Braille Messenger-A Braille Script Based Sms System For The Visually Impaired People


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ABSTRACT

The system is specially designed for the visually impaired community to connect, communicate and socialize without vision. Now a day physically impaired people have no access of advanced communication technologies. To aware the blind peoples with the advance telecommunication system, our approach focused on design a Short Message Service (SMS) system for them, it interface Braille pad with the GSM, microcontroller. This method is using visually impaired people easy understand character of text. The micro vibrators can easy understand receive SMS visually impaired people. Micro switch can easy understand text after sending SMS to normal people this two process only control for microcontroller operation.

KEYWORDS: Braille pad, Micro vibrators, Micro switch, GSM, Buzzer,

INTRODUCTION

In our regular life the telecommunication field plays a vital role. There is a complete revolution in the way we communicate, specifically long distance communication. Irrespective of all these advancement in the field of telecommunication, the physically impaired people have not that much amount of access as compared to normal peoples for these technologies. This project is based on inventing a messenger for the differently disabled set of Humans, who may not be in the position of using mobile phones for messaging or any other kinds of communicating devices, with the satisfactory comfort, which is known as application.

This system is linked with a GSM module to make the SMS send and receive the blind person and to establish a two way communication path by using a wireless technology. Here the user sends the SMS to the blind person’s mobile number which is connected to the microcontroller which is able read the SMS using GSM module through inbuilt the AT commands and then converts the characters of the SMS into the Braille language using the lookup table present in its memory. With the help of Microcontroller vibrates the Braille pad which act as platform on which the blind person can read the SMS. The purpose of this study is to save Braille human life in particularly understanding for SMS character using read and write the Braille people have understanding the character of SMS using micro vibrators.

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II. Description:

Braille System:
Braille is a writing system that enables blind and partially sighted people to read through touch. It was invented by Louis Braille (1809-1852), who was blind and became a teacher of the blind. It consists of patterns of raised dots arranged in cells of up to six dots in a 3 x 2 matrix configuration. In this project, using Braille system a 3 x 3 matrix configuration is used.

Maintenance:
- Microcontroller using micro vibrators

Cost:
- “maintain as you keypad” maintenance keypad is portable device and low cost

Operational:
- Improved Braille people knowledge, keypad reliability and effectiveness

Performance:
- Improved micro vibration performance

Read the SMS system:
The normal people send the SMS to the visually impaired person’s mobile number interfaced with the microcontroller. The microcontroller reads the SMS character through the AT commands and immediately converts the letters of the SMS into the Braille language by using the look-up table which is stored in its memory. Then with the help of hardware the Microcontroller starts to vibrate the Braille pad on which the blind person can touch and sense the character of SMS using read option.

Send the SMS system:
The blind person can type the SMS using the keypad connected to the microcontroller. The microcontroller then converts the Braille letter to the English alphabets by using the Look table stored in its memory. After the message is translated into alphanumeric English letters, the microcontroller sends the typed SMS via the respective mobile using AT command.

Braille code:

III. Literature review:
With all the technological advances and current devices available, large and good projects are not only restricted to the invention of new technologies and concepts but also, and mainly, to the merging of existing technologies resulting in new ideas and devices that address problems not yet solved. Telecommunication and portable devices, for example, are changing the relationships between human and communication, and are introducing a new approach of communication based on context. According to Braille messenger system this new approach of communication allows impaired people to interact seamlessly with objects, keypad, micro vibrator, environments, etc.
This new project concept known as Braille messenger system, named by Louis Braille (1809-1852) has the ability toIntroduced then developed many kind of idea this project. Understand the different visually impaired people [Devipriya] [1]. Its current applications and future possibilities can be utilized in an almost invisible way allowing the user to communicate with technology without other people help thus the processes occur for the blind people, as the services and interfaces the microcontroller system, [varsha] [2]. The blind people field, in its constant pursuit for finding new methods of idea for read and write SMS, has been and will continue to be, a major beneficiary of telecommunication system. Although not a substitute for the direct contact between impaired people and normal people. Braille is vital to all visually impaired individuals and it’s the only system through which visually impaired children can learn to read and write, yet the rate of Braille literacy among visually impaired people belonging to developing countries [Aamir jameel] [3]. The Braille system concept based on visually impaired people, in this people already used for voice based announcement system. The blind people cannot easily access the latest information and the Technologies which can provide them an alternating communication expertise. Modern technological enhancements cannot be easily affordable to the visually impaired people. Braille character is important to developing Braille project. Each and every Braille letter explains this author [S. Majumder] [4].

The reported work advances the state-of-the-art in assistive technology for the blind by enhancing a low-cost automated tutor designed to teach Braille writing skills to visually impaired children using voice feedback. We first provide some background on how the methodology of Intelligent Tutoring Systems correlates to an automated tutor for teaching Braille writing skills[ M. Bernardino Dias USA] [5]. Short Message Service is the cheapest and fastest of all forms of electronic communication. But, the visually challenged haven’t been able to use this low-cost facility to the maximum possible extent. Text to voice converters exist, but they suffer a major drawback in the fact that they interfere with the user’s hearing, which is the only way by which a blind person feels and senses the world-interfering with this may prove fatal to the user.

