SIGN LANGUAGE CONVERSION INTO TEXT

Abstract:

  Sign language serves as a vital communication medium for individuals with hearing and speech impairments. However, the communication gap between sign language users and non-users often presents significant challenges. This project aims to bridge this gap by developing a system for real-time sign language conversion into text using advanced computer vision techniques.

The proposed system leverages software tools like OpenCV and Pose Simulator to facilitate accurate recognition and interpretation of sign language gestures. The methodology involves three core processes: pose estimation, gesture recognition, and text conversion.

Pose estimation is achieved using OpenCV, which identifies key body landmarks, such as hand and finger positions, to track the dynamic movements involved in signing. Following this, machine learning models are employed for gesture recognition, where each unique gesture is mapped to its corresponding textual representation. Finally, the recognized gestures are converted into text, enabling seamless communication with non-sign language users.

The system's real-time processing capability ensures efficient performance, making it suitable for practical applications in educational institutions, healthcare services, and customer support centers.This project aspires to encourage the development and to provide accessibility for the hearing and speech-impaired community.