

# ADOPTING AN INNOVATIVE TECHNIQUE FOR DEAF AND DUMB STUDENTS FOR HIGHER STUDIES

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## Abstract

*One of the most valuable gifts to a human being is a capability to envision, listen, speak and respond according to the situations. But there are some unfortunate ones who are deprived of this. Communication between hearing impaired and normal peers have always been a challenging task.*

*The blind people can communicate freely by means of traditional language whereas the hearing impaired has their own manual-visual language known as sign language. So this creates a barrier in the communication between these two communities. Because of lack of communication between the normal person and the deaf and dumb person the ratio is decreasing for Literate and Employed Deaf and Dumb.*

*To overcome this problem an innovative technique OCR (Optical Character Reader) is used for their education.*

## 1 Introduction:

About nine billion individuals within the world are hearing impaired. How often we come across these people communicating with the normal people? The communication between a deaf and hearing person poses to be a serious problem compared to communication between blind and normal visual people. [2]

Disabled students in higher education face many complications accessing learning resources when e-learning systems are inaccessible. Disabled students have varying needs when accessing e-learning environments. [3]

Disability affects the way students study and in some cases, require special technology known as assistive or adaptive technologies to access information on the web. Depending on the disability, individuals will need personalized information in specific formats. Hearing impairment refers to the loss of hearing in one or both ears, which could be complete or partial. WHO (World Health Organization) estimates the number of people with such impairments worldwide in 2005 to have been about 278 million. In using information and communication technology, people with hearing impairments will have specific requirements such as captioning for video and audio. System designers thus need to incorporate the needs of such people into their design. [3]

Web-based learning is employed nowadays as an alternative choice to face to face education. The enhanced use of e-learning among academic institutions has led to a change in higher education. E-learning has been introduced as a tool within the learning method within the majority of the international universities worldwide. The term "e-learning" is defined as "any learning that involves using internet or intranet." Recent studies indicate that university students who have been enrolled on e-learning courses outperform those being taught on traditional courses. [1]

Teaching students with special needs is one of the most challenging if not the most difficult experience. [12]

Normal person face problem in communicating with disabled people because they cannot understand sign language. There are not many sign language institutions in our society. So, many of dumb people use usual sort of sign language to communicate and they do not have a customized sign language. It is also not possible for the masses to learn sign language. Therefore, a large communication gap still exists between dumb, deaf and normal people.[5]

## 2 Review of Literature

Hadi Salehi *et al*, (2014) in this paper author discussed the quick emergence of computers and related technology, E-learning is a rich and complex concept, as it is the provision of education and coaching via the World Wide Web for students. Electronic-learning (E-learning) and knowledge Communication and Technology (ICT) are extensively utilised within the education and training field. Integration of technology can help to create courses that are easier and more effective for learners. The author described the Education via E-Learning, in this he illustrated that E-learning is convenient as it can be done anywhere, at any time.

Computer Science Education has progressively become a preferred major, not only for the normal individuals, but for the disabled individuals too.

Pooja Gupta *et al*, (2014) in this conference paper author discussed the existing problems and solutions for deaf and dumb people. They stated some facts and myths about sign language like Sign language is the pictorial representation of spoken language but the fact is Sign language has its own grammatical Structure. Sign languages convey much of their prosody through non-manual signs. They discussed various methods like Speech to sign language interpreter system (SSLIS) A classifier is needed in sign language recognition to classify the input signs into different classes , Hidden Markov Model toolkit (HTK) It is mainly intended for speech recognition, but has been used in many other pattern recognition applications, Indian Gestural Interaction Translator (INGLT) – INGLT adopts a formulaic approach that directly generates the semantic structure where possible (about 60% cases), and defaults to a compositional mode for the others.

N.Vinoth (2016) in this paper he studied about deaf students who use e-learning system using single hand sign language and double hand sign language in learning java language. He used four methods one hand with voice, one hand and no voice, two hands with voice and two hands with no voice. Mostly people like two hands with voice and the author recommends using it for deaf mute people.

Hisyamuddin HASHIM *et al*, (2013) in this paper author described the environment for hearing impaired students. He stated that most e-learning environment available does not particularly can be useful to hearing impaired students. They often encounter problem in accessing the information available in terms of understanding it and using it in a proper manner.

Therefore, in order to assist these HI students in accessing the information adequately, the e-learning environment needs to be developed and designed according to the needs of the HI students by adding or enhancing some features within the e-learning environment.

## 3 Existing System:

A formal language employing a system of hand gestures for communication for deaf and dumb.

