Patent Search

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Abstract:

Sign language serves as a vital communication method for individuals who are hearing impaired, utilizing hand gestures rather than spoken words. For those unfamil language, understanding and interpreting these gestures can be challenging, which often leads to difficulties for deaf individuals in communicating with others. Typic on interpreters who are proficient in sign language. To bridge this communication gap and encourage greater participation from the deaf and hard-of-hearing commu as to facilitate their ability to express themselves freely without needing an interpreter, this project aims to develop a sign language translation program. This prograr convert sign gestures into text, making it easier for users to comprehend the conveyed message. The translation process will utilize a webcam to capture sign languag which will then be processed. The processed images will be compared against a dataset, and matching results will be provided.

Complete Specification

Description:Real-Time Sign Language Translation Using MediaPipe: Bridging Communication Gaps Through Gesture Recognition

Field of Invention

This invention focuses on assistive communication technology that translates sign language gestures into text using computer vision and machine learning. By capt hand gestures through a webcam and processing them against a gesture dataset, the system enables individuals with hearing or speech impairments to communic seamlessly without an interpreter, promoting inclusion and self-expression.

The Objectives of this Invention

The primary objective of this invention is to enable seamless communication between individuals who use sign language and those unfamiliar with it, reducing the on interpreters and fostering more inclusive interactions. By translating sign language gestures into text in real time, this system promotes social inclusion and emp individuals with hearing and speech impairments to participate more freely in various social, educational, and professional activities. Finally this invention aims to ir accessibility in communication, bridging awareness and understanding of sign language, and reducing communication barriers in everyday life.

Background of the Invention

The invention of sign language translation systems aims to bridge communication gaps for individuals who rely on sign language. Early research, such as that by Lin ["Human Hand Gesture Recognition Using a Convolution Neural Network,"]focused on gesture recognition using convolutional neural networks (2014). Recent advancements leverage modern machine learning, MediaPipe, and deep learning for real-time, accurate hand gesture interpretation, as seen in studies like ["Sign Language Translation"]by Harini et al. (2020) and ["A Vision-Based System for Recognition of Words Used in Indian Sign Language Using MediaPipe" by Adhikary et a

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