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1. Introduction

The aim of the project was to develop a compact inexpensive system for the production of contracted braille. The specification included:

(i) the operator must not be required to know braille

(ii) the system must be easy to use

(iii) the braille must be a good approximation to Grade 2 Standard English Braille

(iv) the system must require the minimum of maintenance

(v) the system must be suitable for producing from 1 to 20 braille copies embossed on paper.

2. System Description

The basic system is:

(i) input of the text on a conventional keyboard by a typist with no knowledge of braille.

(ii) proof-reading and editing of typing errors on the visual display unit.

(iii) translation of the text to a good approximation to Grade 2 braille.

- (iv) output of the braille on an on-line embosser.

The basic configuration is shown in Figure 1.

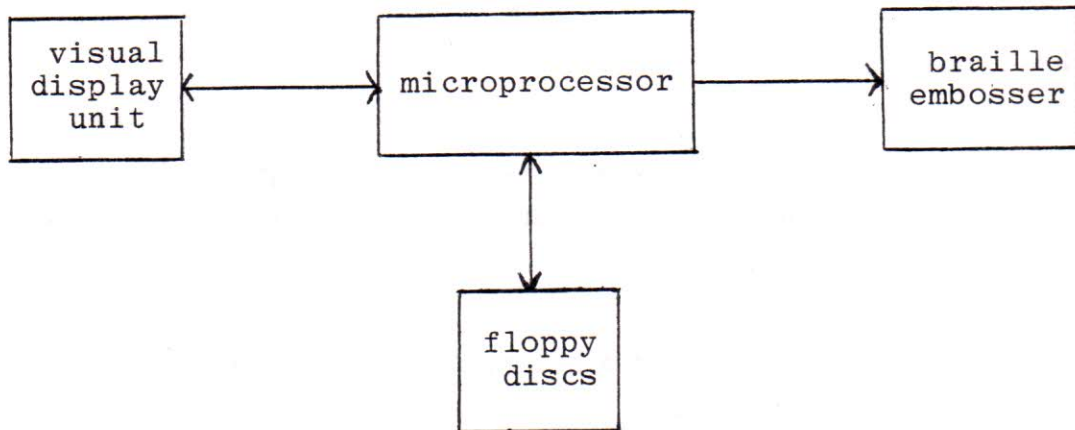


Figure 1 Basic system configuration

3. Program Specification

This section solely refers to the program to translate the text to contracted braille. The main features of the program are:

- (i) produces a good approximation to Grade 2 English braille.
- (ii) able to run on a M6800 microprocessor with 32k bytes.
- (iii) written in a language which is as easy as possible to implement on other microprocessors. A simple version of Fortran IV met this criterion.
- (iv) machine transferability is more important than optimal use of storage.
- (v) requires minimal training of the input typist.

4. Program Description

The translation program is controlled by a contraction table which is of the form:

columns 1-9	text string
column 10	previous character type
column 11	current character type
column 12	number of input characters
column 13	number of output characters
columns 14-18	output string

character types are:

L	letter
S	space or punctuation
N	number

Examples

ALLY LL424Y

The text string ALLY is translated to 4Y only when ALLY is preceded by a letter.

ASS\$ SS32Z

The text string AS followed by a space or a punctuation sign, and preceded by a space or punctuation sign is translated to Z followed by a space or punctuation sign.

\$ represents one of: space . , : ; " - ! ? / ()

The entries in the translation table are grouped by the same initial character. The program checks the first character of a string and then compares serially the text strings in the relevant part of the table. Therefore the order of the entries in the table can affect the translation.

The table has 363 entries but could be expanded to give a better approximation to Grade 2 braille. The choice of table entries was determined by an analysis of 2½ million words text which had been produced in braille.

The program has limited format commands. In the present version, two spaces at the beginning of a line results in a new paragraph in the braille output. A blank line in the text input results in a blank line in the braille output. Otherwise all multiple spaces automatically result in a single space in the output.

The program will not hyphenate a word across the end of one line and the beginning of the next. Page numbering is handled automatically. A contraction can be suppressed since the program will not contract across ↑ but the symbol will not appear in the braille output.

The program could use less memory if a subroutine were written in a low level language to handle the individual bytes. This has not been done with this version since it would make it harder to transfer the program to another microprocessor.

5. Conclusion

This program could form the basis for a small braille production system suitable for the fast transcription of documents.