
DESIGN OF UNIQUE DEVICE FOR DEAF AND DUMB

P. Shilpa *1, Musini Vamshi Kumar*2, M. Abhiram Reddy*3

M. Ravi Kumar*4

*1,2,3 Student, Electronics And Communication Engineering, ACE Engineering College, Hyderabad, Telangana, India

*4 Professor, Department of Electronics And Communication Engineering, ACE Engineering College, Hyderabad, Telangana, India

ABSTRACT

In all around the world about 9.1 million people are deaf and mute. In their daily life they are facing plenty of problems on their communication among normal people and handicapped people. Sign language relies on sign patterns such as body language of the person and the movements of the persons arm to facilitate the discernment between the great unwashed. The deaf and the vocally impaired people don't simply have to learn the improvised sign language, but the core issue is that they can communicate with the usual sort of multitude in the society. The verbal communication is the most efficient way to communicate. Most of the people are not aware about sign languages. At this situation it is hard for a deaf and dumb person to express what they need.

The device records the voices using APR33A2 chip and plays them selectively with the buttons. There is also a LCD screen with a PC keyboard interfaced with 8051 series micro-controller. This is used to display the text typed on the keyboard. When a person wants to express something to the deaf it displays the text, so that deaf can understand what the other people are trying to communicate.

Keywords: AT89C51 micro-controller, APR33A3 IC, 16x2 LCD display, 8-ohm Speaker.

I. INTRODUCTION

Man is a social being so it is normal for him to collaborate and convey. Correspondence is a procedure of trading thoughts, musings, sentiments and data in the type of verbal or non-verbal message. Over the world 7.6 million of the all-populace experiences' deafness and dumb. However, correspondence for an individual who can't hear is visual, yet not sound-related. This individual comes up short on the civilities which a typical individual should claim. The central explanation for this is the absence of correspondence, as deaf individuals can't tune in and dumb individuals can't talk. The gesture-based communication is a significant and just strategy for correspondence for deaf and dumb people. As communication via gestures is a conventional language utilizing an arrangement of hand signals for correspondence (by the deaf). This project idea is to reduce the communication gap between a normal person and a deaf and dumb person. The deaf and dumb can take the help of an inmate to record few important voice messages in the device so that when that person is outside, they can use those voices by the device to express what they needed. And also, they can use a keyboard and LCD screen where they cannot use speaker to communicate and get to know what they want to express.

II. OBJECTIVES

1. To design a device that is helpful for deaf and dumb.
2. To design a system that records the voices and playback them whenever necessary.
3. To display the text that is being entered through keyboard on the LCD screen.

III. METHODOLOGY

This device will record 3 voices using the voice module circuit and store them according to the push-buttons. The recorded voices will be played when the slide switch is toggled using the same push buttons. The LCD screen will display the characters entered on the keyboard so that the dumb people can type to communicate and even deaf can understand what others are saying using that screen.

IV. WORKING

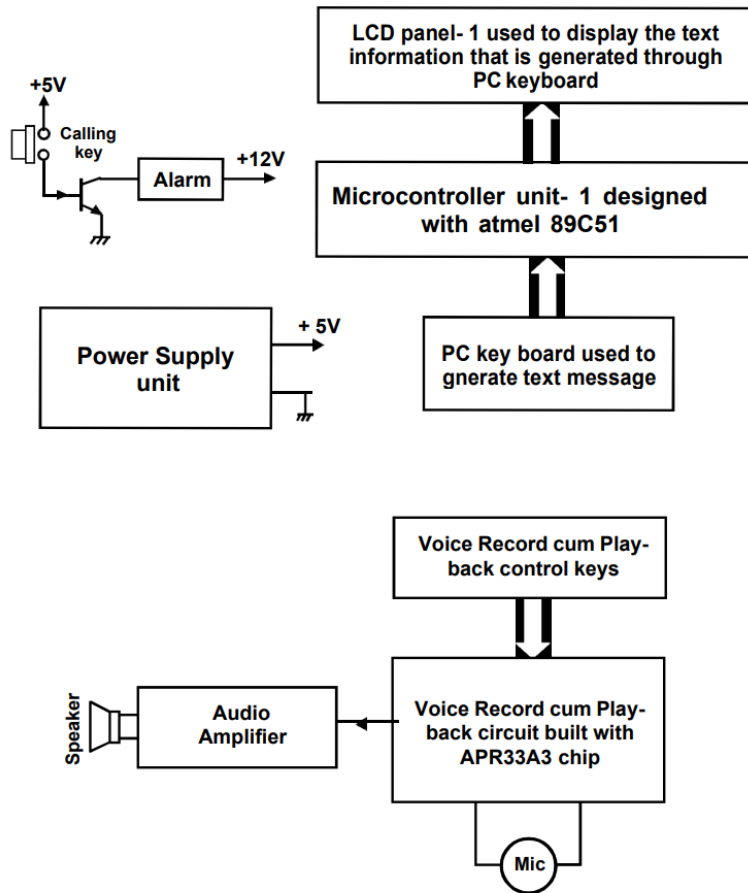


Figure 1: Block Diagram of project.

