Also in our work we give a brief reference from the history of the creation of the most popular voice assistants, provide brief statistics regarding the use of voice assistants in everyday life.

It is impossible to imagine a modern society without information technologies and computer technology, which are successfully used in all spheres of human life and are a practical embodiment of computer science, which at the beginning of its existence was closely connected with mathematics. The genius of human thought has gone from a number on the fingers through a variety of computing devices to the most advanced computing devices and systems that are able to store very large amounts of information and process them using appropriate programs with instantaneous speed. Our present is characterized by the expansion of information technology. Every day, humanity comes up with new means of communication, electronic devices and other things that help make life easier and more convenient.

One of the important inventions are the voice assistants who help us find information in the shortest possible time.

To call any technology that makes our lives easier by one name is almost impossible. There are a variety of terms that refer to agents that can perform tasks or services for an individual, and they are almost interchangeable — but not quite. They differ mainly based on how we interact with the technology, the app, or a combination of both. Here are some basic definitions, similarities, and differences:

Intelligent Personal Assistant: This is software that can assist people with basic tasks, usually using natural language. Intelligent personal assistants can go online and search for an answer to a user's question. Either text or voice can trigger an action.

Virtual Digital Assistants: These are automated software applications or platforms that assist the user by understanding natural language in either written or spoken form.

Voice Assistant: The key here is voice. A voice assistant is a digital assistant that uses voice recognition, speech synthesis, and natural language processing (NLP) to provide a service through a particular application.

Smart Assistant: This term usually refers to the types of physical items that can provide various services by using smart speakers that listen for a wake word to become active and perform certain tasks. Amazon's Echo, Google's Home, and Apple's HomePod are types of smart assistants.

Many devices we use every day utilize voice assistants. They are on our smartphones and inside smart speakers in our homes. Many mobile apps and operating systems use them. Additionally, certain technology in cars, as well as in retail, education, healthcare, and telecommunications environments, can be operated by voices.

Technology is constantly advancing and changing, and the voice assistant market will progress along with it. In April 2015, the research firm Gartner predicted that by the end of 2018, 30 percent of interactions with technology would be through "conversations" with smart machines, many of them by voice.

Siri by Apple became the first digital virtual assistant to be standard on a smartphone when the iPhone 4s came out on October 4, 2011. Siri moved into the smart speaker world when the HomePod debuted in February 2018.

Google Now (which became Google Assistant) on the Android platform followed. It also works on Apple's iOS, but has limited functionality.

Then the smart speakers came along, and "Alexa" and "Hey Google" became a part of many household conversations. Alexa by Amazon is part of the Echo and the Dot. Google Assistant is part of the Google Home.

Samsung has Bixby. IBM has Watson. Microsoft has Cortana on its Windows 10, Xbox One machines, and Windows phones, and Nuance has Nina. Facebook used to have M, but its usage in the Facebook Messenger app ended in January 2018.

Yandex officially introduced its voice assistant Alice in 2017. The main differences of Alice from competitors (for example, Siri) are integration with the company's own search engine and the presence of a neural network, with the help of which the assistant independently generates new replicas. According to the developers, the personality of Alice is one of its main competitive advantages. Projects designed for an English-speaking audience do not try to create a strong emotional connection with the user, but rather they are removed from it.

By default, most of the voice assistants have somewhat female-sounding voices, although the user can change them to other voices. Many people refer to Siri, Alexa, and Cortana as "she" and not "it."

Voice recognition technology was around long before Apple's Siri debuted in 2011. At the Seattle World's Fair in 1962, IBM presented a tool called Shoebox. It was the size of a shoebox and could perform mathematical functions and recognize 16 spoken words as well as digits 0-9.

In the 1970s, scientists at Carnegie Mellon University in Pittsburgh, Pennsylvania — with the substantial support of the United States Department of Defense and its Defense Advanced Research Projects Agency (DARPA) — created Harpy. It could recognize 1,011 words, which is about the vocabulary of a three-year-old.

Once organizations came up with inventions that could recognize word sequences, companies began to build applications for the technology. The Julie doll from the Worlds of Wonder toy company came out in 1987 and could recognize a child's voice and respond to it.

Throughout the 1990s, companies like IBM, Apple, and others created items that used voice recognition. Apple began building speech recognition features into its Macintosh computers with PlainTalk in 1993. In April 1997, Dragon came out with Dragon NaturallySpeaking, which was the first continuous dictation product. It could understand about 100 words per minute and turn it into text. Medical dictation devices were one of the earliest adopters of voice recognition technology.

Voice assistants can make calls, send text messages, look things up online, provide directions, open apps, set appointments on our calendars, and initiate or complete many other tasks.

With the addition of separate apps on the phone, our voice can be a type of remote control for our lives. We can unlock cars and homes, turn on lights, adjust the thermostat, change the television channel, and much more.

The number of people using voice assistants is expected to grow. According to the Voicebot Smart Speaker Consumer Adoption Report 2018, almost ten percent of people who do not own a smart speaker plan to purchase one. If this holds true, the user base of smart speaker users will grow 50 percent, meaning a quarter of adults in the United States will own a smart speaker.

So, we came to the conclusion that voice assistants are very common at the moment and play a very important role in our lives. People can use their voice to control appliances in their homes, make search queries, and so on. Using voice assistants helps people save time, which is why they are popular among ordinary people.

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