

# **SIGN LANGUAGE RECOGNITION USING DEEP LEARNING FOR HEARING IMPAIRMENT PERSON**

## **Abstract**

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Communication is essential to express and receive information, knowledge, ideas, and views among people, but it has been quite a difficult for people with hearing and mute disabilities. Sign language is one method of communicating with deaf people. Though there is sign language to communicate with non-sign people it is difficult for everyone to interpret and understand. Developing an assistive device that will translate the sign language to a readable format will help the deaf-mutes to communicate with ease to the common people. Recent advancements in deep learning, has provided solutions to the communication of deaf and mute individuals. Convolutional Neural Network (CNN) can effectively extract features from images. The main objective of the project is to provide easiness of communication and to implement an automatic speaking system for deaf and mute people. The proposed system uses CNN for converting sign language to speech. Bilateral filter is used for the removal of noise in the image. Binarization is used for converting images to black and white format. In the later step, Grey Level Co-occurrence Matrix (GLCM) technique is used to extract different features from the images. An easy-to-use Web based user interface was developed to simplify deployment. It is equipped with text-to-speech, speech-to-text to support communication between deaf-and-mute, hard of hearing, visually impaired and non-signers. Experimental results on MNIST sign language recognition datasets validate the superiority of the proposed framework. The CNN model gives an accuracy of 82.3%.