

Braille Translation

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Abstract- Near about 161 million persons live with a disabling visual impairment, of whom 37 million are blind in world and most of them from developing countries. 9 out of 10 children in developing countries not have access education. So this measure problem can be reduced by one system that was developed by Louis Braille. This paper is concern about transliteration of English and Devanagari text to Braille. Braille is a method of representing characters through a pattern of raised dots so that they can be read through touch.

Index Terms- Audio, Braille alphabet, Braille cell.

1. INTRODUCTION

Braille was originally developed as a means for soldiers to read communications at night without the need for lighting which could expose their position Braille has now been adopted as the standard form of written communication for visually impaired people. First developed in nineteenth century[1].

1.1 What is Braille?

Braille is a method of representing characters through a pattern of raised dots so that they can be read through touch. Written communication between two people is an easy task provided they can both read and write the same language. However if this communication is between a sighted and a blind person problems can arise if the sighted person does

not understand Braille. A translator is needed to convert a print message to Braille so that a blind person can read it or alternatively to convert a Braille message to print so that a sighted person can read it.

1.2 What is Braille cell?

The Braille system comprises of a cell per character and these themselves consist of six embossed or raised dots arranged as three rows and two columns. These six cells allow $2^6 = 64$ characters to be represented, being split up into 26 letters. The Braille cell use world-wide. The different languages use different unique codes, mapping the alphabets, numbers and punctuation symbols to Braille cells according to need. Braille cell is represented as follows shown in figure 1.



Fig.1: Braille cell

1.3 What IS Braille Sheet?

By touching the pattern on Braille sheet blind person can read the given text [3].

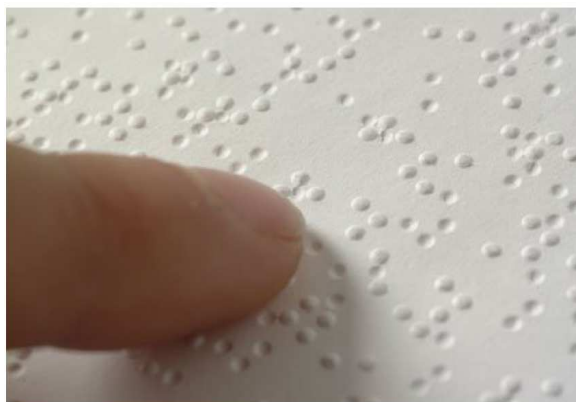


Fig.2.Braille Sheet

2. CURRENT METHODS OF COMPUTERISED BRAILLE-PRINT TRANSLATION

2.1. Already Exist

There is a lot of translation software available for English to Braille, but some lack certain features, such as the ability to change the translation grade or are very expensive, with a license costing anywhere between three hundred to thirteen hundred dollars, with the market leader, Duxbury Braille Translator, costs just fewer than six hundred dollars.

2.2. Weaknesses of Existing

There are also free translation software packages but these do not allow the user to format the Braille text or have multiple grade translations within the text itself and that the software would not allow the user to have multiple languages for translation within a document. There are not available most of the Indian languages like devanagari. There are not available translation for special symbols and diagrams like

smiley faces. There are not translated Braille into audio. In existing system no specified the text as primary heading, secondary heading and so on.

3. PROPOSED SOLUTION

3.1. Actual Proposed System

In our system we initialized database first with unicodes and patterns for each alphabet, numbers, symbols etc. When user enters text then system find related Unicode. If Unicode match with the input string then return related pattern. If Unicode not match then return text as it is. If text or string equal to null then directly end the procedure.

