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Project Title: A NOVEL APPROACH FOR COMMUNICATION AMONG BLIND, DEAF AND DUMB PEOPLE

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ABSTRACT

Science and Technology have made Human life addictive to comfort but still there exists an underprivileged group of people who are fighting for finding an innovative way that can make the process of communication easier for them. According to the World Health Organization, about 285 million people in the world are blind,300 million are deaf and 1 million are dumb. In this project, we are going to propose a new system-prototype called the SHAROANBRIDGE in an effort to bridge the gap in the process of communication between the Blind, Deaf and Dumb people. The SHAROANBRIDGE will make use of the Wearable Technology, Texas Instrumentation Circuitry and Arduino Circuit Boards to provide a means of communication to differently- abled people having one or all of the above mention disabilities. It is assumed that a person who is deaf is alsodumb but vice versa is not true.

LITERATURE SURVEY

Multi-modal Interfaces for Interaction-Communication between Hearing and Visually ImpairedIndividuals

Nikolaos Bourbakis, Anna Esposito, D. Kabraki

In this paper the author said one important and challenging problem in human interaction is the communicationbetween blind and deaf individuals. The challenge here involves several cases: (i) first case is a deaf person usually does not speak in order a blind person to hear him/her; (ii) second case is when a blind person speaks a deaf person cannot hear; (iii) third case is when a deaf person makes sign language signs a blind person cannot see them. A system-prototype Tyflos- Koufos is proposed in an effort for offering solutions to these challenges.

Design of an Assistive Communication Glove using Combined Sensory ChannelsNetchanok Tanyawiwat and Surapa Thiemjarus

This paper presents a new design of a wireless sensor glove developed for American Sign Language Finger spelling gesture recognition. Five contact sensors are installed on the glove, in addition to five flex sensors on the fingers and a 3D accelerometer on the back of the hand. Each pair of flex and contact sensors are combinedinto the same input channel on the BSN node in order to save the number of channels and the installation area. After which, the signal is analyzed and separated back into flex and contact features by software. With electrical contacts and wirings made of conductive fabric and threads, the glove design has become thinner andmore 5 flexible. With the new sensor glove design, the experimental results have shown a significant increase inclassification accuracy**.**

Automation of the Arabic Sign Language Recognition

M. Mohandes, S. A-Buraiky, T. Halawani and S. Al-Baiyat

Interfaces in sign language systems can be categorized as direct-device or vision-based. The direct-device approach uses measurement devices that are in direct contact with the hand such as instrumented gloves, flexionsensors, styli and position-tracking devices. The main advantage of vision-based systems is that the user isn't encumbered by any complex devices; their main

disadvantage, however, is that they require a large amountof computation just to extract the hand position before performing any analysis on the images. In this paper we will discuss only the directed-devise methods.

Sign of new digital blind feed forward timing recovery algorithm for linear modulations in digitalcommunication receivers

Mehdi Ayat

Synchronisers are a significant part of digital communication receivers since they are used to estimate the received signal timing. Among these synchronisers, non-data-aided (NDA) or blind synchronisers are even more important due to bandwidth efficiency. In this study, a different approach is investigated to derive new feedforward NDA timing estimators based on Newton algorithm. Two novel estimators with four and two samples per symbol are presented and compared with traditional timing estimators, respectively. One of the main advantages of the second proposed estimator is the ability to control the loop gain automatically. This ability improves the convergence speed and robustness of the design. Simulation results show that the presentedestimators outperform the conventional estimators over a noisy channel, especially at small excess bandwidth and low signal to noise ratio.

TOOLS REQUIREMENTS

HARDWARE REQUIREMEN

1. Android
2. Liquid Crystal Display4.APR Module 5.Speaker
3. Bluetooth
4. Speaker

SOFTWARE REQUIREMENTS

1. Arduino Software (IDE)
2. Embedded c

DESIGN

BLOCK DIGRAM OF PROPOSED SYSTEM:

The fundamental way of thinking about our project is to demonstrate a trusted that can energize theway the hindered individuals use to converse with each other or with the world. The Sharoan Stage will make the correspondence fundamental between the debilitated individuals in the context of the level of their capacities. In our approach, we are thinking about all the conceivable blends of the insufficiencies of visual weakening, Deafness, and Obtuseness by which a man can drive forward. Our gadget called the Sharon Structure will take the information message from the contrastingly gifted sender according to his capacities and office and change over that message to be exchanged to long or short confines according to the fundamentals. Once the message is transmitted to the specialist by then it is again changed over as demonstrated by the working environment and points of confinement of the gatherer. Fig 3.1 shows the basic block diagram of the project. Availability At first every one of the pointers of the Servo's are in parallel to thesurface of the ground and when some character is being made the post is pointed at 90 degrees i.e. opposite tothe ground surface. Different characters are engraved with genuine deferral between each character. Along these lines we can give all the investigating material to the ostensibly debilitated individuals in BrailleTongue remotely. For the Remote framework, Bluetooth Handse

