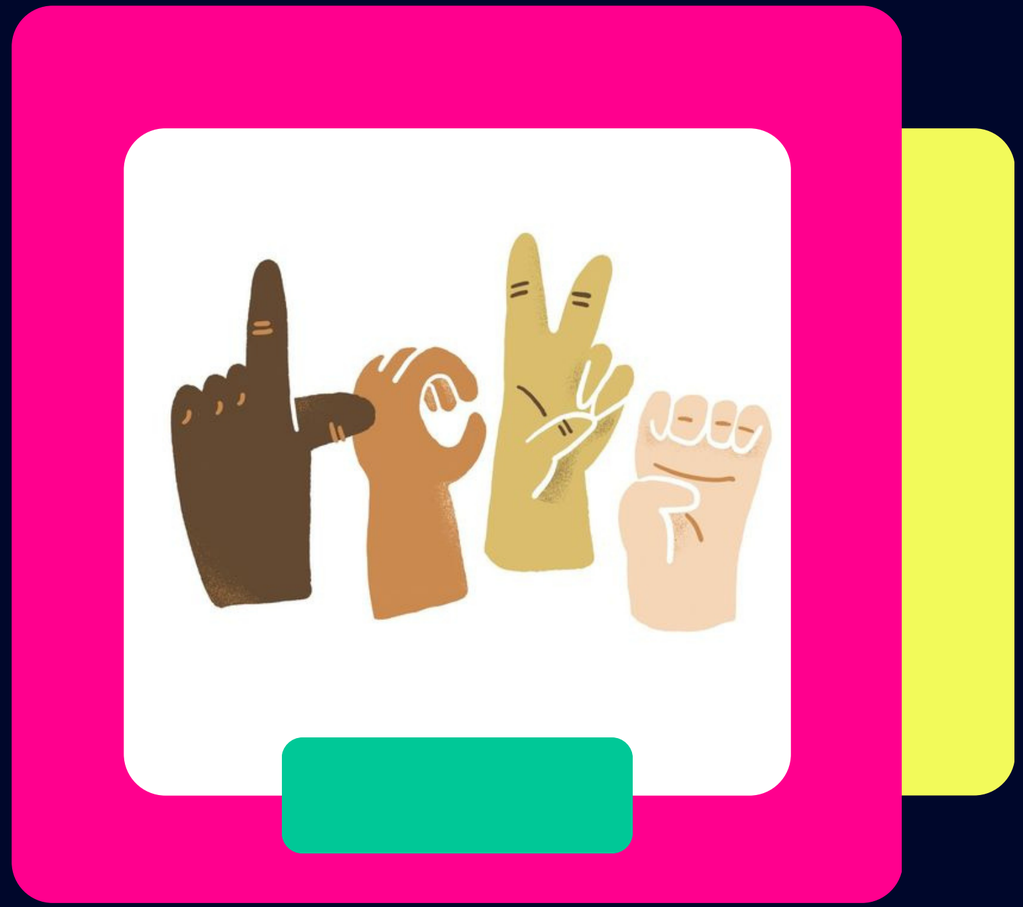
SIGN BRIDGE



Here is where our presentation begins....

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INTRODUCTION

SignBridge is a cutting-edge application that seamlessly deciphers sign language and translates it into spoken English, significantly enhancing communication for deaf individuals.

PROJECT OBJECTIVES

- Accurate sign language recognition
- Seamless translation to spoken English
- Intuitive and user-friendly interface

