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Hearing Aid with Voice Recognition Alarm System

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ABSTRACT

In modern world, the severe hearing loss undergoes surgery and based on the damage, hearing aid is used or prescribed. So far the advancement in hearing loss is amplification and recording system. Since the usage of hearing aid with recording system needs a manual operation, can have difficulties and leading to manual error. To overcome such difficulties the recording system with voice recognition board, alarm system is used to record the sound waves for particular distance and the alarm system is necessary to the person who leaves or forget to wear it in meantime. So the recording system records the required sound waves and gives alarm when it detects the sound waves which is not in use by the individual. Noise filters in voice recognition board discriminate the noise and used to detect the sound waves at a particular distance and alarm system is used to remind and show the location of the aid. So the ultimate aim is to achieve a hearing aid with voice recognition alarm system.

Keywords :- Hearing Loss, Voice Recognition Board, Impaired Patient, Losing the Aid, Alarm (Buzzer) system.

I. INTRODUCTION

Hearing aid is a device used by the impaired patients with partial hearing loss and with surgery to the ear with the damage in the muscles such as stapes, malleus and incus. On severe hearing loss we go for surgery and based on the damage, hearing aid is used or prescribed. Impaired patients who have partial hearing loss will be prescribed with hearing aid by the response to the sound waves. So far the impaired patients with partial hearing loss used to lose or subconsciously fails to wear the hearing aid, Patients being old will lose the hearing aid often. Here losing the hearing aid under a particular distance can be found through voice recognition board since it is a recorded system of similar voice or familiar people. The statements or commands given and recorded in the voice recognition board will sense the voice of the people and gives a buzzer alarm to the patient. The buzzer alarm is given under a particular distance can be heard by the impaired patient.

II. BLOCK DIAGRAM

DESCRIPTION

The block diagram consists of power supply about 12V which is converted to 5V using step down transformer and fed to the microcontroller (ATMega 328). A voke board with analog input fed to the microcontroller as digital input. Buzzer and LCD display are the output from the microcontroller.

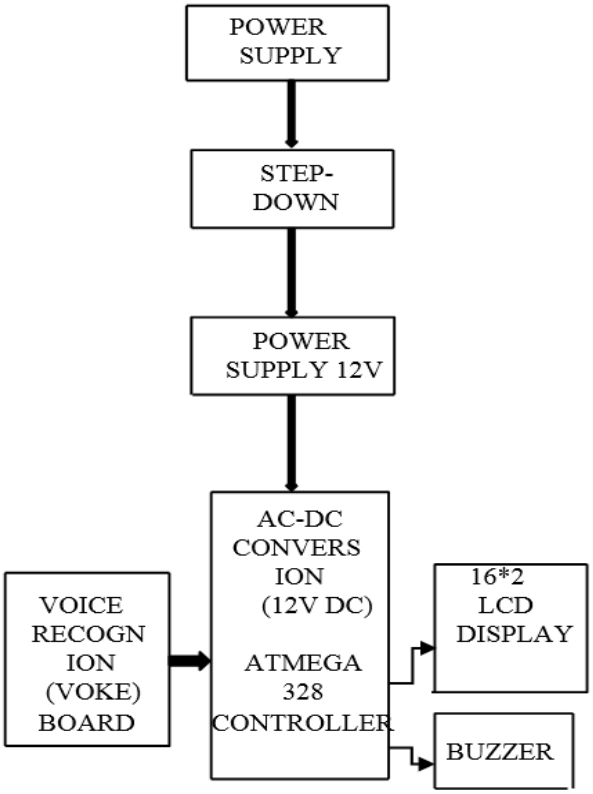

Fig.1 Block Diagram

III. MATERIALS USED

A microcontroller in this project is consists of AVR (RISC-based) named as ATMega 328P-U manufactured by Atmel.

Step down transformer is a device used to convert the high voltage or current to the secondary low voltage or current. Here it converts 230V to 12V-5V. Voice recognition board is a computer software programmed hardware device that decodes the human voice and gives the command to the controller. LCD display and buzzer are the outputs where the buzzer produces alarm system and LCD displays the command instruction.

