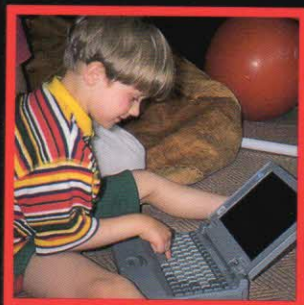


The ACCESS Project

Development Platform for Unified Access to Enabling Environments

This document reports on the results of the TIDE-ACCESS project, which include:

- Tools for the development of User Interfaces adapted to individual end-user requirements.
- Demonstrators of communication aids for speech-motor and language-cognitive impaired users and hypermedia applications accessible by blind users, which have been created and validated using the tools and methods developed by the ACCESS project.





Disabled and elderly people are expected to interact with an increasingly complex technological environment where user interfaces are usually designed only with the requirements of able-bodied users in mind. The ACCESS project offers a novel approach to solving accessibility problems.

The ACCESS Project: Development Platform for Unified Access to Enabling Environments

The evolution of technology has offered many new approaches and techniques in the field of human-computer interaction. However, mainstream development has focused on the needs of able-bodied users.

Recent efforts to exploit such technological developments in the assistive technology field have been conducted in a fragmented way. Until now, the needs of users with disabilities have been addressed ad hoc, mainly on a case-by-case basis. No systematic effort has been devoted to addressing interface problems from a perspective that provides access for *all* users.

Disabled and elderly people are expected to interact with an increasingly complex technological environment, where user interfaces are usually designed only with the requirements of able-bodied users in mind. For example, graphical user interfaces are currently widely used, but can create serious accessibility problems for people with visual or physical disabilities. The ACCESS project offers a novel approach to solving such accessibility problems.

The proposed solution to these problems is to consider the needs, abilities and preferences of the end-user groups and to develop *unified constituents* of human-computer interaction.

The ACCESS Project has developed a number of tools to effectively support the principle of *unification* throughout the development stage. These tools demonstrate the significance of the concept of *unified* user interfaces and the technical feasibility of a tool-based development approach to the overall problem of enabling access to different user groups. In addition, the importance of this approach has been illustrated by developing two demonstrator applications.

The ACCESS project has conducted a thorough investigation of user interface issues which included analysis of the requirements of different user groups, especially people with disabilities. The results of this analysis have been used to develop computer applications that are accessible by all users.

The ACCESS approach operates at two levels:

- At the user interface level, ACCESS provides tools for the construction of interfaces adaptable to the needs of a given user group; using these tools, developers can construct accessible and high quality user interfaces in an efficient and effective way.
- At the application level, ACCESS provides innovative solutions to specific application domains, such as interpersonal communication aids for speech-motor and language-cognitive impaired people and hypermedia systems for blind people; these innovations include flexible architectures and effective functionality.

Main outcomes of the ACCESS project include:

- A complete user interface development environment which is software and hardware platform-independent. This environment can be used to construct interfaces adapted to user characteristics, abilities and preferences.
- Demonstrators in the domains of interpersonal communication aids for speech-motor and language-cognitive impaired people and hypermedia systems for blind people have been implemented, and have been evaluated in realistic situations by experts and end-users.



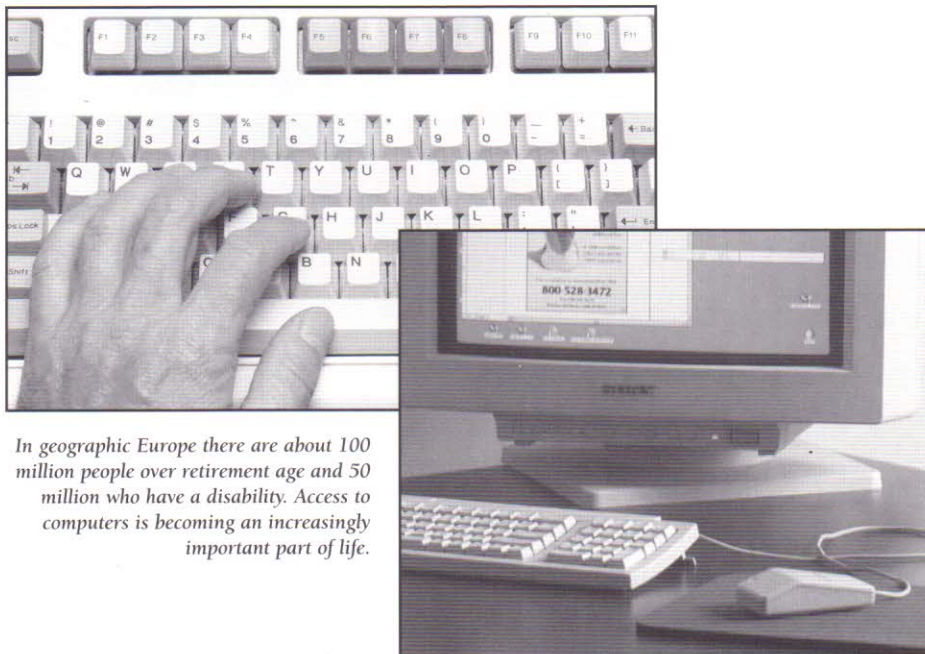
Access to hypermedia systems will be of increasing importance to all users including those with disabilities.

Tools for the Development of User Interfaces Adapted to Individual End-User Requirements

Central to the philosophy of the ACCESS Project is the principle of universal accessibility to computer applications. Thanks to the ACCESS approach, users will be able to interact with computer-based applications through interfaces which are adapted to their individual requirements, abilities and preferences.

Developing universally accessible interfaces requires appropriate tools which provide development facilities including:

- support for interface adaptability for different user groups (e.g. visual, motor or cognitive disabled people);
- capability to support multiple interaction metaphors (e.g. Desktop, Rooms);
- compatibility with multiple platforms (e.g. Microsoft Windows™, X-Windows).



In geographic Europe there are about 100 million people over retirement age and 50 million who have a disability. Access to computers is becoming an increasingly important part of life.

User Interfaces for All

The concept of User Interfaces for All is proposed, following the principle of design for all, as the vehicle to efficiently and effectively address this problem. The underlying objective is to ensure accessibility and to meet the individual needs, abilities and preferences of the user population at large, including disabled and elderly people.

The present situation shows that the vast majority of software firms have adopted traditional approaches, which do not address the needs of disabled people. The additional investment cost to develop dedicated user interfaces for each different user group is considered unacceptable due to the lack of appropriate tools.

Currently, there are no development tools to practically support the construction of User Interfaces for All.

It is argued that, if tool developers are provided with the necessary technological methods to build such tools following the concept of User Interface for All, then software firms will be able to employ these tools to develop software products accessible to all users.