

Indian Sign Language Translator AI

Members:

- 1.Vivek Shrikant Chouhan - 211215**
- 2.Nishikant Santosh Raut - 211241**
- 3.Rehan Feroz Sayyed - 211242**
- 4.Rohit Suhas Deshmukh - 211244**

Mentor: Prof. Fatima Anees Ansari

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Introduction

- Indian Sign Language (ISL) is the predominant sign language used by the deaf community in India.
- ISL is a visual language that uses a combination of hand gestures, facial expressions, and body language to communicate.
- The Indian Sign Language Research and Training Centre (ISLRTC) promotes the use of ISL and provides training and resources for deaf individuals, their families, and others who work with the deaf community.
- ISL is an important tool for deaf empowerment, enabling individuals to communicate, access education and employment opportunities, and participate more fully in society.

Problem Statement

- The "Indian Sign Language Project" aims to address the communication challenges faced by the deaf and hard-of-hearing community in India.
- The primary goal is to develop cutting-edge technology solutions for accurate real-time translation and interpretation of Indian Sign Language (ISL) into text or spoken language.
- By bridging the communication gap, this project seeks to enhance accessibility, education, and inclusivity for the ISL community.
- The ultimate aim is to empower individuals with ISL as a means of effective communication in various aspects of life, thereby fostering greater societal integration.

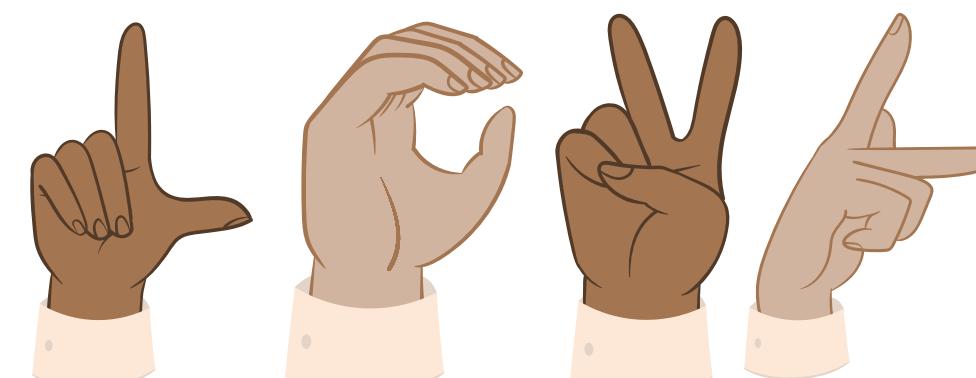


Objectives

Improved accessibility for Mute & Deaf individuals to various services.



Enhanced communication and understanding between Mute & Deaf and hearing individuals.

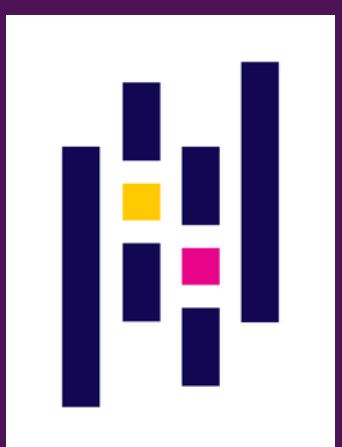
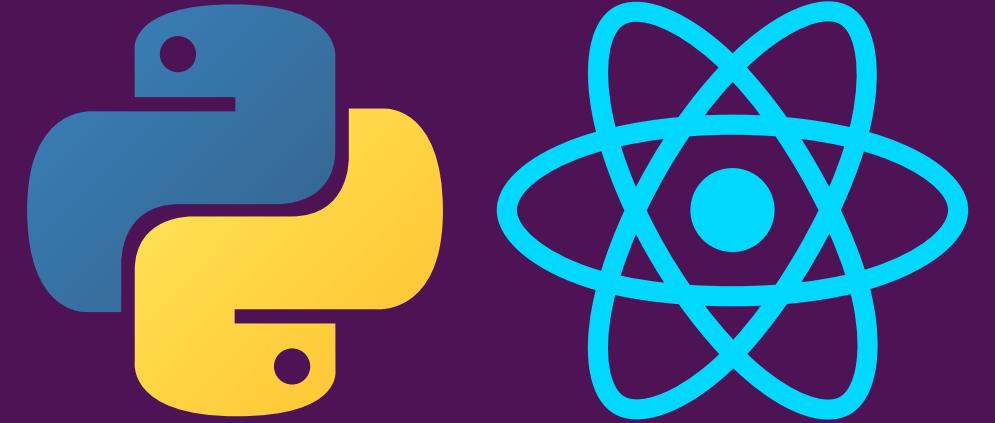


To provide an efficient and accurate system so that communication between mute & deaf and normal people can be more convenient.