Braille is a system that allows visually impaired people to write and read. It utilizes the finger touch on raised dots produced by specialized machine. In this paper, we propose a fully system to recognize characters for a single side Braille document. We also present an extensive review for Braille Recognition systems and related research efforts Our Braille recognition system is entirely flexible to the size of the scanned image. We improve each step starting from the image acquisition until the Braille cell recognition final stage. [Aisha Mousa] [6]. [Rowan Ismail Zaghloul] [10].

We propose a simple Braille Messenger which would receive a message and display it in the form of Braille script using vibrators. The Braille Messenger is an extremely low cost, highly efficient and easily implementable product. A GSM modem, a microcontroller, a Braille keypad and a Braille Cell display would suffice. The messages from the modem are filtered and sent to a microcontroller, which would control the vibrators.

The micro vibrators mainly using touch to sense understand the various letters by visually impaired people. The Braille people knowledge improved so much of product available in market such as mobile phones. But the visually impaired people cannot able to use this facility. Louis Braille was the father and inventor of Braille system. This is a worldwide universally accepted basic system that is being used by blind people for reading and writing purpose. Braille is read by passing the fingers over characters designed as an arrangement of one to six embossed characters. Braille is not a language but it is the way of writing other languages.

The six-dot system helps to recognize alphabets or letters passing fingertip sensing all the dots at once. These systems are arranged in rectangular patterns of dots so that the system can easy to learn. Today Braille became one of the most important ways for the blind to learn and share information.

IV. Methodology:

Existing System:

The visually impaired people already used voice based announcement system. the blind people cannot easily access the latest information and the Latest technologies which can provide them an alternating communication expertise. Modern technological enhancements cannot be easily affordable to the visually impaired people.

Limitations:

- Cannot understand letters
- Cost is high
- Only one voice announcement
- Immediate action has not been taken in existing system
- It is not possible
Proposed System:
The propose a simple Braille Messenger system which would receive and send message, then display it in the form of Braille script using vibrators with controller for hardware and software. The propose of this project for all action using some parameter such as micro vibrators, keypad, micro switch, GSM modem, Buzzer, Read SMS, Write SMS.

Merits of proposed system:
- Low cost
- Indicates buzzer
- Highly portable
- High efficiency

Block diagram of Braille system:

Flowchart (Read SMS system):
Send the SMS system (Diagram):

Send SMS system (Flowchart):
V. Block diagram description:

**Lcd (Liquid Crystal Display):**
LCD is used in a system in 1602 order to display the output of the application. Advance graphics LCD can also used in a system to crosscheck the output of different modules interfaced with the microcontroller.

**Gsm:**
GSM (Global System for Mobile communication) is a digital mobile telephony communication system. Advance GSM module interfaced, we can send short text messages to the specific authorized users as per the application. This GSM technology enables the system for wireless with no specified range limits. The GSM Modem is using SIM 800 quadrant and TTL serial interface. It is used to send SMS make and received call. The GSM operations by simple communicating language AT commands through a serial interface from microcontrollers and computer and apply 5voltage in GSM operation.

**Keypad:**
It consists of 10 keys arranged in 3x3 format, 6 switches using message data and 3 switches using data management and 1 switch using read SMS. This function totally operate Single character for making the system compact. These keys are connected to the I/O port of the controller.

**Buzzer:**
A buzzer or beeper is an audio signaling device, which may be mechanical, electromechanical, or piezoelectric. Typical uses of buzzers and beepers include alarm devices, timers and confirmation of user input such as a mouse click or keystroke.

**Micro Vibrators:**
Generally in Ø8mm Ø12mm diameters for our Pico Vibe range. The micro vibrators using understand the text (letters) by visually impaired people. The micro vibrators performance the based on Braille script language pattern that pattern of language can easily understand the character of text by visually impaired peoples.
Micro Controller:

The transmission and reception of the messages and the conversion of Braille letters into valid message as well as received message into equivalent Braille code signals is done by Atmega328P microcontroller is the heart of the system. Pro mini Micro board using this microcontroller and 5v 16MHZ 13digital i/o and 8 Analog input using this micro board

VI. Hardware kit:

VII. Output discussion:

The Braille messenger system output mainly used for visually impaired people. In this project output mainly understand the character of text because the visually impaired people cannot understand the character of text so, I am introduced new idea implemented in this project. Micro vibrators one of the best idea using in this project. The visually impaired people can easy touch to sense and understand the character of letters. Because vibration is implemented in this project the visually impaired people can touch each and every letters easy to understand. Because vibration is adding every letter. Similarly micro switch is same idea implemented in this project. Totally in this project using for visually impaired people I. Micro vibrator is using understand the character of letters. That idea easy to follow visually impaired people to understand receiving SMS II. The visually impaired people easy to understand send SMS. This idea based on micro switch pattern concept. That concept based on Braille language

VIII. Conclusion and future work:

Braille system offers a way of communication for visually impaired people including writing and reading. Communication with this important and effective community from each society. Method and system for Braille Messenger (sending SMS, Receiving SMS) using Visually Impaired peoples, to understand the text message for read and write SMS using some component (GSM Modem, Micro vibrators, Micro switch, LCD, Battery power, Microcontroller, Shift registers). The Braille messenger System developed for Basic idea in this project. But so much of idea can implemented for future.

REFERENCES