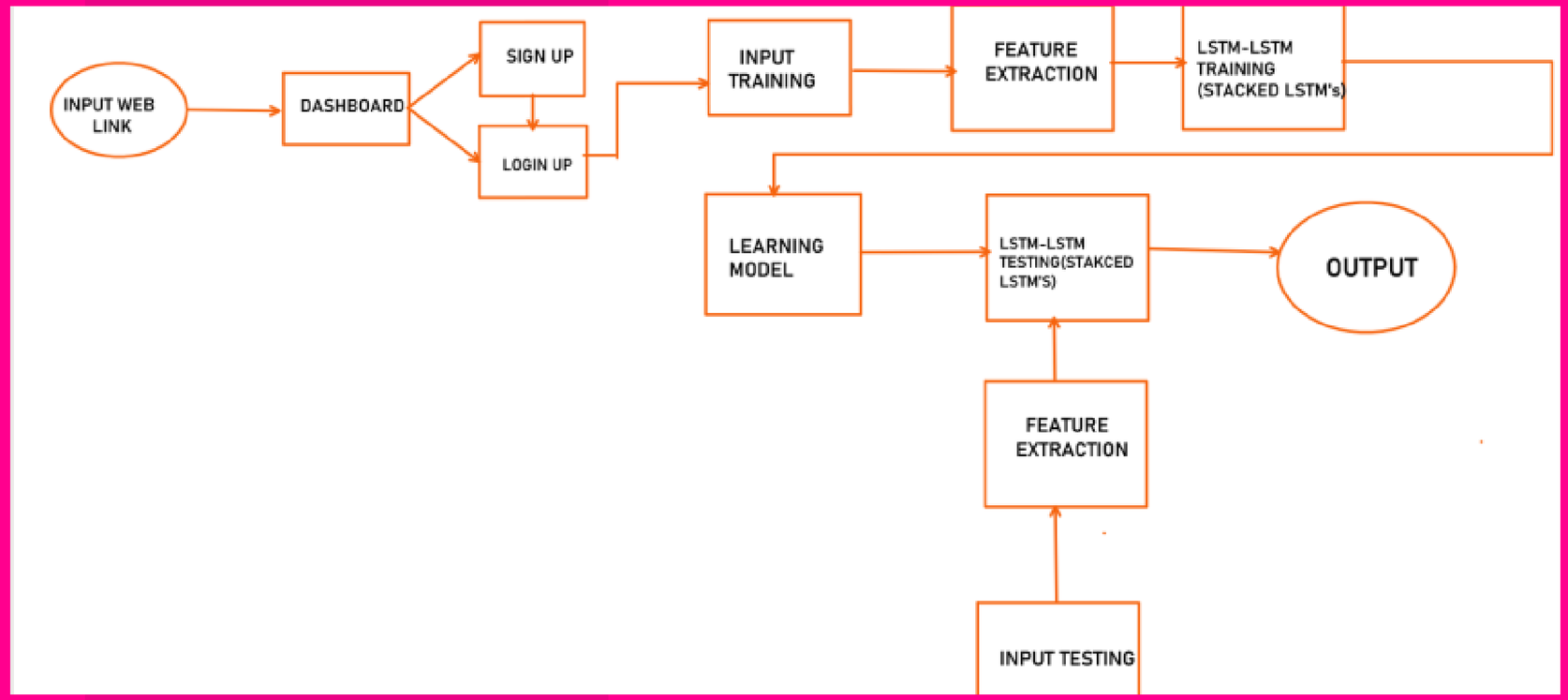
SYSTEM OVERVIEW

1.Front-end Interface:
- Intuitive and user-friendly graphical interface for user interaction
- Displays real-time feedback on gesture recognition

2.Back-end Processing:
- CNN model for feature extraction from sign language images
- LSTM network for temporal analysis and classification

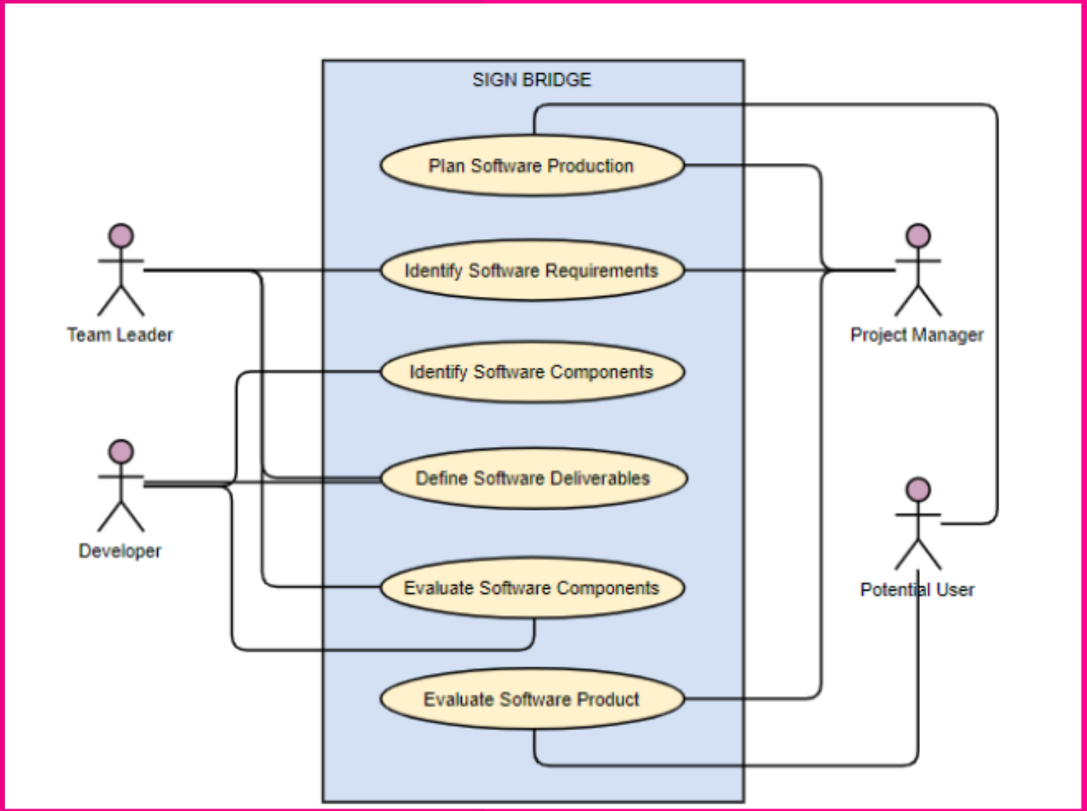
3.Audio Output:
- Text-to-speech module to convert recognized sign language gestures into spoken English

