

SIGN TO SPEECH CONVERTER

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Abstract:- The paper is mainly focused on aiding the speech impaired and paralyzed persons. Person who unable to speak considered as truly disable. There are so many methods that they are using to communicate with normal people but the method we are using in this project is sign language. People who have difficulty in speaking with normal people, using a sign language to talk with but many people are not able to understand it . So we have developed a system named as “sign to speech converter” which will take sign signal as input and gives output in speech format. The main intent of the system is to properly recognize and translate gestures in speech as well as text. 9 billion people in the world are deaf which quite large number to ignore is. So, the system contains flex sensors, microcontroller and the voice module. Flex sensor are placed on the fingers will sense the gesture and convert it into the speech by using microcontroller.

Keywords: *Flex sensors, Microcontroller (at mega 328P), Voice Module, LCD, Sound*

I INTRODUCTION

Being paralyzed or being handicapped or deaf does not mean that people are weak. While communicating with the normal people deaf people need a sign language. So in our country we are using Indian sign language .this sign language use in various countries. in our country there are very few citizens are able to understand Indian sign language. This creates a problem of communication, we need to remove this barrier so best medium of communication is gesture. in India there are 1,640,868 citizens who cannot speak according to the census 2011 also 1,261,722 citizens who are not able to listen.

Already We have developed systems for the require outcomes. But the systems which are already developed have some drawbacks. Like non portable, expensive or sometimes practically not implantable. The other one disadvantage is all systems use one way communication .The system we are developing is portable and having two way communication. The aim of this project is to convert hand gesture to voice for

better communication between deaf people and normal persons.

Here we use flex sensor technology which will sense the gesture and depending on that motion resistance of the flex sensor will change ,that change in resistance use as a input for microcontroller and controller will convert that signal into voice also we can see the text output on the LCD.

II LITERATURE SURVEY

Existing Systems

There are many systems were developed for the deaf people .But these systems have some drawbacks.

A] March 2014- This system is develop on embedded which based on hand talk method. It uses keypad depends on storing and running audio. The system has disadvantage that it is not based on sign language.

B] May 2014- It is simply sign language to speech converter. It uses MATLAB software for converting gesture into audio.

Conversion will always do by computer so it will become non portable. So the main problem with the system that we cannot access it anywhere.

C] Nov 2015-The system which come up with name as ‘Interactive Glove’ but the system will convert only alphabets into speech. So it will become complex for the deaf and physically challenged person to operate that gloves.

D] April 2016-here the system which name is ‘Talk Aloud Gloves’ It uses a flex sensor but each time we need computer to produce voice. Another person can’t communicate with that people.

III THE PROPOSED SYSTEM

There are many system systems which are helpful for the deaf and mute people. The system we are developing is also help to the deaf people .Proposed system is consist of Flex sensor,Atmega328p,voice module(APR33A3), sound, LCD.

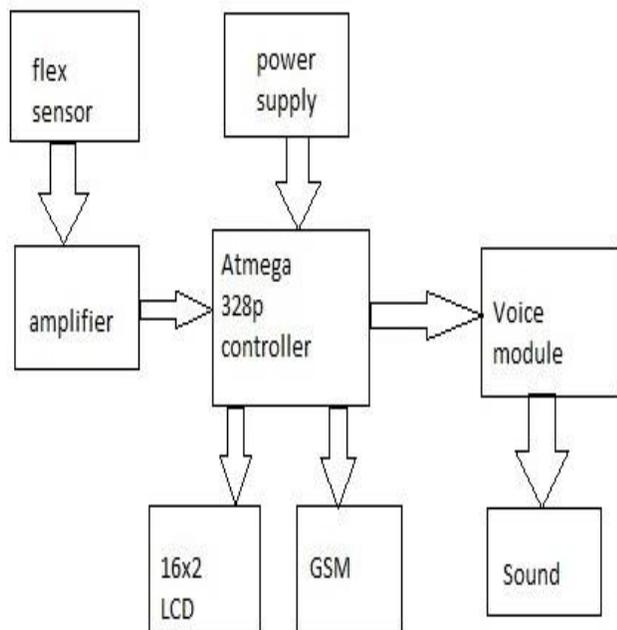


Fig.1.Block Diagram

IV. METHODOLOGY

Module 1- Flex sensor

In this project flex sensor works same as variable resistance because its resistance will be changed when it bend. Basically this is strip, when it bend its resistance will

changed. It gives the analog voltage which can be measured by controller.

Module 2- Microcontroller (atmega328p)

Microcontroller takes analog output from flex sensor and converts this into digital form which is suitable for voice module. This controller operates between 1.8-5.5 volts. This is 8 bit controller having 28 pins. we are using the microcontroller basically for the analog to digital conversion purpose.

Module 3- Voice module

Voice module mainly consist three elements like audio processor IC(APR9600), mic and speaker. This module provides better quality recording and playback up to 11 minutes audio. This chip used non volatile memory which store up to 256 voltage levels at 8khz sampling rate with 16 bit resolution. In this voice module maximum 8 messages are stored. The voice for different gestures is stored in voice module. Depending on gesture the resistance of flex sensor is changed, the voltage levels are already stored in controller. The voltage level from flex sensor and actual voltage levels stored in the module are compared, and then stored audio will be played for this voltage level.

Module 4-LCD display

The signal which is converted into voice also converted into text and this text signal is display on LCDdisplay.Here16x2LCD display used which having 16 columns and 2 rows ,each row can display 16 characters .The operating voltage is 4.7v to 5.3v . It display characters and numbers also.

V RESULT

When fingers getting bend result is change in resistance, and processing that input through controller output of controller will processed by voice module will get speech output. But sometimes signal can be misunderstood so we are providing a text output on LCD so the things get crystal clear.

VI. CONCLUSION

Best method to exchange thought between the deaf people and normal people is sign language. This system basically proposed for the deaf people and will be very easier to covey the sign language. Here the system will convert gesture into text also into speech by using gloves. we can add the more gestures in our database.

VII FUTURE SCOPE

We can include the many no of gesture in that glove and uses in offices to reduce human resource.

We can design a cloths which are able to covert the motions of a deaf people into the speech or text.

We can convert signal in any language which we are want.

VIII. REFERENCES

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