



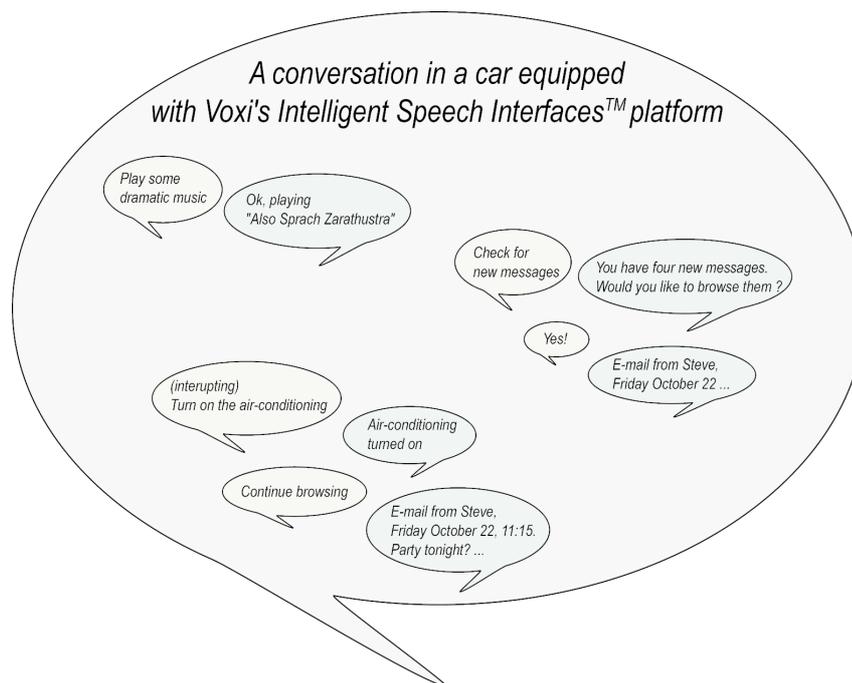
Natural speech applications made easy

Overview

Natural Interaction

Voxi allows people to talk naturally with their computers. The object-oriented approach for application design makes natural interaction a standard.

- Complete transactions in one sentence
 - “Book a meeting with Bob on Friday. Notify me 10 minutes earlier.”
- Many ways to access same functionality
 - “Increase the temperature somewhat.”
 - “Make it warmer.”
 - “It's too cold.”
- Jump seamlessly between applications
 - “Play some soft music. Get directions to 2110 North Avenue, Woking.”
- Combining speech interfaces with other user interfaces
 - “Display flights to London on Tuesday morning.”
 - “Ok, book number 3.”



