

# automotive solutions from Nuance

The experience speaks for itself™



Building speech power and safety  
into the driving experience.



## Safety, convenience and productivity for an information-driven world.

Consumer demand for powerful, easy-to-use automotive components and systems—from onboard navigation to in-vehicle communication systems—is skyrocketing. The world has become a faster, busier place and drivers want to take advantage of the latest technology, without compromising safety, convenience or capabilities.

But as onboard technology becomes increasingly more sophisticated, it's also becoming more complex, and is often too difficult to use safely while driving. In fact, some automakers may even require users to agree to a disclaimer before granting access to certain functionalities such as the navigation system.

To capitalize on this market migration—and to address growing regulatory and safety concerns—automotive suppliers need to deliver innovative components and systems with advanced features that are easier to access and use. Nuance is leading the way, with embedded speech-enabled applications that allow drivers to realize the benefits of powerful in-vehicle computing power—while keeping their eyes on the road and their hands on the wheel.

Nuance speech technology lets drivers tap into onboard technologies without taking their eyes off the road.



Nuance's embedded speech solutions have been successfully implemented in more than 5 million cars worldwide—more than 100 automobile models from all major car manufacturers. Our technology is also used by leading Tier 1 suppliers, such as Aisin AW, Alpine, Bosch Blaupunkt, Bury, Denso, Magneti Marelli and Microsoft.

ACURA  
ALFA ROMEO  
BMW  
CADILLAC  
CHRYSLER  
CITROEN  
FIAT  
PEUGEOT  
FORD  
HONDA  
INFINITI  
JAGUAR  
LANCIA  
LAND ROVER  
LINCOLN  
NISSAN  
OPEL  
RENAULT  
SAAB  
TOYOTA

## Global leadership based on experience.

No other speech solution provider can match Nuance's breadth and depth of automotive experience, global reach or long-term commitment to the industry. Our automotive partners include vehicle manufacturers and Tier 1 suppliers of navigation, telematics and audio equipment. In everything we do, we strive to add value for them, and for their end users.

### a complete solution

Nuance can provide all the components automotive suppliers need to build powerful embedded speech applications into their components and systems—including automatic speech recognition (ASR), text-to-speech synthesis (TTS) in all key languages, and acoustic echo cancellation (AEC). With our proven expertise in handwriting recognition and optical character recognition (OCR), we also support multi-modal inputs.

This comprehensive technology lineup helps to reduce costs for our customers, and delivers a better end user experience. By providing a range of products that share some common components, integration is not only easier; it is also tighter, and the final product is easier to support.

### investment protection

In business since 1992, and averaging over 20% growth over the past four years, Nuance is a well-established and financially stable company, able to make substantial and continuous investments in research and development. In addition to fostering groundbreaking innovations in speech technology, this corporate commitment also ensures that customers' and partners' investments in Nuance solutions are protected for the long term.

### global reach

With more than 35 offices and development centers in North America, Europe, and Asia, Nuance is able to offer customers and partners local access to specialized technical resources and valuable domain expertise. To address a truly global market, we support speech solutions in all major North American, European and Asian languages. Today, Nuance is empowering car drivers in over 15 countries.

"An interface that enhances the driver experience, by limiting manual interaction and driver distraction, is critical for the adoption of advanced technologies in the automotive environment. Speech applications, such as those from Nuance, offer a safer and more natural interface that will drive further adoption of telematics units."

**Mark Fitzgerald**, Senior Analyst, Strategy Analytics

## High-powered automotive lineup

Nuance offers today's most complete portfolio of core technologies, application modules, tools and services for speech-enabling the devices and systems drivers rely on every day. Our core solutions include:

### SpeechPAKs

SpeechPAK application modules serve as reference implementation of core functionalities such as voice-activated dialing (VAD), voice destination entry (VDE) or a speech-enabled MP3 player. These modules are combined with an array of tools and services to enable our customers to prototype, test and deploy new applications quickly, significantly reducing overall cost and time to market.

### VoCon® 3200

VoCon® 3200 Embedded Development System is a complete development suite designed specifically to add ASR functionality to automotive applications such as navigation systems, telematics applications and command and control of in-vehicle devices. Recognized as the most powerful solution on the market, the advanced speech recognition engine delivers a new level of speaker-independent and continuous speech recognition capabilities, with extremely high recognition accuracy even in the noisy automotive application environment.