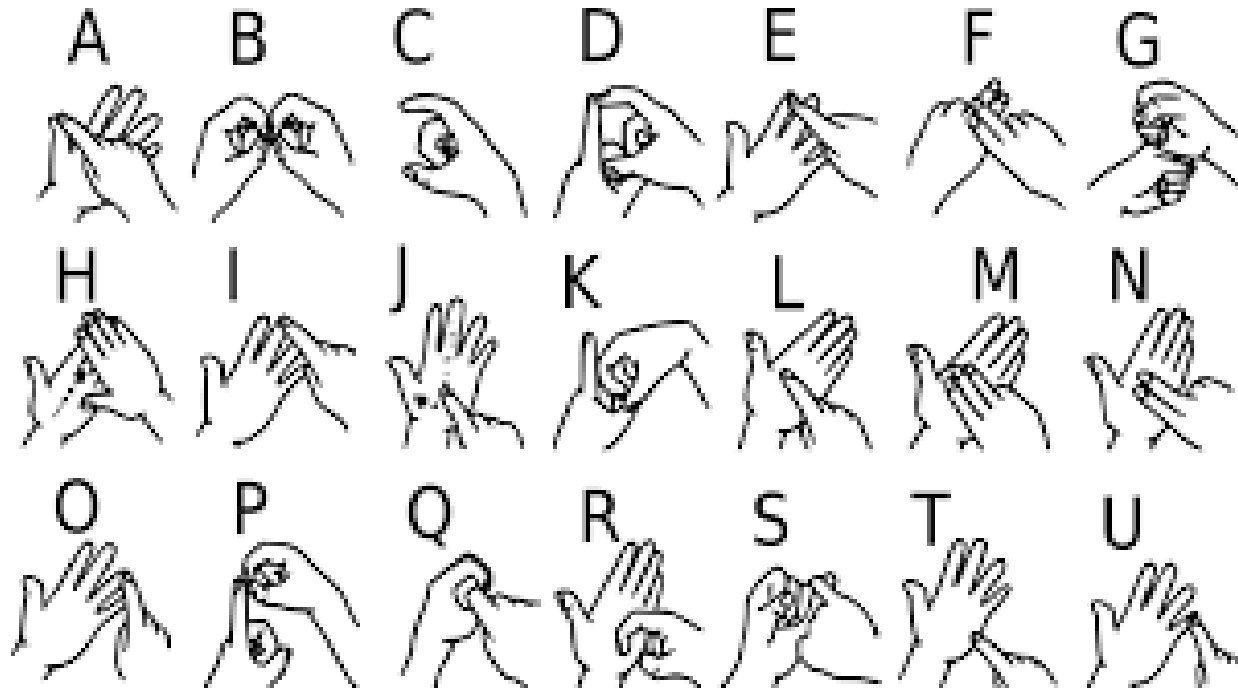
Sign languages (also called as signed languages) are languages that use the visual-manual modality to convey meaning. Language is expressed via the manual sign stream in combination with non-manual elements.



Wherever communities of deaf individual exist, sign languages have developed as handy means of communication and they form the core of local deaf cultures.

The most common means of communication for deaf and dumb and normal peers is sign language. As, it provides replacement for speech among deaf and mute people. Several analysis works are going on sign language in order to make the communication between a hearing impaired and a normal person easy. Examples of some sign languages are the American Sign Language, the British Sign Language, the native Indian Sign Language, and the Japanese Sign Language etc.