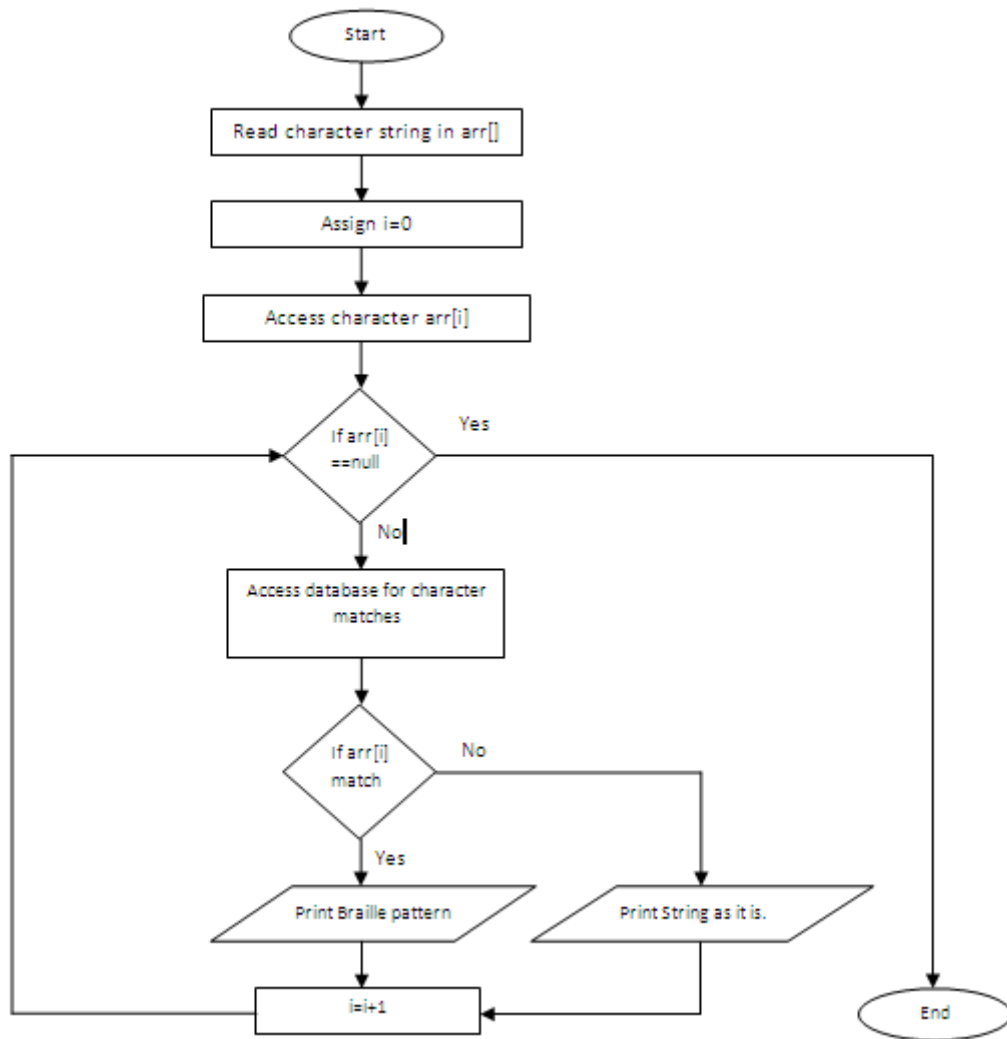


Fig.3. Flowchart for Proposed system.

3.2. Benefits of Proposed System

We are trying to remove most of the weaknesses specified as above. We use ubuntu operating system so blind person can use orca screen reader. Orca is inbuilt software in the ubuntu.

Proposed system is more user friendly. Interface of proposed system is very easy to use and handle for blind person. Both the original text and translated text on the same window. We can translate large size of text at a time.

3.3. Actual Implementation

- Translation from text to Braille

We are uploaded one file as a input text. Then that text converted into Braille pattern. For that one button translate is given. We can upload whole file or user can give direct input.