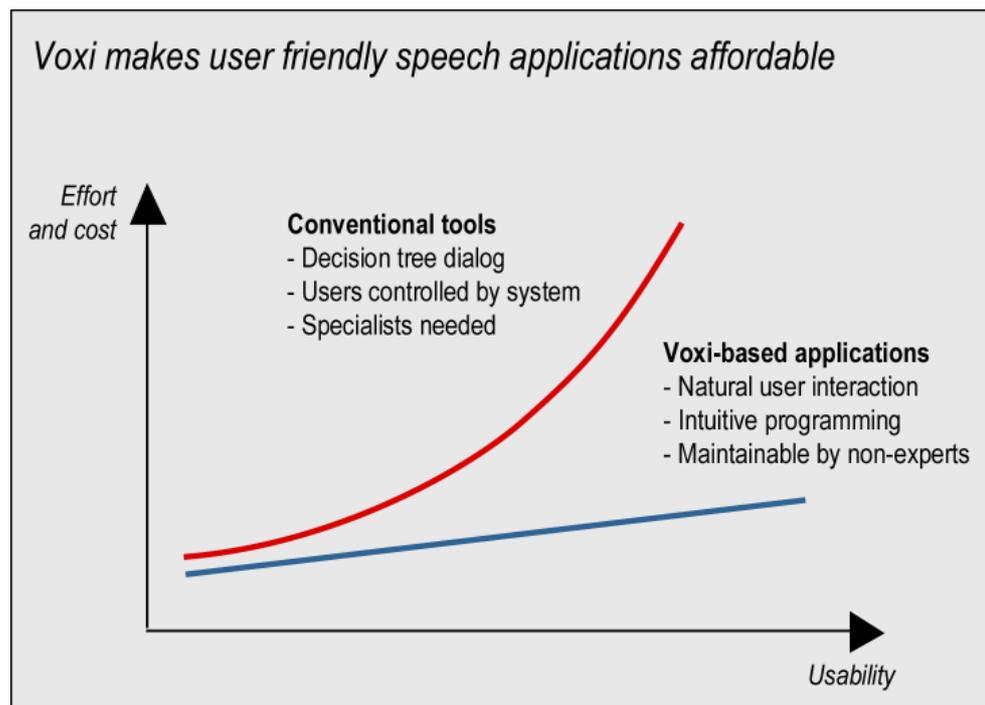
Efficient development and maintenance

Voxi's platform for speech interfaces consists of a speech recognizer, a language understanding engine, and output through TTS or canned speech.

Natural-language speech applications are built using the graphical development environment Voximizer™ that lets you quickly create a speech interface to any application.

- Fast prototyping of applications using example sentences
- Built-in general grammars speeds up:
 - *Application development and maintenance*
 - *Language portability without re-programming application logic*
- Interfacing to other applications in any programming language

Using Voximizer™, the developer can focus on application functionality instead of the underlying technology.



Platform Overview

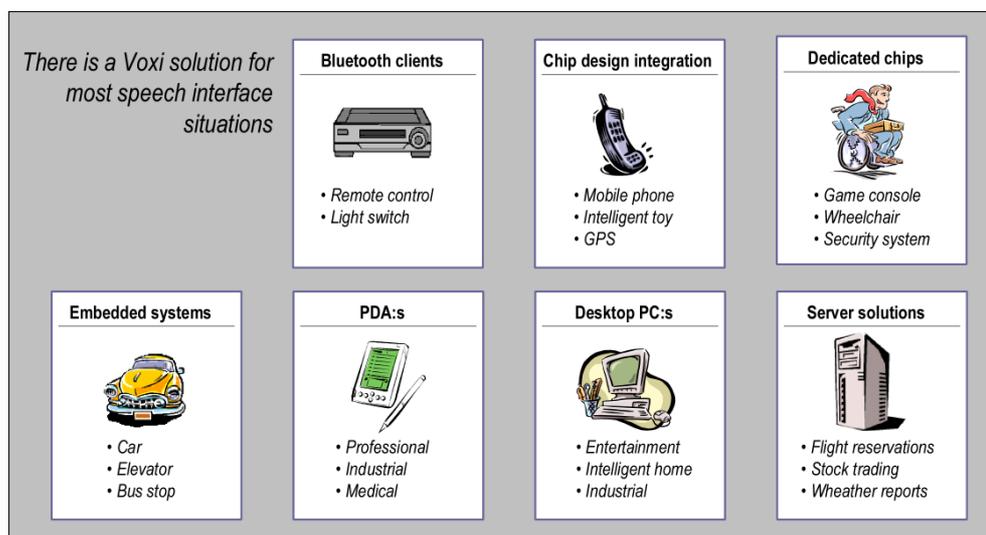
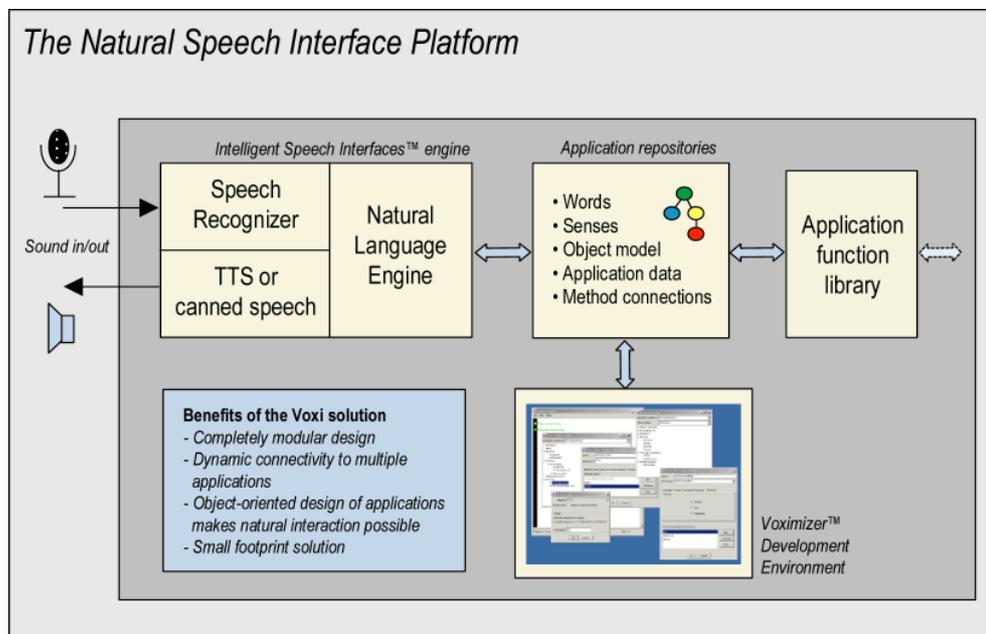
The platform consists of three major parts.