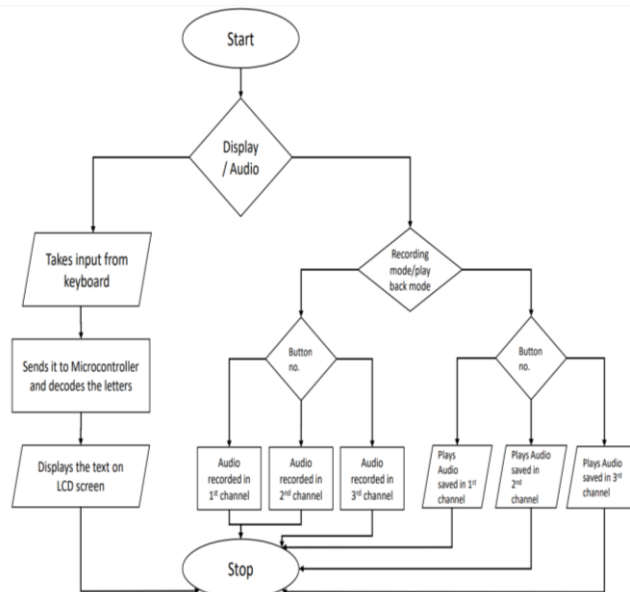


Figure 2: Flowchart of project

Here we use AT89C51 micro-controller to control the audio record cum playback circuit. The voice recorder cum playback circuit contains a slide switch. This switch is used to change the mode from recording to playback and playback to recording. When it is kept in recording mode, we have to press one of the push-button and hold it. A red colored LED glows when it is kept in recording mode. At that time, we have to record our voice in the

circuit using the microphone placed in that circuit and release the push-button to process and save the voice. Like this we can record 3 voices for 3 different push-buttons and play them when the circuit is kept in playback mode. When the circuit is kept in playback mode, we have to press and release the push-button once. Then the audio recorded for that particular button will be played through the speaker attached to the circuit. The Keyboard and LCD are connected to 89C51 Micro-Controller. In the micro-controller all the alphabets' keys, space-bar key and the delete key codes are noted such that, whenever we enter something, it gets displayed on the LCD screen. When we want to clear the screen, we have to press the delete key on PC keyboard once.

