

Deaf-Blind Communication Network

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July 1981

Introduction

The aim is to increase access to information for those who are both deaf and blind. It is estimated that about one third of the deaf-blind in the UK can read braille. Although the proposed systems utilise braille, it is sometimes possible to also provide the information in other forms such as a vibratory Morse-type code.

The two main modes of operation are:

1. Communication between two individuals (one or both may be braille users).
2. Communication from an organisation to a number of deaf-blind individuals.

Telephone network

In this system the deaf-blind individuals would have braille printers, and sighted individuals would have ordinary teleprinters. Both printers would have typewriter-style keyboards. The interconnection would be done using ordinary GPO telephone lines and nodens (a device to connect a teleprinter to the GPO line).

The noden could be connected to the telephone line by a jack plug or by an acoustic coupler (a device on which the telephone handset is placed).

This basic system would only work in uncontracted braille (the numbers would be represented by lower cell signs). This code is sometimes referred to as the Computer Braille Code. A typical system would operate at 10 or 15 characters per second.

The approximate cost for 6 braille terminals (eg Sagen TEM 8BR) and 6 second-hand teleprinters would be L22,500. Running costs including maintenance, noden rental, paper and telephone charges would be about L3000 per year.

Paperless Braille

It is also possible to store braille digitally on cassette or floppy disc, and output the information on a line of braille cells. Once one has read the line of braille, the next 20 characters are displayed.

One advantage of such systems is the compact method of storing braille; typically one cassette can hold the braille normally occupying 10 braille volumes.

There are six systems commercially available: Brailink, Braillex C (cassette), Braillex D (floppy disc), Brailocord, Digicassette and Versabraille.

Of these six machines only three have servicing arrangements in the UK - Brailink, Digicassette and Versabraille. Brailink is designed specifically for computer programmers and would be far from ideal for this application. Also it costs L5635 including VAT, operating instructions and installation. The Digicassette can store 1,000,000 characters on a C-90 cassette and the Versabraille 400,000 on a C-60 cassette. They both have 20 cell braille displays. The current prices are L3956 for the Digicassette and L3444 for the Versabraille including interface and VAT.

These devices could be substituted for the braille embossers in the above telephone network.

BITS

The Braille and Ink-print Text-processing System uses microprocessor technology to permit a typist to produce material in print and in contracted braille. The hardware includes an Intertec Superbrain QD with double-sided floppy discs, a Qune Sprint printer and a braille embosser (either Sagen REM 8BR or Triformation LED-120).

The system is being modified to also produce cassettes for paperless braille systems (eg Versabraille or Digicassette).

Teletext

Ceefax (BBC) and Oracle (ITV) use the spare capacity of

television signals to send information to modified TV receivers. This is a one-way system and it is limited to about 800 different pages.

Prestel

Prestel is a two-way information service provided by British Telecom. It provides for immediate access to a store of information via an adapted domestic TV receiver and a telephone line. It is simple to operate using a numeric keypad.

The system contains information covering news and weather, TV and radio guide, sport, going out, holidays, travel, hobbies, jokes and games, market place, buying advice, cars, community services, home and family, education, houses, jobs and careers, facts and figures, food guide, money, stock exchange and commodities, company and market information, manufacturing industry guide, service industry guide, reference information, government information and calculations. There are currently about 174,000 pages on the system.

I favour using Prestel rather than Teletext because of the long-term potential of Prestel. Also it might be possible to obtain a block of pages to be devoted to information of specific interest to the deaf-blind.

For the deaf-blind, Prestel could be accessed individually. Each terminal would incorporate a controller and a braille display. The controller plugs into the jack socket and includes a microprocessor programmed to convert the Prestel signals to a standard form (eg RS 232C). The braille display would best be a paperless braille device (eg Versabraille or Digicassette) since the storage device (eg digital cassette) could be used to reduce the connection time to the Prestel system.

An alternative approach is to interface Prestel to BITS. Then BITS can be used to produce selections of news stories etc in contracted braille. The information could then be distributed in hardcopy braille or over telephone lines to deaf-blind individuals (ie connect BITS to the telephone network system described above).

Braille Prestel Adaptor

The braille adaptor works in conjunction with BITS. The

adaptor is a small box which is plugged into the back of the SuperBrain microcomputer. The aerial socket of an ordinary television, either black and white or colour, is connected to the adaptor. A special program is run on the SuperBrain.

The method of operating the system is:

1. Type PRESTEL on the SuperBrain.
2. The adaptor will dial the number of the Prestel system.
3. The program will send your Prestel user number.
4. You can now access Prestel as a normal user. You can either follow through the tree structure of the pages of information, or go direct to the page of interest. The information is displayed on the television screen.
5. When the page is required in braille, press a key on the SuperBrain. The page will be automatically re-formatted and transferred to a file on disc.
6. From the SuperBrain keyboard, the operator can instruct the adaptor to disconnect from the Prestel system.

The data stored on the disc is in a file called PRESTEL which is treated as a normal input file to BITS. This file can be translated directly into braille, or the operator can do some editing before translation.

Sometimes the formatting of the braille can be peculiar because of the way the text is laid out on the Prestel display. The following pages contain some examples of braille output which have had no pre-editing. These peculiarities could be eliminated by a limited amount of editing of the BITS input file.