

Commission of the European Communities  
Concerted Action on Rehabilitation of the Visually Impaired

**Network Terminals for the  
Visually Disabled**

edited by

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## Preface

The basic goal of the workshop was to identify developments needed to improve access to remote terminals by visually impaired persons. The advent of remote terminals, for example cash dispensers and multi-destination ticket machines, has created new problems for the visually impaired person (VIP).

From the best data available, between 0.5% and 1% of the population of the advanced countries will be denied access to many of these facilities unless relatively simple modifications or adaptations are incorporated. The costs would be minimal if such needs were anticipated at the design stage; therefore a dialogue is essential with system designers and providers.

More information is needed on the demography of perceived, unperceived and future needs of VIPs. The existing data need to be validated and extended against local situations in home, work and educational environments. Currently available statistics often refer only to data derived from official *blind* registration, which are acknowledged to be gross underestimates of the true figures - even a potentially normally sighted person becomes a VIP when he is without the appropriate spectacles. The totally blind, although relatively few in number, have special problems which demand special attention. It will be necessary to identify potential problems caused by technical innovations *before* they occur; many characteristics that are desirable for the handicapped have general benefits.

Specially developed equipment needs to:

1. Be modular.
2. Be coordinated to meet the needs of other disabled groups.
3. Use standard protocols wherever possible.
4. Have standardised input facilities wherever possible, and avoid presentations (eg touch or proximity input devices) that cause severe problems for the visually handicapped and several other groups of disabled people.
5. Use display technologies and formats which avoid problems for the disabled, and if possible can be reconfigured optimally to individual needs.

New devices, systems, techniques and methods of training must be evaluated systematically with truly representative samples of potential users.

Legislation should be initiated to ensure that government purchases and technical procurement should be rational, standardised (eg keyboard layout) and recognise the needs of VIPs. Although there are many difficulties, there are excellent prospects for the utilisation of the appropriate existing technology to alleviate present problems and extend services and information to the VIP. These problems are not only national but international, and therefore these efforts should be coordinated with other European initiatives such as COST, RACE, ESPRIT, HANDYNET and EUREKA.

Three types of terminal were identified:

1. For public access (eg automatic ticket machines).
2. Those which are more specifically adapted for sharing between visually impaired and sighted (eg adapted telex machines).
3. Dedicated for individual use (eg softcopy braille terminals).

The functions of such terminals can be placed under three headings:

1. Interactive (eg cash dispensers).
2. Those requiring initiation by the user (eg entry control systems).
3. Passive (eg information displays on underground stations).

Interaction with networks include detection that a user is present (eg by using heat, photocells, infrared, ultrasonics, induction), or by control by the user (eg input by key, speech, mouse, touch screens, sliders/dials which are either digital or analogue, joysticks and electric pens), or by preprocessable or selecting devices which are programmable away from network (eg cards with details of the user's needs).

The output can be visual displays, synthetic speech, other acoustic forms or tactile (hardcopy or transitory braille, Moon or graphics) or other tactile output (eg vibration).



## Participants

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Before the workshop, participants submitted papers as a basis for discussion. Since an important aspect of a workshop is the discussion, the following papers were revised by participants incorporating ideas discussed during the workshop.