V. RESULTS AND DISCUSSION



Figure 3: The hardware of the circuit provided with power supply

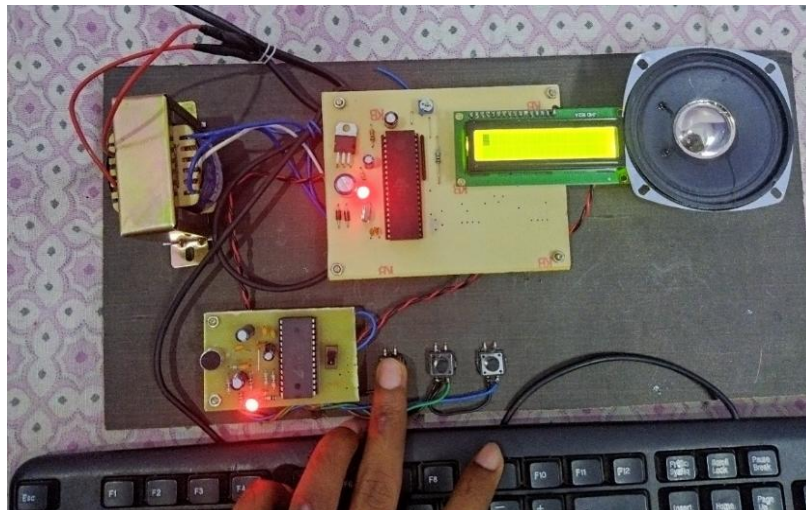


Figure 4: The device is in recording mode

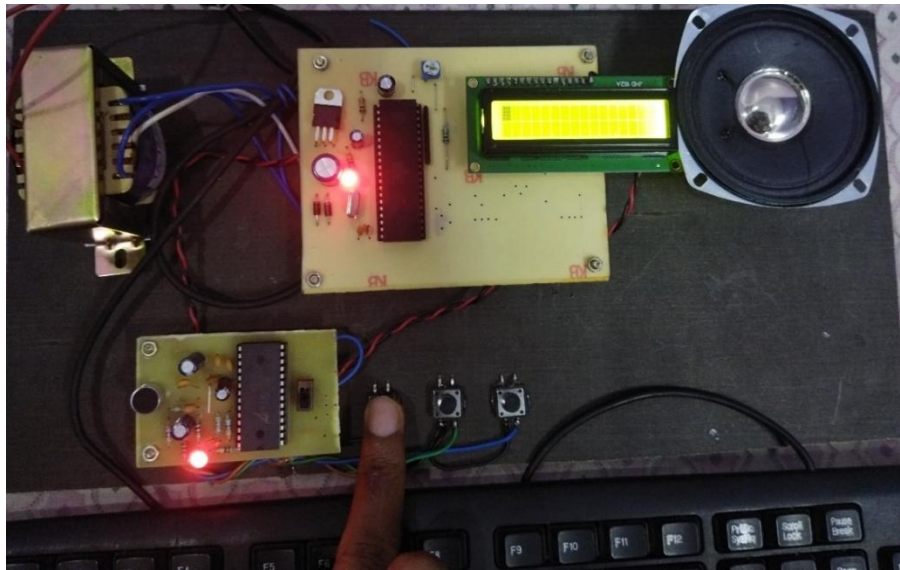


Figure 5: Device in voice playback mode

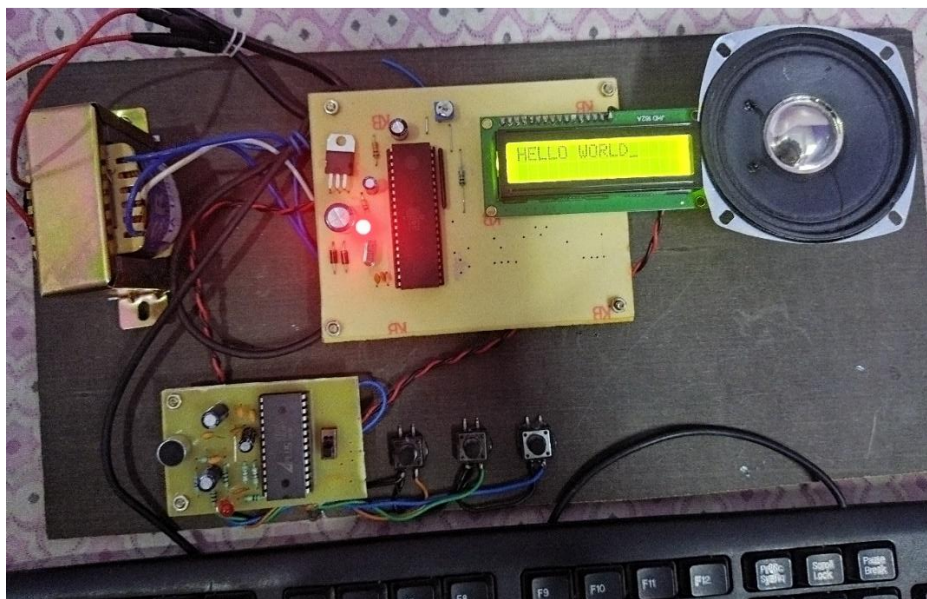


Figure 6: Message typed being displayed on LCD Screen

VI. CONCLUSION

This project is mainly to help the deaf and dumb people who can't communicate with all people as sign language is not known to everyone. In this project, device is made for providing communication with deaf and dumb people. This project is used to record and playback message of dumb people that they want to communicate and also contains a keyboard interfaced with an LCD screen such that the literates can convey their message through the text displayed in the LCD.

However, the drawback of the project is limited memory which can store limited messages and other is need help of a person who knows sign language to record the messages and the illiterate cannot use the keyboard.

ACKNOWLEDGEMENTS

We would like to thank our guide Prof. M. Ravi Kumar for his continuous support and guidance. Because of his guidance, we completed our project successfully. We are extremely grateful to Dr. P. Satish Kumar, Head of the Department of Electronics and Communication Engineering, Ace Engineering College for his support and encouragement.

VII. REFERENCES

- [1] Anbarasi Rajamohan, Hemavathy R., Dhanalakshmi M, " Deaf-Mute Communication Interpreter", International Journal of Scientific Engineering and Technology (ISSN : 2277-1581) Volume 2 Issue 5, pp : 336-341 1May 2013.
- [2] J. Gallant, "Speech synthesis and recognition chips personalise consumer products," EDN Europe, pp. 51-57, October 20, 1994.
- [3] DS2271 Speech Stik Data Sheet, Dallas Semiconductor Teleservicing Design Handbook, 1991, pp. 212-232.
- [4] J. M. Ferreira, A. C. Teixeira, J. L. Ramalho, M. L. Lourenço, "A Portable Device to Improve the Communication Ability of People with Cerebral Palsy," Proceedings of the 6th ISAAC Conference, Maastricht, NL, pp. 446- -448, October 1994.
- [5] Muhammad Ali Mazidi "AVR Microcontroller and Embedded Systems Using Assembly and C" Pearson Custom Electronics Technology 1st edition.
- [6] "The 8051 Micro-controller" by K. J. Ayala.
- [7] "Advanced Microprocessors and Microcontrollers" by B.P. Singh & Renu Singh.