Speech conversion of American sign language and vice versa using deep learning

Avhijit Nair, Gaurav S, Arghya Biswas, Shubham S. Mane

CSE Department, School of Engineering

Vellore Institute of Technology, Andhra Pradesh

Abstract:-

The aim of our project is to make a deep learning system that can translate the American sign language into real-time speech using hand gesture detection and prediction models. The system also provides a reverse mechanism of translating real-time conversation back to the Standard American Sign Language convention.

Problem Statement:

Around the world, sign language — as well as those who communicate this way — has been viewed as lesser than that of the hearing world. However, in contemporary times many hearing people have dedicated themselves to changing the hearing impaired and their language. Our project aims to be a virtual voice for people who have speech and hearing disabilities so that they can communicate easily in their daily lives.

Scope of the project idea:

- **What makes our project different from the other similar existing models?**
- Our project will be implemented on a smartphone platform so that an enormous user base can be impacted.
- Our project will also provide mechanisms to translate the output spoken language into regional languages and take input of regional languages.

Basic Structure of Project:-

- The training data is stored on a web server and the model will be trained on the same web server using Convolutional Neural Network.

- The prediction results will be displayed on an Android application when the user specifies a particular hand gesture which is available in the American Sign Language dataset.