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Glove to Translate Sign Language

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Abstract- This system describe talkable hand glove system which aims at translation of sign language to analyze text and voice. This system consists of a talk able glove that can be worn by a deaf/dumb person to facilitate the communication in real-time with other people. The system translates the hand finger motion to corresponding letters using IR sensors and a Microcontroller. Our main goal is to identify 26 alphabets and display text on the LCD. Once the text is obtained on the LCD then text to speech conversion operation is carried out and finally a voice output is obtained. Further, the text gain can also be viewed on a LCD or any portable hand held device. Our main aim is to set an interface between the Deaf or Dumb and normal people to improve the communication capabilities so that they can communicate handily with others. We mount IR sensor on the talk able hand glove and propose and efficient methodology to convert these sign languages. This system will simplify the communication of deaf or dumb people with people able to normal communications without the need of a human translator.

Keywords- *IR sensor,H12E encoder,H12D decoder,Transmitter,Receiver.*

I. INTRODUCTION

In this system prevent the hearing impaired people easily communicate with the normal people. Using sign language limits them to their own world of people [1]. This limitation prevents them from interacting with the outer world to share their feelings, creative ideas and the likely they possess; but very few people grasp them. This increases the isolation of hearing impaired people. According to the World Federation of the Deaf (WFD), exactly 66 percent of Deaf people live in developing countries, where authorities are often familiar with their requirement and where very few Deaf children have access to occupation and education. Only about 10 percent of the world's Deaf population receives any training at all and only one percent gain this training in sign language - even though the majority of Deaf people worldwide usage sign language in their daily lives. The system used wearable hand glove which endorse the Universal Sign Language and the microcontroller matches the binary combinations with the data given in the look up table of the databases and produces the speech signal. The output of the system is displayed using the speaker and LCD.

Fig1: Talkable handglove with sensor

II. Literature Survey

[1]Microcontroller Based Gesture Recognition System For The Handicap People:2011 Bhavina Patel, Vandana Shah.
"Speech" and "gestures" are the manifest which commonly used in communication between human beings. In human communication, the use of speech and gestures is fully coordinated.
A number of hardware techniques are used for rally information about body positioning However getting the information is only the first step. The second step, that of recognizing the sign or gesture once it has been catch is much more challenging, especially in a continuous stream [1].
[2]Interactive Accelerometric Glove For Hearing Impaired : KuldeepSinghRajput,ShashankDeshpande,UmaMudenagudi
The main aim is to set an interface between the Hearing Impaired people and normal person to improve the communication efficiency so that they can communicate handily with others. We mount dual axis accelerometers on the glove and propose and efficient methodology to convert these sign languages [2].
[3]Hand Gesture Recognition System :Swapnil D. Badgujar , GourabTalukdar ,OmkarGondhalekar, feb 2014
The main goal of gesture recognition is to make a system which can identify specific human gestures and use them to demonstrate information for controlling device and by implementing real time gesture recognition a user can control a computer by doing a decided gesture in front of a video camera which is linked to the computer [3].
[4]Sign Language to speech Translation System Using PIC Microcontroller: Gunasekaran , Manikandan :Apr-May 2013. Common people also face difficult to grasp the gesture language. To overbear these real time issues, this system is exploitation. Whenever the proposed system senses any sign language, it plays coherent recorded voice.

This reduces the communication gap between dumb and or banal people. This proposed model consist of four modules, they are sensing unit, processing unit, sound storage unit and wireless communication unit.
It is accomplish by integrating flux sensor and APR9600 with PIC16F877A. The flux sensors are pointed in gloves, which respond to gesture. By using suitable circuit response of the sensor is given to the microcontroller.
[5]Data Gloves for Sign Language Recognition System: Priyanka Lokhande , Riya Prajapati: March 2015
Sign language being the only communication means for Hearing impaired People community hampers their interaction with the normal people who lack the knowledge of sign language. This paper has the potential of minimizing this communication barrier by working as an automated translator and converting sign language directly into vocal and textual format for the understanding of normal people using various flex sensor, accelerometer and ARM7(LPC 2138). The input data glove detects the hand gesture done by the deaf-dumb person wearing it and provides the analog input to the microcontroller for further interpretation according to the database and the final output is observed on the LCD display and the speaker. Thus, hand gesture can be automatically converted with the help of this system into understandable form for the normal person.

[6]Sign Language to Speech Translation System Using PIC Microcontroller: Gunasekaran. K1, Manikandan. R2 :May 2013, The proposed method translates sign language to speech automatically and satisfy them by conveying thoughts on their own. The system overcomes the real time difficulties of dumb people and improve their lifestyle.
System efficiency is improved with the help of PIC microcontroller and APR9600, also integrated with RF wireless transmission is help in long distance communication. By implementing this system speaking dream of dumb people becomes true.compared with existing system its possible to carry to any places. We have currently developed more reliable and flexible system. Which manufacture at low cost sign language translator for commercial purpose In future work of the proposed system supporting more no of sign and Different language mode.

III. SYSTEM ARCHITECTURE

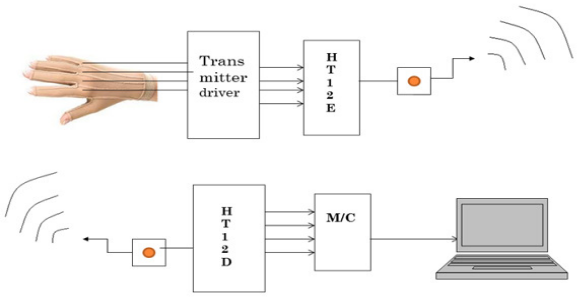

Fig.2. Block diagram of Sign Translation.

Transmitter-

As user will move the fingers in between the transmitter & receiver then a binary pulse will be obtained. The high pulse is one and low pulse is zero.so we obtain the combination i.e binary combination.
The combination is given to HTE12E encoder through transistor driver time to live output is obtained which is finally applied to radio frequency transmitter. The signal is radiated finally through wireless mode serially.

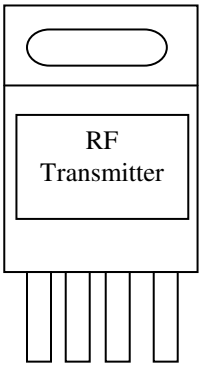

Fig3:RF Transmitter.

Receiver:

signal received is given serially to ht12d. signal is converted to parallel output by ht12d the decoder IC. same signal is then applied to at mega 328 or arduino board.
Using c++ coding finally the combination is processed by step sequence algorithm and is converted by text by vb.net code. Finally a unique action or combination will be used to read the text.

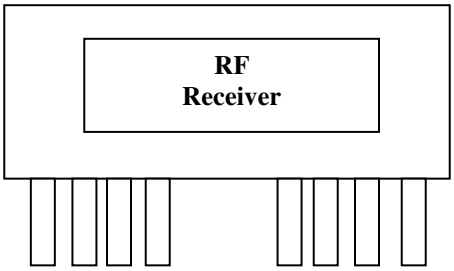

Fig4:RF Receiver.

V. CONCLUSION

The proposed system method translates sign language to speech automatically and satisfy them by conveying thoughts on their own. The system overbear the real time difficulties of dumb people and improve their lifestyle.System efficiency is better with the help of PIC microcontroller and APR9600, also integrated with RF wireless transmission is help in long distance communication. By appliance this system speaking dream of dumb people becomes true. compared with existing system its possible to conduct any places.We have currently

developed more reliable and flexible system. Which manufacture at low outlay sign language translator for commercial purpose In future work of the proposed system supporting more no of sign and Different language mode.

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