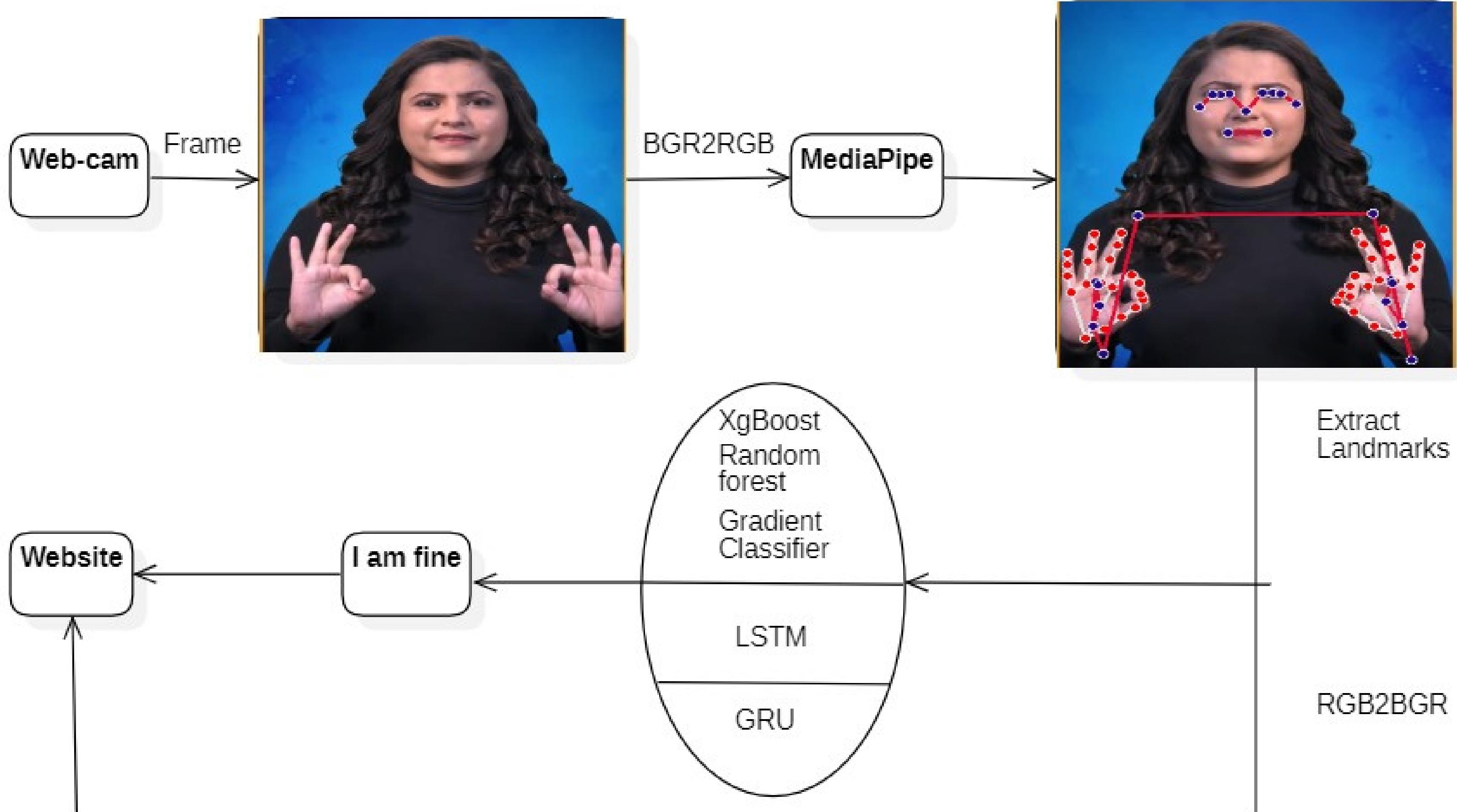


Proposed System

- Our software aims to track ISL hand signs in real-time and translate it to English.
- We track the orientation of hand(left/right), & finger positions, using the 21 landmarks provided by MediaPipe.
- TensorFlow Library is used to load important models required for recognizing hand gestures.
- OpenCv is used to read the frames using the webcam.
- By using these technologies our model will predict the name of the hand gesture from a prediction array.