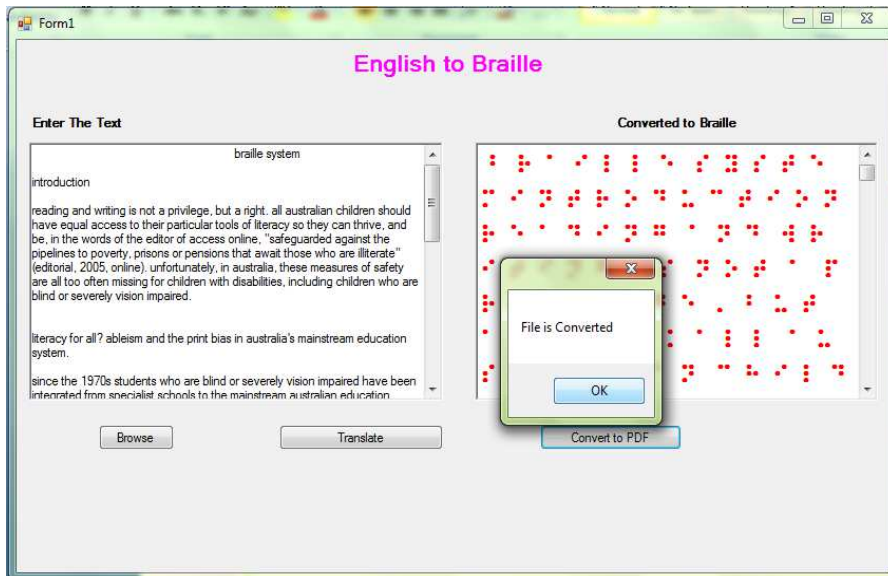


Fig.4.Output window for translation

- Conversion into PDF

We converted Braille pattern into the pdf file by clicking on convert to PDF button.

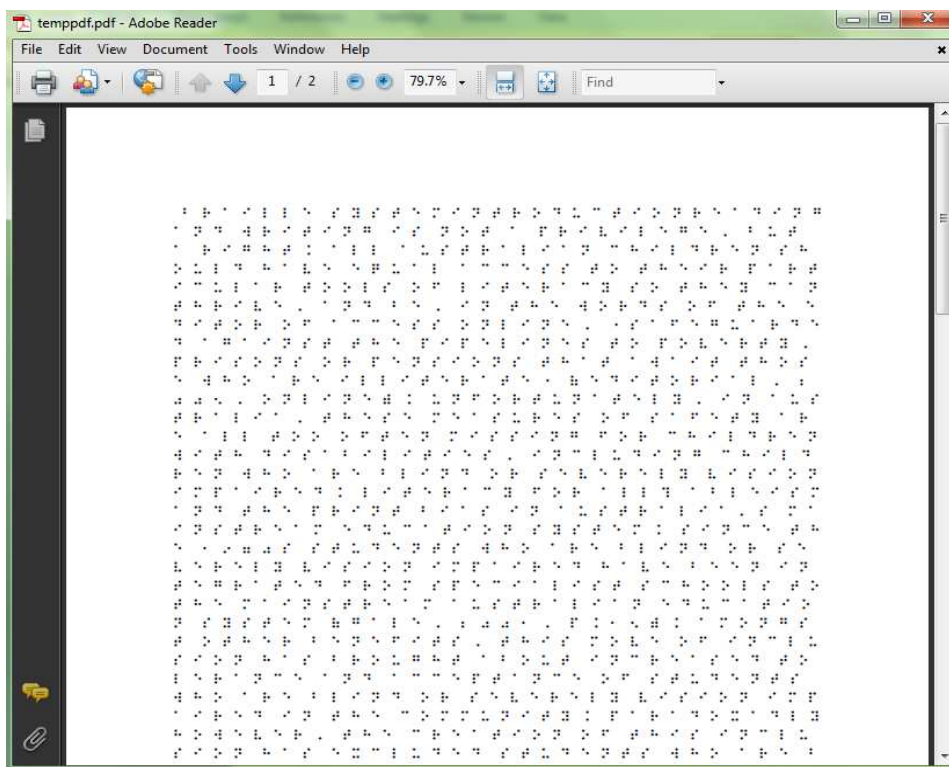


Fig.5.Output window for PDF conversion

4. CONCLUSION

In this paper, proposed system and existing system is analyze and compared. We are find outs some solutions for weaknesses in the existing system and add new ideas. So that our system can more useful and easy to blind persons.

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