METHODOLOGY

The working of the system consists of wearable gloves in which the five flex sensors are incorporated for each of the five fingers in the hand. The flex sensors will change the resistance value when the finger is bent to a particular angle and this change will affect the current flowing through it and this change in the current will be taken as the input for the Arduino process that converts the analog signal and calibrate the values between 0 to 1023 digital value. A threshold value is kept as a fixed value and when the flex value reaches the threshold value then it sets the digital APR9600 pin to HIGH by passing a +5 voltage. When the appropriate pin is set to HIGH then the predefined voice is played through the speaker. This help in the communication between the dumb person and the blind person.
In addition to the above-mentioned system, a mobile application is developed which takes the two different types of input from the impaired person.

The voice input is taken as the input from the person who is blind or deaf but they can able to speak. The analog voice signal is captured through the microphone of the mobile and the voice is transmitted to the Ardunio circuit through the Bluetooth module. The Arduino receives the voice signal with the help of the Bluetooth receives.

The received data is then processed with the microcontroller and the output is given in the form of text and audio output. Similar to the working of the voices signal, the text message can also be sent through the mobile application which is then transmitted through the mobile Bluetooth andthe date is received by the Arduino through the Bluetooth module. This data is then processed with the Arduino and then the output is taken in the form of text and as well as the voice. The output in theform of text will be useful for the deaf and dumb people and the audio voice output will be useful in communicating with the blind and the dumb people. Figure 3.2 shows the output model of the Proposed System. The input and output of this system are designed by considering that it should be reasonable for the people who suffer from any one kind of the impaired and it should be useful for them to provide input and receive output in their convenient way.

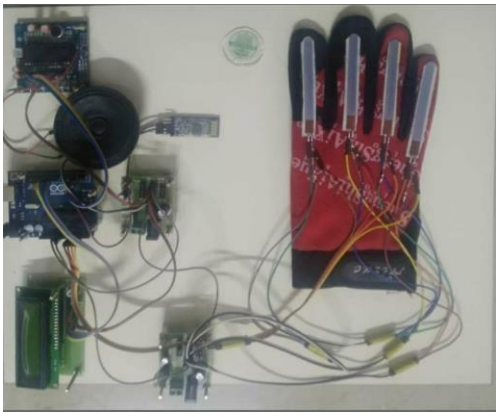

Figure 3.2 Output model

IMPLEMENTATION

The proposed framework expects to give the which incorporates 6 keys is utilized to enter the Braille Hard of hearing outwardly debilitated with a specific contraption that is sensible characters to pass on a message by an in need of a hearing aide outwardly impeded individual The piece chart is depicted in ABraille demonstrate is plot utilizing servo engines, which is utilized by the Hard of hearing uninformed concerning look at the substance got. Correspondence from a Hard of hearing outwardly hindered individual to a non Qwerty bolster is utilized to enter a message by a non Correspondence by strategies forEmail is portrayed in the impaired individual. This substance is changed over into Braille A camera module is given with the objective that the almost deaf outwardly debilitated individual characters and showed up on a Braille appear.

A 16x2 LCD can get a photograph of the earth and transmit it is utilized to show the substance entered by an in need of a hearing aid outwardly impeded individual to a remote individual by techniques for email. A photograph is gotten and on a Braille keypad, which can be examined by the nondisabled ordinarily educated to beforehand choose email IDs by a person. An enhancer is utilized which trades the substance the snap of only a solitary key.Taking a gander at Flowchart is changed over into converse with amore noteworthy social event of onlookers. The substance entered on the Braille keypads joined to the Email as the subject. The non-weakened individual on enduring the email can give a sensible answer back to the in need of a hearing aid outwardly debilitated individual by strategies for email. The substances of this email are examined by the nearly deaf outwardly weakened individual on the Braille show up. This impacts the in need of a hearing aid outwardlydisabled individual to consider the earth and in addition get data about anything of Interest.

CONCLUSION

Thus the blind and dumb can easily be communicated as per the design. Further this would be extended to provide support to blind, deaf and dumb. Using this device, a person can communicate and transferthe message as per his ability and desire. Our proposed system supports real time communication which makes it more efficient. In this project, we have proposed the basic approach which can be a useful tool in banishing the barrier of disabilities in the communication of the people suffering from any of the possible combinations of Blindness, Deafness, and Dumbness among themselves as well as normal people. We have taken into consideration that can arrive in case of the three types of disabilities and facilitate every disabled person and the normal person to communicate with the disabled ones. The person can communicate and transfer the message as per their ability and desire. The dumb can use their Sign language to transmit the message while those who are unable.

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