

Ergo the leading platform for natural language applications

Talking to machines has been a long dream for the high-technology industry. The ability to control devices and applications and retrieve information by simply asking for it – in your own language with your own words – taking user friendliness to a new level.

Information retrieval, route guidance, and digital music playback are all applications which have mass-market appeal and involve navigating vast amounts of data. Poor user interfaces make these services difficult to use and can even turn the user into a traffic hazard. Free-format voice control offers an elegant solution to this and similar problems.

Ergo is a platform to build and maintain natural language based applications. It consists of a set of software modules, development tools and documentation for application development. The underlying technology is world-leading and results in applications with:

- A unique ability correctly interpret queries,
- A uniquely low cost of ownership, and
- Solutions using standard interfaces and platforms.

Ergo comes with a complete suite of development tools and documentation.

Description

The basic functionality of the Ergos platform is to analyze natural language queries and translate these to a computer instruction, usually in the form of a command, an url or a database query using the structured query language (SQL). It consists of the following software modules.

User interface: Contains the design of the actual user interface, and, in the case of a voice application, the speech recognition software.

Pre-processing module: Contains the algorithms for increasing speech-recognition hit-rate and query pre-processing.

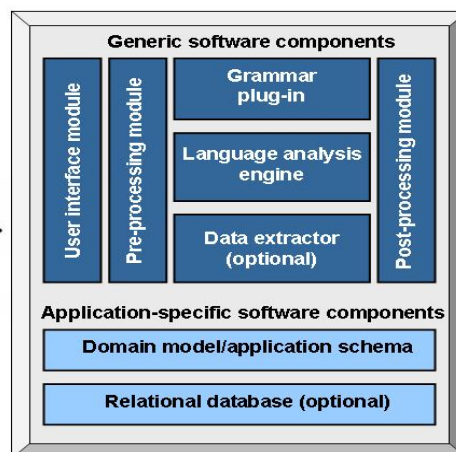
Grammar plug-in: Contains the grammars for the language used in the application, e.g. English, ensuring that queries and commands can be formulated in a multitude of different ways.

Language analysis engine: Does all processing of the query, including the syntactic and semantic analysis, and SQL generation.

Post-processing module: Contains the logic for error handling, error messages, intelligent guessing, spell check, disambiguation, data value completion, the intelligent dialogue, a search function, and retrieval of related information.



Play pop songs with Madonna from the eighties.



```
SELECT DISTINCT
X1.FILE, X1.TITLE,
X5.GENRE, X4.ARTIST,
X3.RELEASE DATE,
X2.RELEASEDATE FROM
VOLVO.MUSIC X1,
VOLVO.MUSIC X2,
VOLVO.MUSIC, X3,
VOLVO.MUSIC, X4,
VOLVO.MUSIC X5
WHERE X1.TITLE=
X2.TITLE AND X1.TITLE=
X3.TITLE AND X1.TITLE=
X4.TITLE AND X1.TITLE=
X5.TITLE AND
X5.GENRE='pop' AND
X4.ARTIST='Madonna'
AND
DATE(X3.RELEASEDATE)
> '1979-12-31' AND
DATE(X2.RELEASEDATE)
< '1990-1-1'
```

Data extractor: The extractor is a run-time tool extracting metadata from files and user data from native applications storing it in a database. This gives most of the information retrieval benefits of relational database storage.

These six modules make up the generic software components. In addition there are two additional modules, the domain model, which is specific for a particular application and a database (optional).

Domain model: The domain model contains the application-specific schema that is used by the language analysis engine to resolve the user's query.

Database: Applications may include an internal database holding information about where the answers to user queries are held.

Features

The Ergo platform supports the following features:

Data value completion: The user can ask e.g. *Find Ray by Mad* rather than *Find Ray of light by Madonna*. The system automatically fills in the missing part.

User dialogue: Should there be large number of answers to a query the system initiates a dialogue with the user to narrow down the number of answers.

Advanced search: For the cases where there are no answers to a query Ergo has a set of advanced search features looking for close matches.

Advanced error handling: For the cases where the system was unable to understand a query the user is given several options to proceed.

Disambiguation: When question can be interpreted in several different ways the user is presented with a choice.

Keyword search: Ergo supports searching for information using one or a few keywords.

Launcher: When the answer to a query has been found you launch the corresponding application (e.g. calling a phone number you asked for) by pressing an icon.

Related information: When the answer to a query has been found Ergo has tools for searching for additional information which is related to the original query and might be of interest to the user.

Characteristics

Free format

The user can use freely formulated questions and commands to get the information he/she wants - no pre-set query tree, training or manual is required! A typical application can handle several tens of thousand ways of asking a set of questions. Ergo currently supports queries in English, French, Italian, German, Spanish, Swedish, and Danish.

Voice or text

Ergo can be built with a voice or text interface. The voice interface will benefit from Ergo's capability to understand natural language - giving the speech recognition an unprecedented precision.

Easy re-use of earlier applications

The grammar modules used to understand the language and the domain model used to resolve the meaning of the query are independent, making re-use of earlier applications and porting between languages easy and cost effective.

System requirements

Operating Systems

Linux, Windows, Windows CE, Symbian 9.x, Microsoft Mobile.

Hardware requirements

CPU: 200 MHz

Memory: ~12-15 MB RAM

Storage: 8 MB

Company

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Dialogue Technologies were awarded the prize Innovation of the year in 2002 for the technology behind the Ergo platform.

