

FINAL REPORT

Design and evaluation of
systems for increasing the
accessibility of digitally-
stored information for the
visually handicapped

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Introduction

The aim of this project was to investigate methods for increasing access to digital data bases for braille readers, to design the software interfaces and to scientifically evaluate the output with a cross-section of the potential user population. The two year project was funded by the Department of Health and Social Security.

Bank Statements

In cooperation with Lloyds, Lewis' and Midland banks a system has been developed for the automatic production of statements of account in contracted braille. Under the new system, magnetic tape data supplied by the banks is input to a computer at the university and an on-line braille embosser produces the batch of statements within minutes. The system has undergone extensive evaluation with a large number of blind users. The system is now being copied by the Americans and the scientist involved in this project will be going over to America to supervise the implementation of the system.

Psychological Abstracts and INSPEC

In cooperation with the American Psychological Association and the Institution of Electrical Engineers, an automated braille current awareness system for blind psychologists and programmers has been developed. With the pilot schemes, each month the Unit is supplied with a computer-readable tape containing abstracts of recently published articles. A computer program automatically selects the abstracts of specific interest to each blind individual associated with the project. The text is then automatically translated to contracted braille which is embossed directly on paper. About two million braille cells per month are produced as part of the evaluation programme.

At present the American Psychological Association sends a tape from USA to England, it is processed on a

computer of American manufacture, output on a braille embosser of American manufacture and 96% of the output is dispatched by airmail to North America. The system is being transferred to the Center for Equal Computer Access in New York where it will be operated as a production Service.

Educational Resources Information Center

A system has been developed for retrospective retrieval from a bibliographic data base with the output in contracted braille. Technically the system operated well but there is a real problem in that it needs someone with intimate knowledge of the thesaurus to interpret the requests from the blind users in terms of the indexing system used by ERIC.

Internal Telephone Directories

The same data base can be used for producing both ink print and braille versions of an internal telephone directory. This has not only proved feasible but has some desirable side-effects. For instance the automatic sorting for listings both by department and alphabetically has proved most useful particularly to telephonists.

Printers' Tapes

In cooperation with Cambridge University Press and Cambridge University, software interfaces have been developed for utilising error-free computer-compatible tapes for braille production. A number of sample tapes have been successfully translated into braille.

Legal Statutes

In cooperation with Her Majesty's Stationery Office, a system has been successfully developed for producing selected statutes in contracted braille from error-free digital tapes.

Open University Texts

We have been working with the Open University on the design of a data base suitable for producing both ink print and braille versions of their course books. A sample tape has been translated into braille and the computer programs will be handed over to the Open University so that they can run their own braille system.

ISO Data Base

In collaboration with the American Foundation for the Blind, we have designed a data base to conform to the new International Standard format which can also be used for producing ink print, grade I and grade II braille.

This system has been evaluated for three files:

(i) List of projects on non-medical research and innovative practice for the blind and visually impaired.

(ii) List of the main organisations, in each country, of and for the blind and visually impaired which are likely to be of interest to those involved in research and innovative practice.

(iii) List of sources of information including periodicals, abstract journals, information services and reference works.

This will be published, by the end of the year, under the title "International Register of Research on Blindness and Visual Impairment".

Braille Research Newsletter

In collaboration with the American Foundation for the Blind, a newsletter has been produced and distributed internationally. Results from a questionnaire distributed

with the last issue indicates a significant demand for this publication.

Other Research

During the two year period covered by this grant a number of minor projects have been initiated.

The GPO are setting up a data base which is designed for domestic use and is accessible over an ordinary telephone line with output on a television receiver. A project has been started to make this system usable by a braille reader. This involves developing a micro-processor-based interface with output on a Sagem TEM 8 BR braille embosser.

An audio clock has been developed for the elderly and diabetic blind. The electronic digital clock, which gives the time as a series of beeps, is being manufactured by the Home Office.

A locating device has been designed to enable a blind person to re-locate objects in the house or garden. To operate the device one just has to clap one's hands and the device will give a short audible beep. This device is being manufactured by a sheltered workshop for the physically handicapped.

A telephone dialling disc for the partially sighted was designed by the Unit, and Moorfields Eye Hospital very kindly assisted in the evaluation. The disc is now being marketed by the Surrey Voluntary Association for the Blind for £23.33 for 250 (circa 9 pence each).

A student project has concentrated on methods for the manual transcription of texts into braille. The braille was stored on a domestic tape recorder with input from a modified Perkins braillewriter and output, via a computer, on a line embosser.