IV. CIRCUIT DIAGRAM

Liquid Crystal Display (LCD) is used to replace the LEDs. It can display numbers, characters and display and graphics. There are 14 pins marked with numbers. This comprises the required output. Using the measurements it can make out the required power consumption in which it provides the DC current supply easier.

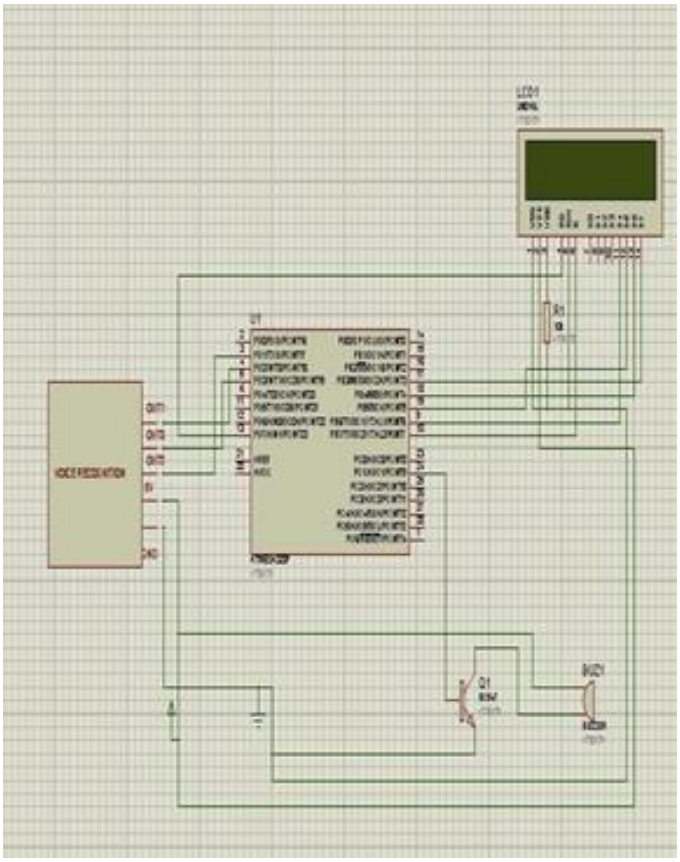

Fig. 2 Circuit Diagram

V. RESULT

By using the ATMega 348 microcontroller the PORT B is connected to the LCD display and PORT C connected to the voice recognition board to get the input from the person and it recognize will displayed on the LCD by identifying the loaded input.

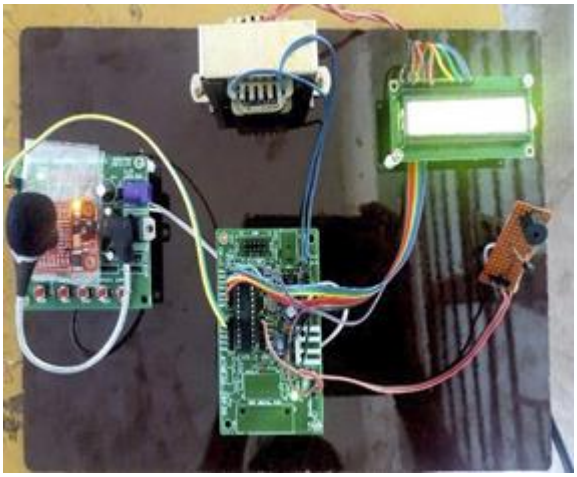

Fig. 3 Result(model)

VI. CONCLUSION

On hardware the voice recognition board is used to recognize the input voice given by different persons. The alarm system is followed by the voice recognition board which is fed with the input of two to seven persons voice command without any interference of noises and when the input is loaded the voice spoken will be read by the mike and LCD identifies and displays the specific person name given through the coding given by the c++ programming language to the microcontroller. The hearing aid with the simulated software using MATLAB and LABVIEW can overcome the issues on losing the aid device.

VII. REFERENCES

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