ASSISTIVE TECHNOLOGY FOR VOCALLY CHALLENGED PERSONS

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INTRODUCTION

The Embedded Technology is now in its prime and the wealth of Knowledge available is mind-blowing. Embedded System is a combination of hardware and software. Embedded technology plays a major role in integrating the various functions associated with it. This needs to tie up the various sources of the Department in a closed loop system. This proposal greatly reduces the manpower, saves time and operates efficiently without human interference.

Based on statistics from the World Health Organization (WHO), there are more than 161 million visually impaired people around the world, and 37 million of them are blind. Choosing clothes with suitable colors and patterns is a

This project consist of PIC microcontroller, LCD display, APR voice play back, 4 keypads, speaker, buzzer, vibration sensor and power supply. In this the input given through the keypad is processed and the output is given out by the speaker. This helps the vocally challenged persons to speak with normal persons. Also the speech input given by the normal persons are captured and recognized by the voice recognition kit and is displayed in an LCD screen. This helps the impaired persons to understand the speech of normal persons.

The project also consists of a vibration sensor which is used to sense the body movements. An alarm circuit is connected along with the vibration sensor

to inform others in case of any emergency situation.

ABSTRACT

The project is aiming for helping vocally challenged persons. The processor used in our project is picmicrocontroller.PIC is the advanced version of microcontroller. In our project using keypad and speaker. The challenged persons can communicate the world effectively. The input is given through the keypad. The processor convert into speech signal and the output is given through the speaker. If an external speech signal is received, the voice recognition kit recognizes the signal and the PIC microcontroller displays through the LCD screen. The PIC16F877A CMOS FLASH-based 8-bit microcontroller is upward compatible with the PIC16C5x, PIC12Cxxx and PIC16C7x devices. The software used the project is embedded c.

The project integrates with keypad and speaker for audio description. The impaired people can interact with others. Depends upon the Switch clicked in the keypad the APR will play through the speaker. We can play minimum four words. The voice recognition kit captures the speech signal and the information given to the controller. The corresponding words are displayed on LCD for impaired peoples. A vibration sensor is used body movement of a impaired people during emergency situation. An alarm circuit is also included to inform others in emergency.

The results demonstrate that the input given through the keypad is processed and the output is given out through the speaker and LCD display. The speech input given is processed by the voice recognition kit and the result is shown on LCD screen. The vibration sensor detects the body movements and signal is passed on to an alarm circuit which helps in emergency situations.
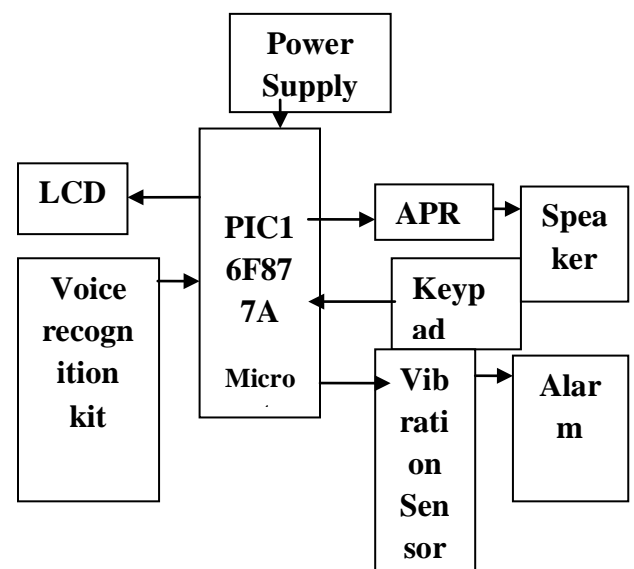
Fig: 1. Block Diagram

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ADVANTAGES

- Reliable
- Low cost
- Easy to implement
- Portable

APPLICATIONS

- Alarm circuit can be added for the emergency situations.
- This helps the impaired people to communicate with relatives or nearby Hospitals in case of emergency.

CONCLUSION

The project proposes a communication device for vocally challenged persons using assistive technology. The proposed technique has enabled the placement of speaker, PIC16F877A microcontroller, LCD display, power supply, voice recognition kit, 4 keypad, APR voice play back, alarm and vibration sensor. The results demonstrate that the input given through the keypad is processed and the output is given out through the speaker and LCD display. The speech input given is processed by the voice recognition kit and the result is shown on LCD screen. The vibration sensor detects the body movements and signal is passed on to an alarm circuit which helps in emergency situations.

FUTURE ENHANCEMENT

The important aspects of a project is its future enhancement here in our project we develop an idea which would make the system more efficient and compactable than the proposed one. In future we are planning to make our project

in to a helping mechanism for vocally challenged persons. For this development we can add a GPS system pulse rate detection system to the proposed system.

The development in any project is unstoppable as the technology develops the project efficiency is also develops as the various development done the purpose of this project is also more. The principle of the development of science is that nothing is impossible. So we shall look forward to a bright and sophisticated world.

REFERENCES

[1] Aparna P, Mohana priya P, Usha Rani T, Jeba Jaculin B, Pradeep Raja B, "Development of an assistive aid for speech impaired", International Journal of Scientific and Research Publications, Volume 2, Issue 3, March 2012 1 ISSN 2250-3.

[2] Arefin Shamsil and Thilakshan McMaster University "Motion Tracking Glove for Human- Machine Interaction: Grasp & Release", 4-23-2010.

[3] Björn Schuller, Zixing Zhang, Felix Weninger and Felix Burkhardt, "Synthesized speech for model training in cross-corpus recognition of human emotion", Int J Speech Technol, 2012, 15, pp. 313–323.

[4] Casacuberta, F. and E. Vidal. 2007. "Learning finite-state models for machine translation", Machine Learning, 66(1), pp. 69–91.

[5] Chin-Shyurng Fahn; Herman Sun; Development of a data glove with reducing sensors based on magnetic induction, IEEE Transactions on Volume 52, Issue2, April 2005.

[6] D. Govind S.R. and Mahadeva Prasanna, "Expressive speech synthesis: a review", Int J Speech Technology, 2013, 16, pp. 237–260.

[7] Jaijongrak, SaritChantasuban and SurapaThiemjarus, Towards a BSN-based Gesture Interface for Intelligent Home Applications, ICROS-SICE International Joint Conference 2009, August 18-21, Fukuoka International Congress Center, Japan