SYSTEM DESIGN



BLOCK DIAGRAM

SYSTEM DESIGN

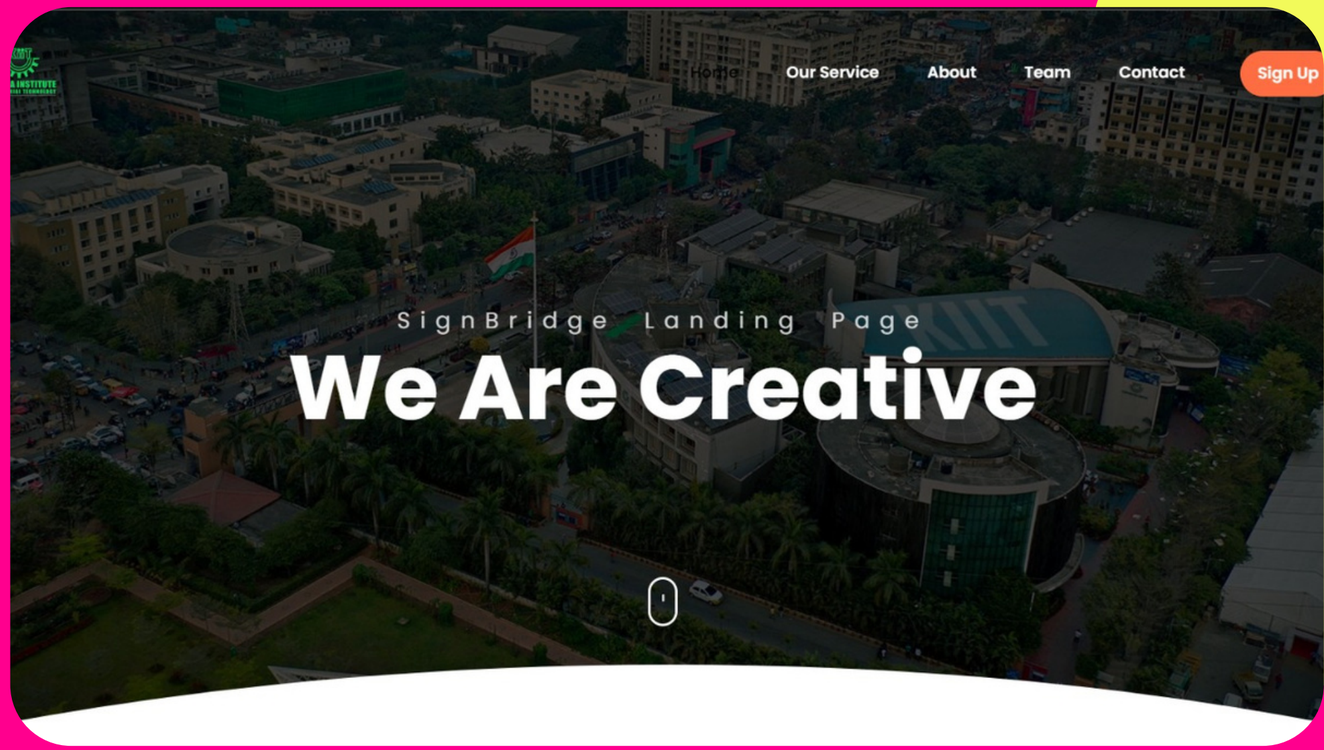


UML DIAGRAM

FRONT END

01 The intuitive and user-friendly graphical interface is designed with a focus on simplicity and accessibility, making it easy for users of various backgrounds to interact with the system.

