

PRESS RELEASE

PRESS RELEASEMay 30, 2018 || Page 1 | 3

Yandex And The Audio Experts of Fraunhofer IIS Team Up To Bring Russian-Speaking Smart Speaker To Market

ERLANGEN, Germany/MOSCOW, Russia – Yandex, a technology company that builds intelligent products and services powered by machine learning, has incorporated Fraunhofer's upHear Voice Quality Enhancement technology into its first smart speaker, enabling the device to accurately hear voice commands issued from anywhere in a room.

Fraunhofer's upHear Voice Quality Enhancement reduces background noise and acoustical echoes, ensuring that Yandex's new smart speaker, Yandex.Station (Яндекс станция) and the embedded intelligent assistant Alice, can hear intelligible verbal commands, even when the speaker is streaming music at the same time.

"Fraunhofer provided a software solution that applies advanced digital signal processing techniques to enhance the signals collected by the microphone array technology for far-field voice capturing, Yandex.IO. This ensures that Yandex's highly reliable keyword spotter and speech recognizer receive a clean voice signal," said Manfred Lutzky, Head of Audio for Communications at Fraunhofer IIS. "Our upHear technology removes interfering sounds captured by the smart speaker's microphones, extracts the user's voice and cancels out acoustical echoes that would otherwise make it impossible for the speaker to understand the user's request."

Fraunhofer's upHear Voice Quality Enhancement solution supports full-bandwidth audio and is a suitable voice enhancement step for a wide range of applications, including natural language understanding in mobile and smart home devices. It is a fully integrated and flexible solution which enables full-duplex conversations and barge-in support with outstanding audio quality. This is achieved by combining advanced multichannel source localization and beamforming techniques with echo- and noise-reduction algorithms.

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“We tested multiple voice enhancement solutions working together with our far-field microphone array technology Yandex.IO and found the Fraunhofer upHear technology to be the most effective in bringing Alice from the smartphone to the smart home,” said Konstantin Kruglov, Director of Experimental Products at Yandex. “Whether you are standing right in front of the device, or farther away in the room, Alice will understand you, even under challenging acoustic conditions.”

PRESS RELEASEMay 30, 2018 || Page 2 | 3

Yandex’s AI assistant Alice listens for and understands natural Russian-language requests and provides contextually relevant answers using Yandex’s search engine and services that include weather, news, maps, transport and music streaming services. In developing Alice, Yandex built on its knowledge of the more than 50 million monthly users who interact with its services, plus its machine-learning capabilities and 20 years of experience with Russian users and the Russian language.

Using Yandex’s proprietary speech recognition technology, Alice delivers world-best accuracy for spoken Russian-language recognition and understands speech with near human-level accuracy. Alice also synthesizes voice responses that sound natural and authentic.

Alice, which was initially offered in Yandex’s iOS and Android apps, is the first virtual assistant designed to serve the needs of Russian users. With the new integration into Yandex.Station and several other updates, Alice’s ecosystem is expanding to offer Russian users an even more advanced experience.

About Yandex

Yandex (NASDAQ:YNDX) is a technology company that builds intelligent products and services powered by machine learning. Our goal is to help consumers and businesses better navigate the online and offline world. Since 1997, we have delivered world-class, locally relevant search and information services. Additionally, we have developed leading on-demand transportation services, navigation products, and other mobile applications for millions of consumers across the globe. Yandex, which has 17 offices worldwide, has been listed on the NASDAQ since 2011.

About Fraunhofer IIS

The Audio and Media Technologies division of Fraunhofer IIS has been an authority in its field for more than 25 years, starting with the creation of mp3 and co-development of AAC formats. Today, almost all consumer electronic devices, computers and mobile phones are equipped with Fraunhofer’s media technologies. Besides the global successes mp3 and AAC, the Fraunhofer technologies that improve consumers’ audio experiences include Cingo® (spatial VR audio), Symphoria® (automotive 3D audio), xHE-AAC (adaptive streaming and digital radio), the 3GPP EVS VoLTE codec (crystal clear telephone calls), and the interactive and immersive MPEG-H TV Audio System.

With the test plan for the Digital Cinema Initiative and the recognized software suite easyDCP, Fraunhofer IIS significantly pushed the digitization of cinema. The most recent technological achievement for moving pictures is Realception®, a tool for light-field data processing.

Fraunhofer IIS, based in Erlangen, Germany, is one of 72 institutes and research units of Fraunhofer-Gesellschaft, Europe’s largest application-oriented research organization.

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Yandex.Station

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PRESS RELEASE

May 30, 2018 || Page 3 | 3
