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Sign Language Detection

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Abstract:

Sign language serves as the primary mode of communication for millions of individuals worldwide with hearing impairments. Despite its importance, the availability of sign language interpretation services remains limited, contributing to significant communication barriers. To address this challenge, we propose the development of a web application leveraging state-of-the-art deep learning techniques for real-time sign language detection and translation.

Key words : Sign language recognition, Gesture recognition, Machine learning algorithms, Human-computer interaction, Hand pose estimation, Image processing

Introduction:

Sign language is a visual language that uses hand movements, facial expression, and body language to communicate. In our project we used hand movement gesture to recognize Sign Language.

It is the primary language for many deaf and hard-of-hearing people around the world. Sign language detection is the process of converting sign language into text. Our project aims to bridge the communication gap between deaf people and normal people and make sure to use technology more inclusive & effectively.

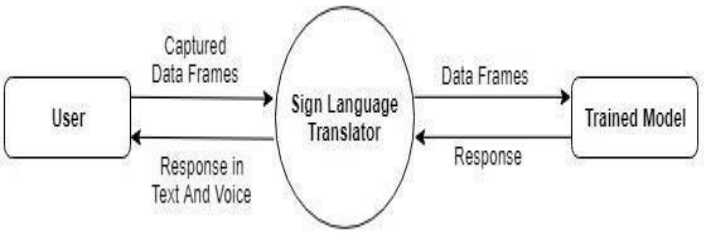
Communication is the main channel between people to communicate with each other. In the recent years, there has been rapid increase in the number of deaf and dumb victims due to birth defects, accidents and oral diseases. Since deaf and dumb people cannot communicate with normal person so they have to depend on some sort of visual communication.

Our system is made in such a way to help these specially challenged people to hold equal par in the society. The goal of this project is to develop a sign language recognition system that is accurate, efficient, and user-friendly.

Methodology:

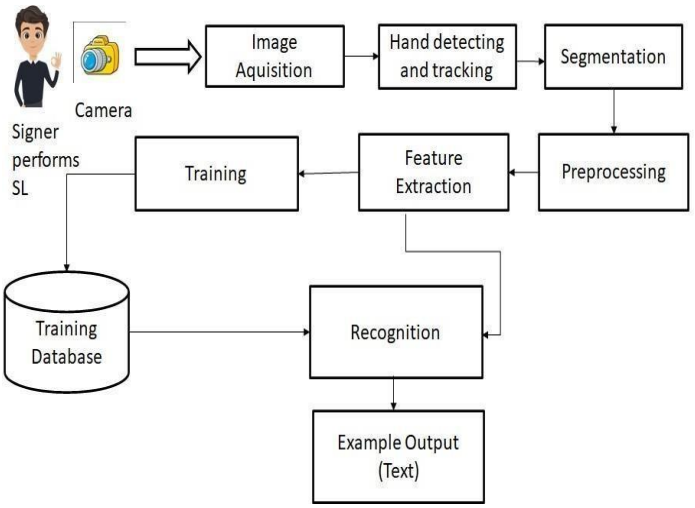
The proposed system architecture has been shown in fig. This system will be built for the normal people those which will be communicating with deaf & dumb community. Users, need to hold the system's camera pointing towards the deaf person and start the camera. Then our model will detect if the hand is present or not. If present then our model will compare live actual image and the images present at our dataset at the backend will process the things and recognize the hand gesture made by the deaf person.

Overall, the proposed system and architecture of Sign Language Detection project is designed to be efficient, scalable, and user-friendly, providing a valuable platform for deaf peoples. The next step is training, followed by testing the dataset. We train our model, using the algorithm and the features taken into account to assist our model, to predict the future price of the crypto currency. Moving on to the testing part, we test the data to measure the accuracy of the algorithm that our model is using to predict the price of the Bitcoin.



Data Flow Diagram

Proposed system



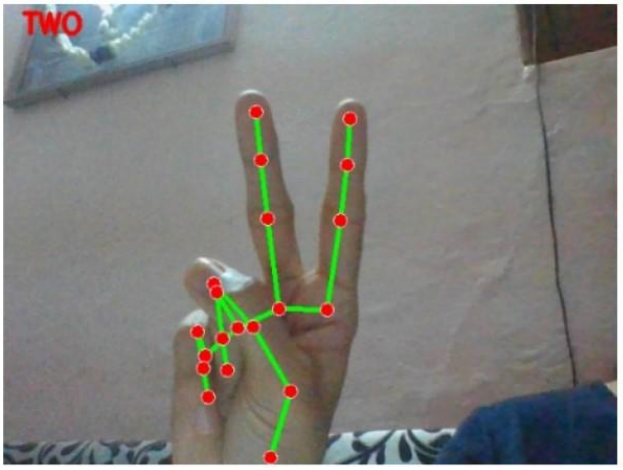
Requirements:

Hardware requirement:

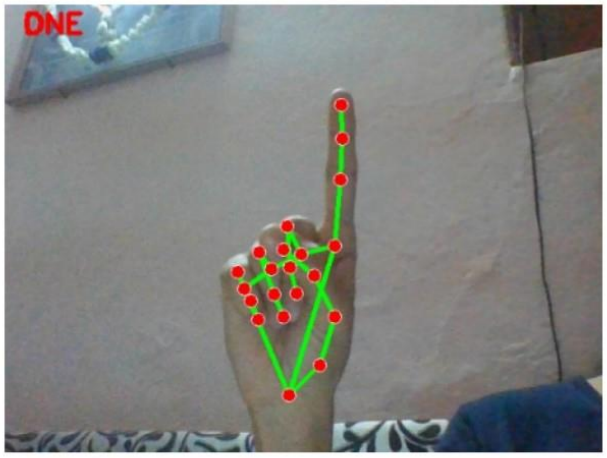
1. Hard Disk Space [500GB]
2. RAM [8GB]
3. Processor [64 Bit]
4. Camera

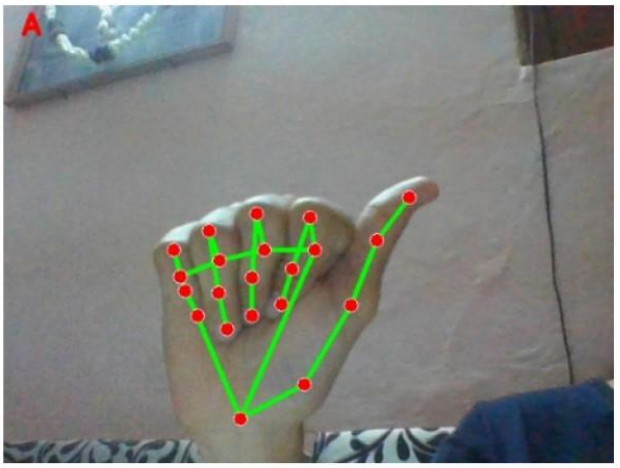
Software requirement:

1. OS: Windows OR Linux
2. Text Editor
3. Programming Language: Python
4. Anaconda Navigator



Result and Outcomes:





Conclusion:

Our Project Sign Language Detection is all about breaking down communication barriers. With the help of technology, we are creating a system that can understand sign language gestures. This means that deaf and hard-of-hearing people can talk directly with others, without needing someone else to help. System will help society to communicate the deaf & dumb community and generate a bond between them.

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