

# Natural Language Control for Personal Digital Assistants

PERSONAL DIGITAL ASSISTANTS are turning into fully fledged computers, enabling a large variety of mobile applications. Key to the success of these applications will be the intuitive interface between the user and the computer. In many cases, voice control is the natural choice.

Voxi now introduces full support for the Intelligent Speech Interfaces™ (ISI™) platform on any PDA running the PocketPC™ operating system. This enables user friendly and productive applications, both voice-only, and in combination with conventional input and output, for maximum efficiency and convenience.

Voxi's ISI™ platform deals with all the issues of creating natural language applications on a portable device. This creates limitless opportunities for applications in a wide range of areas, from sports to industrial, medicine to inventory control, and from entertainment to banking.

### Application Examples

A Voxi speech enabled PDA could for instance deal with the following requests:

- "Meeting Friday at three with Johnny at his office. Give me twenty minutes notice."
- "Bill fifteen minutes to Brown Construction on the Andersen case. Telephone with client" (Lawyer)
- "Play instructions for clutch disassembly" (Auto workshop)

- "Tell me about painting 568" ... "What is the ownership history?" (Museum guide)
- "Pick five widgets from crate B64. Rest inventory should be four.", "Done, but there are only two left" (Warehouse)
- "I have 150 meters to the green. Shooting a six iron with feet 10 cm above the ball, aiming 10 meters left" – "missed right 20 meters and short 25 meters." "Your aim was correct, so you may have sliced." (Digital Golf Trainer)
- "Has the patient had heart trouble before?" (Ambulance)
- "I am running 10 minutes late" (Bicycle courier)

Voxi offers any application developer the tools to build applications like the above and many others.

### Natural, User-controlled Dialogs

The ISI™ platform from Voxi focuses on the unique features of speech: its conciseness and the ability to exactly express the speaker's intentions. Instead of constraining the user to limited dialog flows or menu-like interaction, the user has the full initiative and can always give new natural language commands.

With Voxi's natural language understanding, the interaction flow can freely skip between different commands and applications. The user does not have to pay attention to following a certain dialog flow.

**Voxi's solution enables innovation for mobile devices**



**Play some soft music!**

User: Check my mail  
 PDA: You have two new messages, should I read them?  
 User: Yes!  
 PDA: From Steve, today. Can we meet friday at two?  
 User (interrupts): Book meeting with Steve Friday at two.  
 PDA: Done  
 User: Read next message

**Ok, playing On the beach by Chris Rea.**



**Speech-enabled PDA**

Medical

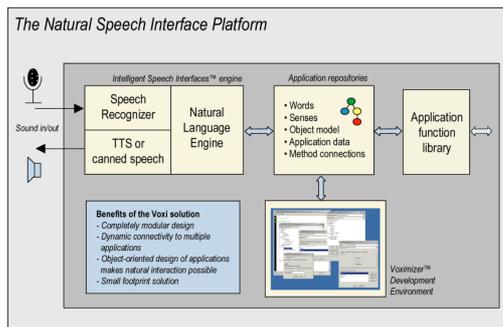
Professional

Personal

Entertainment

Tourism

Industrial



Platform overview

## Multi-language

Voxi's ISI™ platform makes a clean separation between grammar, vocabulary, and application model. An application can quickly be adapted to a new language by just changing the vocabulary and grammar modules. The application model and interaction design can be reused with no or little modification.

## Control of Multiple Applications

The separation of the application model from the vocabulary also makes it easy to provide a unified interface to several applications. This is especially useful in many industrial and professional environments.

## User-independence

Voxi's speech recognizer requires no user adaptation or specific training by the user. It can instantly be used without any tedious configuration or recognizer training.

## Rapid Development using Voximizer™

Using Voximizer™, the ISI development tool, applications can be developed using a quick development and test cycle.

Grammar is pre-programmed per language and the developer creates the application by example sentences in an object oriented GUI. The vocabulary and function bindings of an application can be changed runtime and thus immediately tested, either in the development environment on a PC or on the PDA client.

The speech models can be further tailored, for instance to compensate for artifacts introduced by noise reduction algorithms or to meet memory constraints.

## Voxi Developer Partnership Program

Voxi helps consultants and software development firms to create user friendly, productive and exciting new applications.

Co-operation is tailored to each situation and every software developer can be confident that a speech control application will bring significant value to the end user.

Contact us for further information about the partnership program.

## Technical Data

The platform requirements are:

- PocketPC™ 2002 operating system
- Typical minimum configuration:
  - 200 MHz processor
  - 32 Mbyte RAM
- Languages available Q1 2002:
  - US English
  - Swedish

Additional language can be provided within 10 weeks after order.

## Summary

Voxi brings the full power of the Intelligent Speech Interfaces™ platform to the PDA environment. It promotes a user-controlled interaction using natural language, and it provides a unified speech interface to multiple speech-enabled applications.

Applications are easy to develop and to move between different languages, using the Voximizer™ development environment. Just swap the grammar module, and redefine the words used in the application.

With the release of its platform on the PocketPC™ operating system, Voxi provides the natural user interface needed to exploit the full potential of current and future powerful handheld computers.

**For more information, please contact Voxi:**

WWW: [www.voxi.com](http://www.voxi.com)  
 E-mail: [info@voxix.com](mailto:info@voxix.com)  
 Telephone: +46 8 453 9050