

AI-Powered Real-Time Sign Language to Text Conversion

Abstract:

The communication gap for individuals with hearing impairments can be addressed through real-time **sign language to text conversion** using **Artificial Intelligence (AI)** and **Natural Language Processing (NLP)**. This project aims to develop an AI-powered system that can convert sign language gestures into readable text in real time.

Methodology:

The system will use **computer vision** techniques to capture sign language gestures through a camera or sensor. **Deep learning models** such as **Convolutional Neural Networks (CNNs)** will be used for **gesture recognition**. The recognized gestures will be mapped to corresponding text using an **NLP pipeline** that converts them into natural language sentences. The system will be trained on a large dataset of sign language gestures and their corresponding textual representations.

Outcome:

The expected outcome is a real-time sign language translator that will enhance communication between individuals with hearing impairments and those without sign language knowledge. This system will improve accessibility in education, healthcare, customer service, and other sectors, contributing to more inclusive societies.