### RealSpeak™ Solo and PromptSculptor

A text-to-speech solution optimized to enhance embedded conversational applications, RealSpeak Solo provides exceptionally high quality speech output across a range of memory footprints. Its scalability from small embedded solutions up to more powerful desktop applications makes it ideal for deployments where superior speech output is essential. RealSpeak Solo is available in a variety of voices spanning most languages spoken across North America, Europe, and Asia. To complement RealSpeak, PromptSculptor is a powerful, flexible tool that allows untrained developers to optimize and save perfected TTS output, without the need to store prerecorded prompts.

### What drivers do other than driving?



source :: end-user survey commissioned by Nuance on over 900 subjects in the US, Japan and Germany, April 2006

## "Innovation is built into everything we do.

Nuance technology is deployed in more than 5 million cars—a user base and a learning base unequalled in the industry. We bring this experience to bear every day, pushing the technology envelope to deliver innovative, breakthrough solutions. For example:

- Nuance was the first company to support recognition lists of over 300K city and street name entries.
- Our advanced spelling module is the only one that combines incremental entry and intuitive list-based selection.
- Our revolutionary data-driven grapheme to phoneme module significantly improves overall recognition accuracy while reducing the application footprint in defined application.

Thanks to an exceptional team—which includes speech scientists, speech user interface designers, and voice application/grammar developers—we have been awarded over 380 approved patents for our technology, with over 270 others pending.



### "Turn up the heat to 72 degrees..."

As cars become more computerized, access to certain functions in the car is becoming more complicated. How can drivers take advantage of the increased capabilities without being distracted?

Speech offers a safe, simple mechanism to access car functions such as climate control, radio and other preference settings. Nuance modular ASR (VoCon 3200) and TTS (RealSpeak Solo) components not only support a large number of commands, but also respond to a more conversational type of input.

### "Call Jody at work..."

Drivers can't navigate a cell phone's menus and contact lists—or even dial a number—without looking at the keypad. Using Nuance's SpeechPAK with VoCon speaker-independent speech recognition and RealSpeak text to speech synthesis, drivers can make a call simply by saying the name of the person, without needing to "train" the name beforehand. They can also be notified of incoming calls, including the caller's name, without having to look at the phone. The solution allows completely eyes-free operation—and can even read SMS messages.

### "Play Misty for me..."

Nuance's SpeechPAK MP3 application lets users search, navigate and play their MP3 playlists without using a keypad. Just tell your car what you want to hear—and enjoy!

With a strong reputation in the field of MP3 playlist navigation, Nuance has already deployed successful speech-enabled playlist navigation and control systems, as well as innovative voice search applications with content providers like Gracenote.

### "How do I get to 32 West Elm Street?"

Navigation systems in cars are becoming standard, but entering the final destination remains a tedious task that requires many steps on a touch screen. Prompts don't help much, since they typically can't repeat street names, or provide details such as exit name and sign posts.

Using Nuance speech input, a full address can be entered in a matter of seconds; text-to-speech provides accurate turn-by-turn directions with the name of the street. SpeechPAK VDE offers a reference implementation for a voice destination entry, with capabilities of handling several hundreds of thousand of street or city names at any single point.

### Nuance Professional Services help you put it all together.

Nuance is passionate about the success of our customers and partners. For each engagement, we draw more than 275 professionals in the United States, Canada, Belgium, Germany, France, the United Kingdom, Japan, Taiwan, Korea, and Australia to assemble a cross-functional team that includes exactly the right mix of resources, including:

- Local and global project managers
- Hardware platform specialists
- Speech scientists
- Quality assurance engineers
- Speech user interface designers
- Voice application and grammar developers

Using our proven project standards and global methodology, our experts will work closely with you to create a unique, high quality speech solution — a solution that not only does the job it needs to do, but does it better than anyone else could do it.

#### **about Nuance Communications**

Nuance is the leading provider of speech and imaging solutions for businesses and consumers around the world. Its technologies, applications, and services make the user experience more compelling by transforming the way people interact with information and how they create, share, and use documents. Every day, millions of users and thousands of businesses experience Nuance's proven applications and professional services. For more information, please visit [www.nuance.com](http://www.nuance.com).