A HARDWARE BASED VOICE CONVERSION TO BRAILLE FONTS

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Abstract

Modern technological enhancements cannot be easily affordable to the visually impaired people because of their higher cost. Due to the lack of vision, the blind people cannot easily access the information and the technologies. There are lot of technologies are available for blind people, but in certain circumstances it got a failure. The main aim of this project is to reduce the gap between blind and sighted people. i.e. due to this method the blind people can easily learn and reading, writing. In this Braille system has been introduced and it is used by the visually impaired for reading and writing. Braille characters are small rectangular blocks called cells that contain raised dots. Here there are 6 dots arranged in 2 columns. In this HM 2007 is used to recognize the user's voice and to produce digital output. i.e. 0's and 1's.The digital Output is converted to Braille language by the use of 6 pin actuator, which is in-built in Mechanical Model. And we can easily got a Braille information paper as a printout. The blind peoples just touch the letters and easily understand the information. Here the Motor drive is used it acts as a Switch. Compare to other technology it is very efficient.

Key words : HM 2007, Braille Fonts, Mechanical Model I.

I.   INTRODUCTION

Braille is a means of reading and writing for blind people. The history and development of the Braille system has made it possible for blind people to take notes, write letters, read books and popular magazines, compute mathematical equations, and even read and write music. Most important, however, Braille is literacy to a blind person. A wide variety of methods and materials for enabling blind persons to read and communicate with each other have been tried and evaluated. Examples include the use of wax tablets, the manipulation of wooden letters, letters made out of wire, the use of pin-pricked letters in heavy paper, and the use of knots printer, attempted to provide a method of creating written documents by casting moveable leaden type. The common denominator of all of these methods was (and continues to be a "benchmark" for the suitability of a method) that each required materials that were difficult to make or manipulate. It is unfeasible Braille is read by touch for the visually impaired, using the forefingers on one or both hands. Braille can also be read by sight for those who have vision, particularly by parents or teachers of the blind. Braille is not hard to learn and can be self-taught using books or the Internet. Alternatively courses are available in many blind schools and colleges.

Today Braille is used worldwide as a code for reading and writing for the blind and partially sighted. It is commonly mistaken for a language; however it is simply a form of a language the blind can read. The invention of the computer has taken Braille to a new level with both Braille keyboard and printers available, helping users to easily communicate with those who do not know Braille. Millions of books have also been translated into Braille, which are widely available to buy in many countries and also to loan from libraries. Braille is not only used as a tool for reading but to help the blind get from place to place independently. It is common for lifts and signs on trains to have Braille code printed onto them to help make journeys easier. Standard Braille characters (or "cells"), are composed of up to six dots arranged in two columns of three dot positions each. The dot positions are customarily numbered as follows: 1 • • 4 2 • • 5 3 • • 6 There are 64 possible combinations of raised dots within this pattern (counting the space, where no dots are raised). A Braille code is a system of assignments of meaning to the various combinations, together with rules for usage. For example, in English Braille, the dots 1–5 combination (that is, dots 1 and 5 raised, the others un raised, in the same cell) normally means the letter "e," but in some circumstances it can also mean the digit "5" and in others it can be a contraction standing for the word "every."The rules of usage are such that the meaning in any instance is clear. Some Braille systems employ eight dots in a cell.

II.   MANEUVER

This consists of two inputs. One is voice communication process and other is serial communication from the computer. The voice process consists of HM2007 IC is used to recognize the voice. The voice recognition IC produced the digital output and given to microcontroller AT89C51 consists of 32 input output pins which one is capable reading the digital output get from the HM2007. The voice recognition IC and the microcontroller communication process is Parallel Communication. Then Microcontroller actuates the mechanical model using the drive circuit of l293D IC is used to actuate the mechanical model consists of 2*3 matrix formation. The second process is the serial communication process from computer to microcontroller. The mechanical model supposed to connect with the microcontroller only. The microcontroller and CPU interfaced by the rs232 cable and max 232 IC. The RS232 cable is used to transmit the data from computer to controller. The MAX232 IC is the intermediate between the microcontroller and the computer it performance is the voltage converter because the data from the computer is nearly 9V which is converted by MAX232 to 5V and given to the microcontroller. Then the microcontroller actuates the mechanical model for printing.