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Futuristic Design of Breath to Voice Conversion Technology for Dumb People

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ABSTRACT

According to 2011 statistics, in India itself there are about 2.21% of people who are suffering with various types of disabilities. One among these is speech disability. This includes those who could not speak, speak only with limited words or with loss of voice. There are also people whose speech is difficult to understand because of defects such as stammering, nasal voice, hoarse voice, discordant voice, articulation defects, etc.

It is very difficult for a person with speaking disability to communicate about their basic needs to other persons. This is especially true for a person under medical diagnosis. At that instant, he or she needs some support from who can understand what they are trying to communicate. A lot of work is being carried out to help such people to convey their feeling, which can be easily understood to others. In this paper, an idea has been proposed

where by the person makes use of his breath to communicate his feeling to others. Based on the variations in the breath a voice message is send to the person who is taking care of him. This helps the care taker to understand the person's feelings and proceed according to his needs.

KEYWORDS

Breath, Voice, Converter, Message, Communication.

INTRODUCTION

The main problem with the speech disability people is that in most of the cases they are unable to express their feelings or requirements. In spite of having many aids to support them the care taker is finding it difficult to understand their exact requirements. Because of this miscommunication, most of the people who are undergoing medication are posing various problems and in some cases they are losing their life's.

To overcome this problem an idea has been proposed in this paper. It is to establish a vocal communication for physically challenged and dumb people. Breath to voice converter is a device which is designed specifically to aid differently abled people in a sense that they can actually convey their thoughts to speech when needed just by showing variation in their breathing pattern.

WORKING AND IMPLEMENTATION

A well-known fact is that the rate of the breath is not constant throughout but varies depending upon the situation the person is in. Not only that it also varies from person to person depending on the age and the physical conditions of the person. Based on the variations in the breathe some messages have been pre recorded. When a person with speech disability wants to convey his requirements, he can simply change his breathing style. Based on his breathing pattern the messages will be sent in the form of the speech. This makes the work of the caretaker very easy and they can easily respond to his requirements.

Even when the caretaker is far away from the person, one can react immediately by hearing the voice. This would ultimately result in decline of death rate due to lack of communication from the side of the patient. This also avoids situations where patients at home or hospitals have to be scrutinized all the time by a care taker.

The input of this device is breath of speech disable person. The breath sensor is used to translate the breath to electrical signals. Then the signal is interpreted using microcontroller and is converted to message. After the message is received, the processor synthesizes it into voice. Finally output through speaker in the form of voice which is pre-recorded in the voice module is audible to the care taker or the person to whom the voice need to be conveyed, by which the speech disable person can express his feelings.

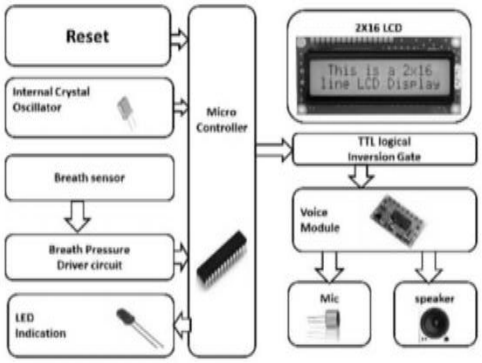

Figure:1 Block diagram

Based on the person breathing ability the threshold limit is set for each and every message. These devices store the message and deliver it when it is required. In this project voice has been recorded for two different messages. One for one inhale and exhale cycle and the other is for two successive inhale and exhale of breath.

One voice module device is placed near the noise of speech disable person. That voice module supports total 11 minutes of recording time, each channel (M0 to M7)having 1.3 minutes of recording time. It is a single chip with high quality voice recording and playback. This voice module is user friendly and easy to use operation. Some advantages of this voice

module which makes it different from other voice modules is that it has non-Volatile flash memory technology and also no battery backup is required. It supports audio output to drive a speaker or audio out for public address system. It can record voice with the help of on board microphone.

RESULT

Person with disability needs any help, then he can change his breath ,there by breath sensor finds variation in breath once the signal reaches threshold level the microcontroller starts processing the data . Output is delivered through speaker, which is a voice message. There by caretaker satisfies his requirements. The figure 2 shows the output when the signal is processing.

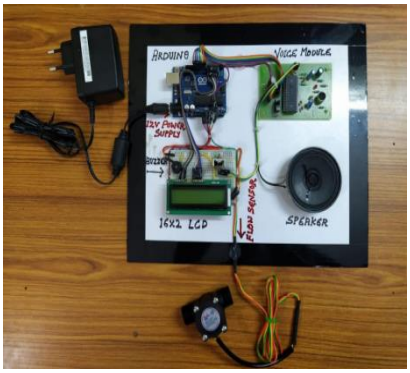

Figure 2: Output of hardware circuit

CONCLUSION

Proposed a device, which aids the differently able people to be independent and to avoid emergency risk situations, where one can convey one's status for the person who is taking care of them. This is also useful for elderly people who have past records of heart strokes, etc. This system can be easily used by anyone as its usage does not demand for prior technical knowledge.

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