ITEA

INFORMATION TECHNOLOGY FOR EUROPEAN ADVANCEMENT

PROJECT RESULTS

User Centred Intelligence

beyond the Graphical User Interface

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Virtual Guide; a combination of 3D rendering, tracking, speech recognition and facial animation

Some experts believe that - when we interact with products - we relate to them in ways similar to the way we relate to other people. Making human-machine interaction more natural is a good basis for making better products that can benefit users and enhance the competitive position of European IT industries in world markets.

Natural forms of interaction between people and products
The integration of information technologies into products is affecting the lives of everyone difficult for individuals to handle. User Interfaces (UI) will become the main differentiating factor between competing products. Technology can only benefit users if user interfaces are tuned to the needs of users and the context in which products are used.

BEYOND has explored natural forms of interaction between people and the products and services they use. We started with real user needs and then tested the benefits of interfaces in actual use.

BEYOND results enable:
- Europe's IT industry to develop more advanced interactive products and services
- the design of concepts for technologies that adapt products and services dynamically to meet people's changing needs
- the development and validation of guidelines and regulations for multimodal interaction technologies
- the development of simulation and testing technologies to evaluate the quality of solutions in a user-centred design process (from initial concept to finished product).

An intelligent Free Flight system based on multi-agent system architecture

in advanced industrial societies. The link between networked services and software in embedded applications we use in everyday life creates a complex environment, which is becoming increasingly

Human centered approach
Most IT solutions rely on some form of user interaction. In future, devices used to access increasingly complex software and data will need greater user customisation and support.

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Developing and utilising advanced UI solutions will be a key success factor for future European software products.

BEYOND has developed:
- software principles and methods that support a human-centred approach to innovative UI solutions
- prototype components that support the development of adaptivity and multi-modality in UIs
- UI simulation environments for use in product design
- ways to deliver multi-domain and multicultural user benefits
- leading edge technologies for realistic simulation of advanced interaction technologies to enable the specification, prototyping and evaluation of innovative solutions, as well as communicating design ideas among team members in multi-disciplinary environments.

Database access by humming

The project has created innovative solutions for:
- usability-driven design methodologies and tools, enabling the early integration of user interaction aspects in product design
- enhancing user-interfaces: going beyond purely graphic aspects to include multimodality (e.g. incorporating speech and gesture-controlled interaction)
- enabling a product to adapt itself to a user with changing requirements by

means of personalisation and contextualisation
- simulation in product design, speeding up prototyping and thus shortening lead times.

Advanced user interfaces
Important European market segments addressed by BEYOND solutions include:
- **Home Systems:** distributed networks for home consumer electronic systems that can integrate information, communication and entertainment using audio, video, PC, telecom and multimedia.
- **Mobile:** through handheld PDA devices new types of on-line services will become available, especially for new groups of end users.
- **Public information:** access to information anywhere, any time is the fastest growing need in modern society, and meeting it will be a major challenge.
- **Vetronics** (vehicle-electronics): computer systems embedded in special-purpose vehicles, e.g. ships and vehicles used in construction. The development of user-friendly intelligent command interfaces is crucial.
- **Avionics:** the control and management of air traffic will have to change significantly in the near future as a result of technological advances in avionics and computer technology, requiring adapted man-machine interfaces.
- **Healthcare:** doctors and other staff work with a wide variety of equipment, so interfaces must be intuitive and easy to use.

The BEYOND partners – all major European IT companies – are using the methods and tools developed in the project in a wide variety of products. This is expected to generate a considerable volume of business in sectors where user-friendliness is crucial for customers such as "smart homes" and "cockpits" (integrated office user-interface systems). The partners believe they must remain at the forefront of UI technologies to compete globally.