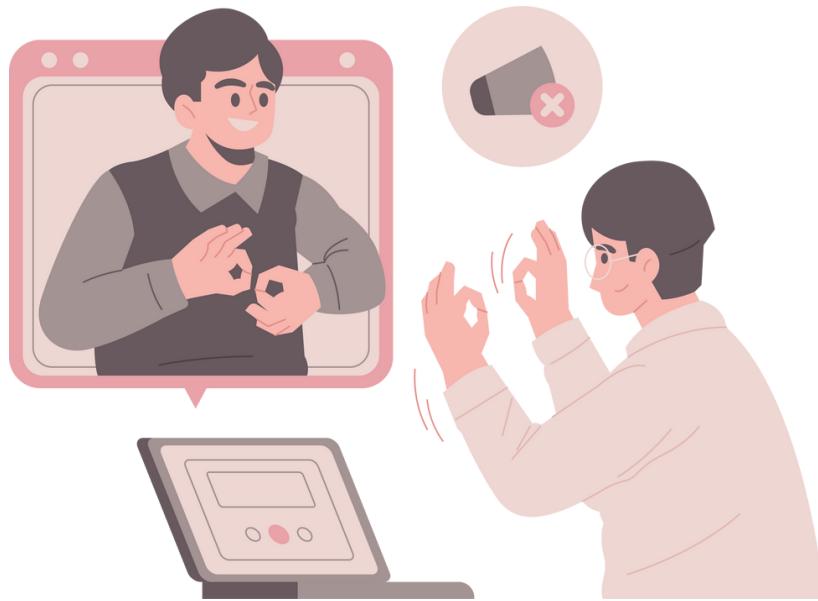


Block Diagram



Use Cases

Daily communication



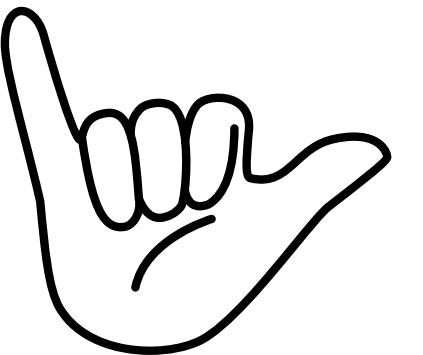
Education

Health care



Future Scope

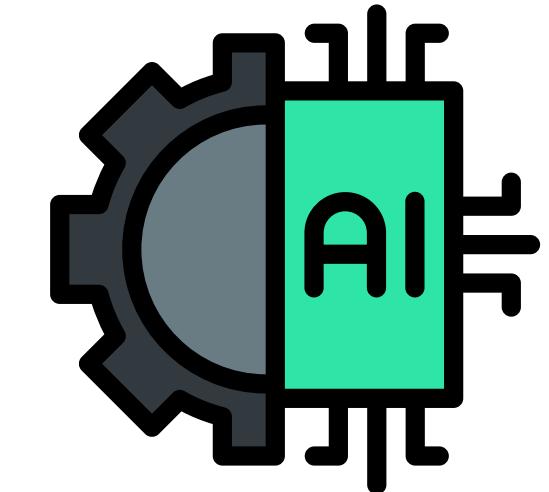
Real-time translation
using wearable
devices.



Integration with
augmented reality (AR) for
seamless communication.



Improved accuracy through
ongoing machine learning
developments.



In Conclusion...

Our Indian sign language translation project represents a significant milestone in advancing accessibility and communication for the Deaf and hard of hearing communities.

Expanding the capabilities of our system will allow more inclusive communication and bring out accessibility as well as break down communication barrier.