

# COGAIN

## - Communication by Gaze Only

Communication by Gaze Interaction (COGAIN) integrates cutting-edge expertise on interface technologies to develop communication tools [for Augmentative and Alternative Communication (AAC)]. COGAIN develops equipment and software that allows people, even with severe motor disabilities, to communicate by using their eye gaze only. A great variety of applications ranging from eye typing to entertainment applications will be created by the COGAIN consortium during the five-year project.

### To improve the quality of life

Researchers, enterprises and user organisations joined forces in a Network of Excellence for the benefit of users with disabilities. COGAIN focuses on improving the quality of life for those whose life is impaired by motor-control disorders, such as ALS or CP. Every year more than 100 000 people are diagnosed with motor neurone diseases. Typically, even when all other ways of communicating are either severely damaged or completely lost, the eyes still function.

The usability, comfort and take-up of the results will be ensured by the strong involvement of user communities in the project. Special activities will involve users in design and spreading the results to those in need of the technology. An advisory body Board of User Communities will support and advise the COGAIN consortium. COGAIN organizes various major events in different European countries to provide information to the user communities. During the next five years, partners of COGAIN will be united to face the challenges of the development work thanks to the funding by the European Commission, which is why progress is expected to be much faster than before.

### Typing with eyes

Current eye tracking equipment allows users to generate text on a computer by using eye gaze. Users are able to select letters and numbers by looking at a keyboard on a screen with their eyes, and can construct words and sentences that can be spoken aloud by the system. Using these systems both empowers and enables people with disabilities



*Tobii 1750 eye tracker is at your service for eye typing.*

as they can now communicate without the need for an assistant or helper, giving the users greater freedom in their lives.

Eye tracking systems that allow text entry by eye gaze have been in existence for about two decades, but the technology is still only available to a small portion of the potential user population. Obstacles for more wide-spread use currently include: the high cost of eye tracking equipment, the limitation that gaze communication applications may only work with a particular dedicated eye tracking device, and finally that eye tracking devices are often hard to use and require experts to operate them.

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## Empowerment and entertainment

COGAIN assistive technologies empower the target group to communicate by using the capabilities they have and by offering compensation for capabilities that are deteriorating. The users will be able to use applications that help them to be in control of the environment, or achieve a completely new level of convenience and speed in gaze-based communication. Using the technology developed in the network, text can be created quickly by eye typing. In addition to this, the network will provide entertainment applications for making the life of the users more enjoyable and more equal. COGAIN believes that assistive technologies serve best by providing applications that are both empowering and fun to use.

The coordinator of COGAIN is Kari-Jouko Rähkä, Professor of the Department of Computer Sciences at the University of Tampere. COGAIN is based on the vision that the network will lead to real advances in eye tracking technology and applications for people with disabilities. COGAIN will also lead us to mainstream applications that can benefit all and become enjoyable to the general public.

## Europe leads the way

The COGAIN consortium is formed from the world's cutting-edge research groups and companies who have joined forces for a common goal: empowering people with disabilities. There are over 100 researchers from nine different countries involved in the activities of the Network of Excellence. The project aims to make research results and commercial solutions known and available, at an affordable cost, to the user community. The five-year project received 2,9 million euros from the European Union's Sixth Framework Programme (FP6) under the Information Society Technologies (IST) priority. COGAIN was launched in September 2004 in Finland and will end in August, 2009.

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**For more information please  
contact COGAIN Network  
Coordination Office:**

[office@cogain.org](mailto:office@cogain.org),

<http://www.cogain.org>

## The organisations involved in COGAIN

The following twenty organisations from Europe and Japan are involved in the COGAIN project:

Finland	University of Tampere (coordinator)
Denmark	Bispebjerg University Hospital Danish Centre IT University of Copenhagen Risø National Laboratory Technical University of Denmark
Germany	Dresden University of Technology University of Koblenz-Landau University of Lübeck
Italy	Hewlett-Packard Italiana Politecnico di Torino
Japan	Tokyo Institute of Technology
Lithuania	Siauliai University
Sweden	Permobil AB Tobii Technology AB
Switzerland	University of Zurich
UK	ACE Centre De Montfort University University of Cambridge University of Derby

The consortium will expand by an open call.