- The Speech Recognizer
- The Natural Language Engine

The speech recognizer transforms sound into text. It uses application context information to improve recognition.

The natural language engine translates the linguistic information from the recognizer into elements of the application's object model. When the request has been analyzed, the proper action is initiated. The language engine can be connected to multiple applications at the same time, providing for seamless user interaction with all the applications.

The feedback to the user can be both speech synthesis and canned speech.



Features of the Intelligent Speech Interfaces™ Platform

The ISI™ Platform

- Voxi's platform for natural language applications
- User-controlled dialogs enabling the user to take the initiative
- Real natural language understanding
- Simultaneous control of multiple applications
- Implemented in C allowing for easy adaptation to new target environments
- Efficient runtime for embedded systems

The Natural Language Engine

- Provides for natural language understanding and reasoning
- Models the underlying applications using object-oriented techniques
- Built-in general-purpose grammar applied to application-specific vocabulary and semantics
- Expression of high-level goals can be broken down into a chain of simple executable tasks
- Context-to-speech generation of linguistic feedback
- Resolution of ambiguous phrases within the application context
- Interfacing to legacy applications through user-defined method hooks
- Ideal for command and control applications with up to 1000 words

The Speech Recognizer

- Smart speech recognition using application context information
- Small footprint - runs on PDA or in dedicated chip
- Fixed point calculations making it suitable for embedded applications
- Speaker-independent models, performance can be enhanced using speaker adaptation
- Profiled for vocabularies of 100-1000 simultaneous words
- Barge-in, allowing users both to jump ahead of dialog and to jump to other applications
- Interfaces with noise-control and other specific add-ons

The Sound Rendering Engine

- An advanced fully user-configurable sound-processing framework for sound i/o
- Handles multiple sound sources and outputs, recorded and computer generated
- Includes a set of building blocks with for instance mixing and forking of sound streams
- 3-D soundscape rendering for headphones and speakers
- Advanced real-time functionality with timers and event-handling

Voximizer™

- The efficient integrated development environment for creating powerful speech applications
- Fast prototyping and detailed design control
- Ease of use promoting quick results
- Lets the developer focus on application functionality instead of the underlying technology
- Wizard for building object models from example sentences
- Object editors for fine-tuning applications
- Implemented in Java™

About Voxi

Voxi is a Swedish innovator and developer of pioneering speech technology, dedicated to bringing natural speech understanding into commercial reality.

Speed of application development and efficient use of hardware resources are the key elements to achieve that goal.

Voxi was founded in June 1999 as a spin-out from the Royal Institute of Technology and has venture funding from the Swedish Industrial Development Fund, the Bure fund CR&T Ventures, and Alliance Capital Partners.

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