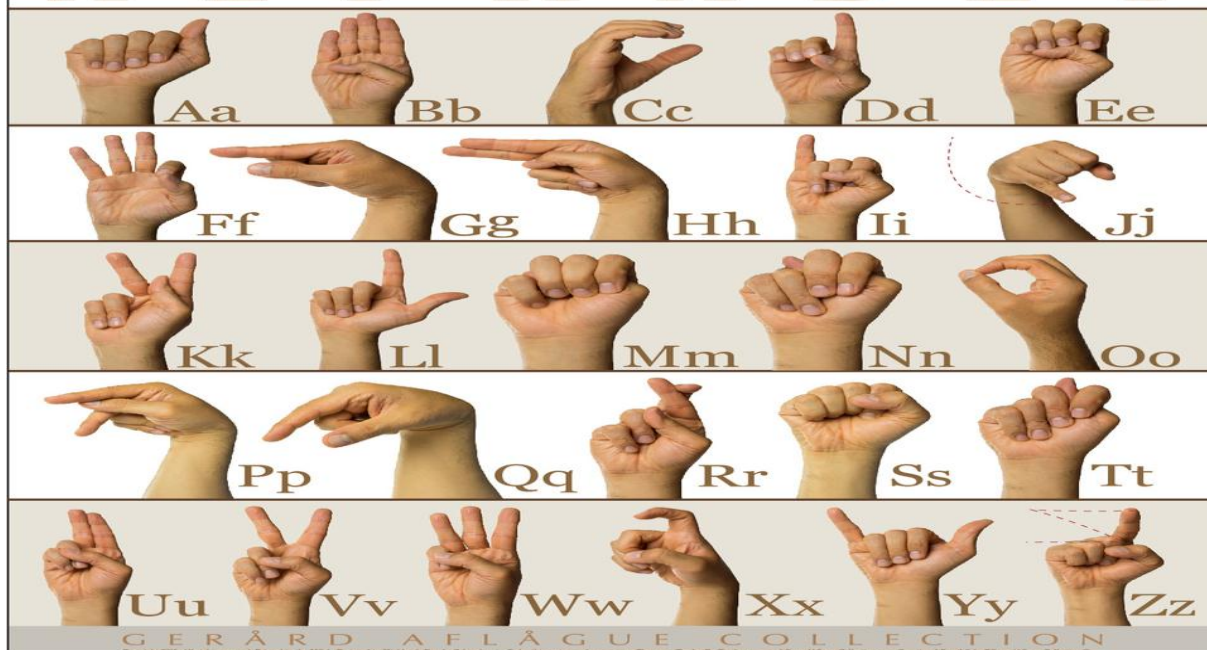
Below image shows the use of both the hands for sign language.



Each country has one or typically two or more sign languages, though totally different sign languages will share the identical linguistic roots within the same manner as spoken languages.

Hundreds of sign languages are in use around the world and are at the cores of native deaf cultures. Some sign languages have obtained some variety of legal recognition, whereas others have no status at all. Sign language has its own grammatical structure. The majority of deaf kids are born to hearing parents and therefore do not acquire sign language as a first language. They need to learn it at school.[8]

# AMERICAN SIGN LANGUAGE ALPHABET



GSL (Greek Sign Language) is a natural visual language used by the members of the Greek Deaf Community with several thousands of native or non-native signers. The Greek Sign Language (GSL) may be a natural visual language employed by the members of the Greek Deaf Community with several thousands of native or non-native signers. According to the workplace for the Disabled folks in Greece there are 100000 people with special needs in Greece.[4]

## 5 Proposed System

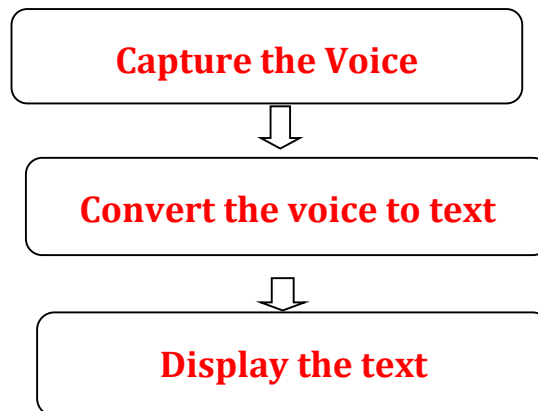
Optical character recognition (also optical character reader, OCR) is the mechanical or electronic conversion of pictures of typed, handwritten or printed text into machine-encoded text, whether from a scanned document, a photo of a document.

The older versions needed to be trained with images of each character, and worked on one font at a time. Advanced systems capable of producing a high degree of recognition accuracy for many fonts are now common, and with support for a spread of digital image file format inputs.

It is widely used as a kind of information records from printed paper data records, whether passport documents, invoices, bank statements, computerized receipts, business cards, mail, printouts of static-data, or any suitable documentation. It is a typical technique of digitizing printed texts in order that they will be electronically altered, searched, stored more compactly, displayed on-line, and used in machine processes such as cognitive computing, machine translation, (extracted) text to speech, key data and text mining. OCR could be a field of research in pattern recognition, artificial intelligence and computer vision.



The OCR will work in the following way for deaf and dumb people.



## 6 Conclusion:

E learning uses Web-based learning, computer-based learning, virtual based learning and digital technology. It is a computer and network-enabled transfer of knowledge. It is the mixture of learning and knowledge management. E-learning is the excellent ways to extend the share of educated Deaf people by optimizing new technology. Today, many new systems are designed to assist Deaf and dumb people to access the web for learning and training.

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