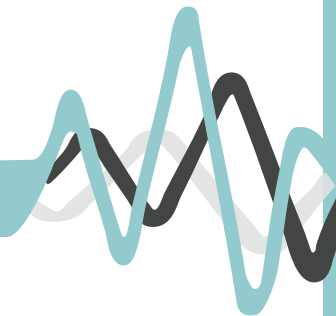


Loquendo Embedded Technologies

TEXT TO SPEECH AND AUTOMATIC SPEECH RECOGNITION



Loquendo embedded speech technologies are the perfect solution for all your embedded application needs.

Their efficient architectures, multilingual capabilities, accuracy and naturalness, along with their modularity and flexibility, allow system integrators and voice application developers to easily create effective applications: from in-car automotive telematics solutions to voice-picking logistics solutions, set-top-box voice control or mobile screen readers for the visually impaired.

Loquendo is the market leader in quality, efficiency and portability, and the only speech technology vendor that provides a complete product line guaranteeing the same high-quality and the same core engines in all environments from server to embedded.

Loquendo Embedded TTS

Give your customers the **best available embedded speech technology** for automotive telematics, email, SMS reading, live news, solutions for the speech impaired, wearable computers, entertainment and any other embedded application you can think of – there are no limits!

Loquendo's truly lifelike embedded TTS means there's no need for costly, time-consuming pre-recording: it allows the **rapid deployment of voice applications** with an extremely high-quality output even with limiting device constraints.

The software is cleverly designed with an efficient memory consumption, and is completely scalable in terms of footprint, in order to meet even the most demanding customers' or devices' needs without loss of quality.

Loquendo's voices are **expressive, clear, natural and fluent**: they have been enriched with a repertoire of "expressive cues" - commonly used phrases, such as "How are you?" or "You've got to be kidding!" and paralinguistic events such as yawning, coughing and laughing.

No more language barriers: Loquendo's embedded TTS is **multilingual**, and each of our voices can speak in any other language thanks to the **Mixed Language Capability**. This unique feature based on **phonetic mapping** is only available with Loquendo's text-to-speech software!

A specific version of Loquendo Embedded TTS, called Loquendo Automotive Solution, is also available. This solution, integrating pre-recorded voice prompts, has been specifically created for the telematics and navigation application fields. Please refer to the specific brochure for further details.

Loquendo Embedded ASR

Derived from the Loquendo ASR, and sharing the same core algorithms, the Loquendo Embedded ASR engine is the **perfect solution** for deploying your speech applications in embedded and mobile environments.

The fact that it shares the same core engine as the standard server version gives this product many advantages: the same wide range of languages, the same APIs and standards' support, the option to use large vocabularies and compile grammars "on the fly", plus many more.

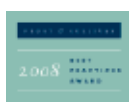
Loquendo Embedded ASR employs optimized neural-networks, reducing recognition time, and also includes new features that give improved recognition performance in a range of challenging environments, such as interactions with non-native speakers, high background noise (e.g. in-car, warehouse) and a diverse range of audio channels (e.g. VoIP, GSM/UMTS).

Loquendo Embedded ASR thus offers optimal performance in specific vertical markets such as automotive telematics, voice picking, device control and aeronautic applications.

Loquendo Embedded ASR includes a new outstanding tool that enables system integrators to adapt the acoustic models to a specific application/environment by acoustic model composition.

Furthermore, it is possible to add new sets of keywords or to dynamically modify and compile grammars: this allows application developers to insert new words into the relevant grammar as required by their embedded applications, which is a must when dealing with complex jargon or unusual names.

www.loquendo.com



Loquendo Embedded Technology - Technical Specifications

| | TTS | ASR |
|------------------------------|--|---|
| Architecture | Single Client | Single Client |
| Simultaneous Channels | Single Channel | Single Channel |
| Memory Requirements | from 2.5 MB RAM from 3.5 MB storage per voice | from 4 MB RAM from 4 MB storage per language |
| Type of Technology | Unit selection, concatenative | Neural networks + Continuous Density Hidden Markov Models |
| Sampling Rate | 8/11/16/22/32/44 KHz | 8/16 KHz |
| CPU Requirements | Xscale, ARM9, ARM11, X86, SH4, Motorola PowerPC, TI OMAP 3621 | Xscale, ARM9, ARM11, X86, TI OMAP 3621 CPU 400 MHz min. |
| Platforms | Android, iPhone, Symbian OS™ S60, Windows Mobile 5 & 6 (all editions), Windows CE 5 & 6, Windows XP Embedded and Tablet PC ed., VxWorks, Linux and QNX | Android, iPhone, Symbian OS™ S60, Windows Mobile 5 & 6 (all editions), Windows CE 5 & 6, Windows XP Embedded and Tablet PC ed., VxWorks, Linux and QNX |
| Interfaces | Loquendo API (C/C++ and Compact .NET Framework), SAPI 5, W3C SSML 1.0 | Loquendo API (C/C++) |
| Supported Languages | US, UK & Australian English, French, Canadian French, American Spanish, Argentinian, Chilean, Mexican and Castilian Spanish, Catalan, Valencian, Galician, Portuguese, Brazilian, Esperanto, Italian, Greek, Turkish, Dutch, German, Polish, Danish, Swedish, Finnish, Norwegian, Russian, Mandarin Chinese | US, UK & Australian English, French, Canadian French, American Spanish, Argentinian, Chilean, Mexican and Castilian Spanish, Catalan, Valencian, Galician, Portuguese, Brazilian, Italian, Greek, Turkish, Dutch, German, Polish, Danish, Swedish, Finnish, Russian |
| Standards Supported | SSML (Speech Synthesis Markup Language) PLS (Pronunciation Lexicon Specification) | JSGF (Java Speech Grammar Format) W3C SRGS 1.0 (ABNF Form) |
| Key Features | <ul style="list-style-type: none"> Expressive TTS Mixed Language Capability: Phonetic Mapping, Language guesser Dynamic switching between multiple voices Pronunciation lexicon - for user definable pronunciation (acronyms, foreign names, etc.) Flexible voice control - for creating special effects, modifying speech rate, pitch and timbre Audio Mixer Built-in audio effects, i.e. reverb and stereo balance SMS and E-mail Preprocessing Customized voices - for extending corporate image and branding through unique voices Support of the SAMPA phonetic alphabet (TeleAtlas® and Navteq™ extensions included) | <ul style="list-style-type: none"> Speaker Independent Open Vocabulary Noise Robustness <i>N-Best</i> Decoding Confidence Scores at sentence and word level Tunable Voice Detection sensitivity Speech Complete/Incomplete Timeout Grammar handling and fast grammar compilation on the fly Re-usable <i>Built-in</i> grammar library Voice enrolled grammars Natural Language Processing Optimized automotive recognition models Always-on and push-to-talk recognition modes |

For Multimedia and Network/Telephony solutions, see the **Loquendo TTS** and **Loquendo ASR** brochures. For Automotive solutions see **Loquendo TTS Automotive Solution** brochure.

To find out how Loquendo Embedded can position your company for success, please visit www.loquendo.com and try our Embedded TTS demo.

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