

Sign Language Detection

Bridging Communication with ASL Recognition

Problem Statement

The primary goal of this project is to develop a real-time gesture and sign language recognition system capable of identifying and translating hand gestures (specifically American Sign Language - ASL) into text or speech. This will bridge the communication gap for individuals with hearing impairments, allowing them to communicate more effectively with those unfamiliar with sign language.

Dataset

Use the MNIST dataset (or a similar dataset for sign language) consisting of images representing 24 ASL alphabets (excluding J and Z) in grayscale format. Load the dataset and preprocess the images (size 28x28 pixels). Normalize the images and reshape them to fit the CNN model input shape. Train the CNN model on the training dataset. Capture live video frames using a webcam (Using OpenCV).

Expected Output

Real-Time Hand Gesture Detection

The system will handle varying hand orientations, lighting conditions, and other real-world complexities, providing robust and reliable gesture recognition. By combining deep learning with real-time image processing, HandTalk delivers an accessible and efficient solution to facilitate communication through sign language recognition.

