Toyota and Google Cloud Partner to Bring AI-Powered Speech Services to Toyota and Lexus Vehicles

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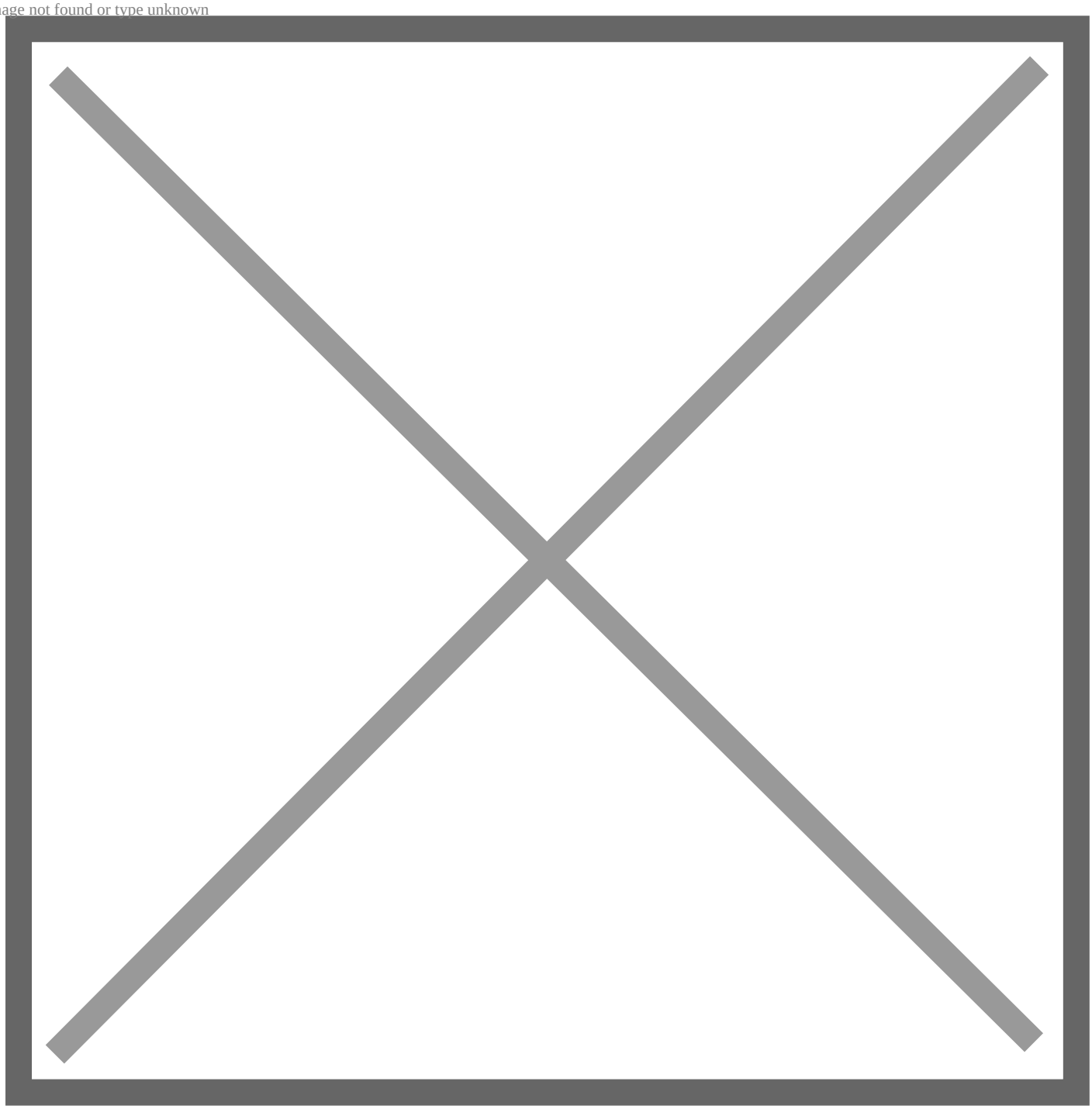

SUNNYVALE, Calif. and PLANO, Texas (Oct. 11, 2022) – Toyota and Google Cloud today announced an expanded partnership that brings together Toyota and Lexus next-generation audio multimedia systems and Google Cloud's AI-based speech services. Customers can now experience the first results of the partnership in the latest generation Toyota Audio Multimedia and Lexus Interface infotainment systems, including in 2023 models like the Toyota Corolla family, Tundra and Sequoia and Lexus NX, RX and all-electric RZ.

With the growing popularity of voice assistants in everyday life, consumers increasingly expect accurate and consistent voice interactions. The machine learning capabilities required to provide high-quality speech results have traditionally relied on a connection to the cloud, as natural language processing is extremely complex and can require specialized computers.

Vehicles equipped with Toyota's latest-generation Automotive Grade Linux-based Audio Multimedia and Lexus Interface infotainment systems already leverage Google Cloud's Speech-to-Text service to accurately perform automatic speech recognition for in-vehicle queries. Toyota's Voice Assistant, which leverages technology from Google Cloud, was co-developed between the Toyota Motor North America Connected Technologies and Toyota Connected organizations since 2018. The partnership highlights the AI and machine learning innovation brought forth in the latest Toyota and Lexus infotainment systems.

The strength of the partnership announced today is that Toyota's next-generation system will no longer require an internet connection for natural-speech functions.

Driving Future Innovation Together

Expanding the collaboration between Toyota and Google Cloud, the partnership aims to drive future innovation with the addition of Speech On-Device – a new Google Cloud AI product that equips embedded devices with the same powerful, AI-based speech recognition and synthesis available in the cloud, regardless of internet connectivity – to future Toyota and Lexus vehicles.

The future vehicle-native Speech On-Device will enable voice requests to be served directly by vehicles' multimedia system processors, without the need for internet connectivity, to power voice queries in select vehicles. Now, with voice interactions served locally instead of by the cloud, drivers will not have to worry about a tunnel or dead zone affecting voice commands.

"Today's announcement represents refinement that comes with years of collaboration between Toyota and Google Cloud to perfect how our technologies work with one another," said Steve Basra, group vice president, Connected Technologies, Toyota Motor North America, and CEO and president of Toyota Connected North America.

Google's Speech On-Device Technology

Speech On-Device builds on innovations from Google Assistant and Google Pixel that enable fully featured speech models – comparable in quality to those hosted in the cloud – to run locally on small devices at the edge with only a fraction of the model size and computing requirements. The new product makes it possible for Google Cloud customers to bring high-quality speech services to disconnected environments, presenting new opportunities across a variety of use cases, from cars to televisions and even kiosks.

"By working closely with Toyota to understand its in-vehicle device requirements and capabilities, we were able to provide server-like quality while using only a small fraction of the processing power to ensure the best possible experience for drivers," said Umesh Vemuri VP, Global Strategic Customers & Industries, Google Cloud.

With Toyota's next-generation multimedia system in development upon the brand's native platform, vehicle-embedded Speech On-Device will be used as a component of the nextgen Toyota Voice Assistant. These technologies combined allow voice requests to be served directly by vehicles' multimedia system processors, without the need for internet connectivity, to power voice queries in select vehicles.

Speech On-Device is available for select Google Cloud customers. For pricing and availability, Google Cloud customers should contact their sales representatives.

Additional Resources

- Learn more about the partnership and Speech On-Device in a session with Toyota today at Next '22.