02 With real-time feedback on gesture recognition, the interface keeps users informed about the system's predictions, fostering trust in its performance and enhancing the overall user experience.



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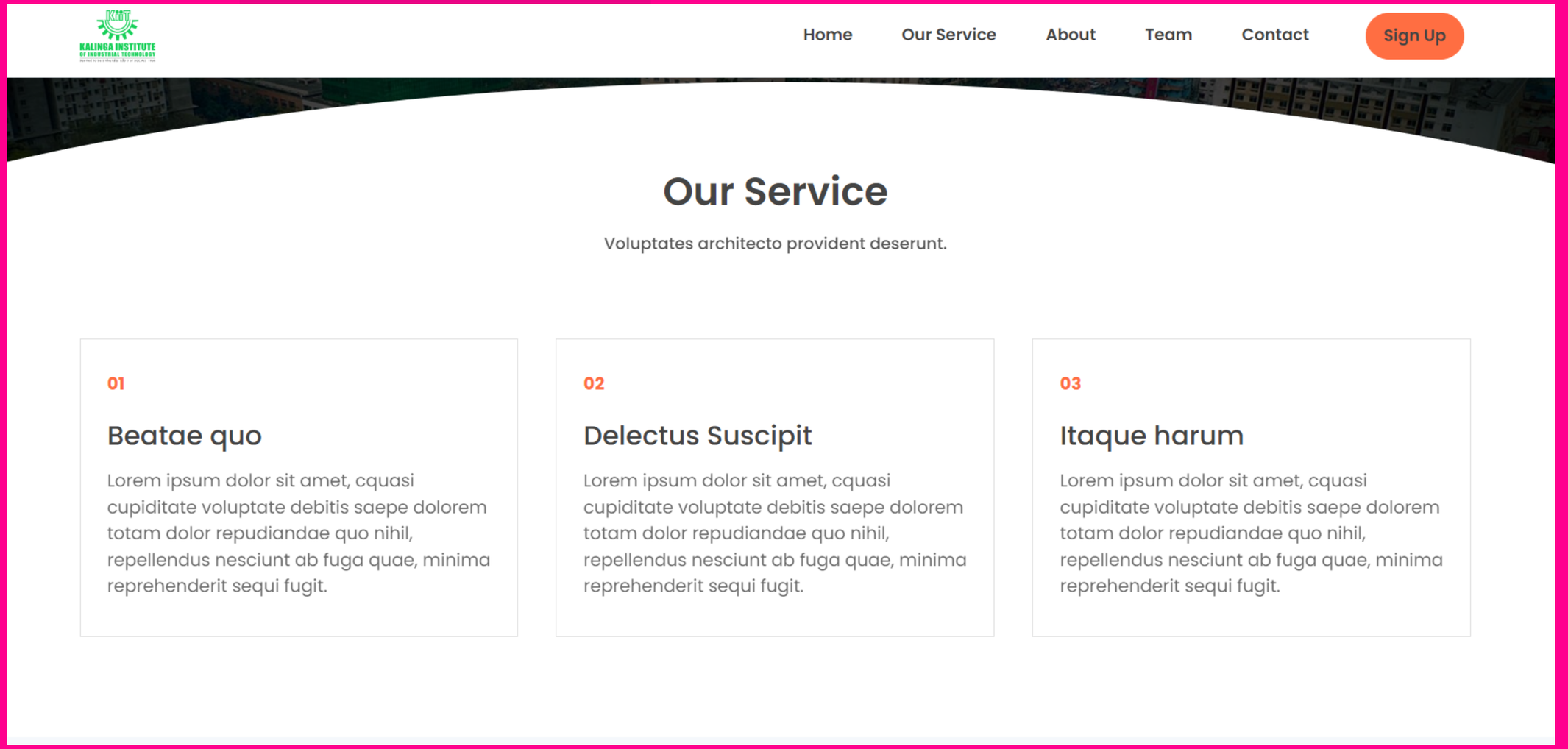

About Project

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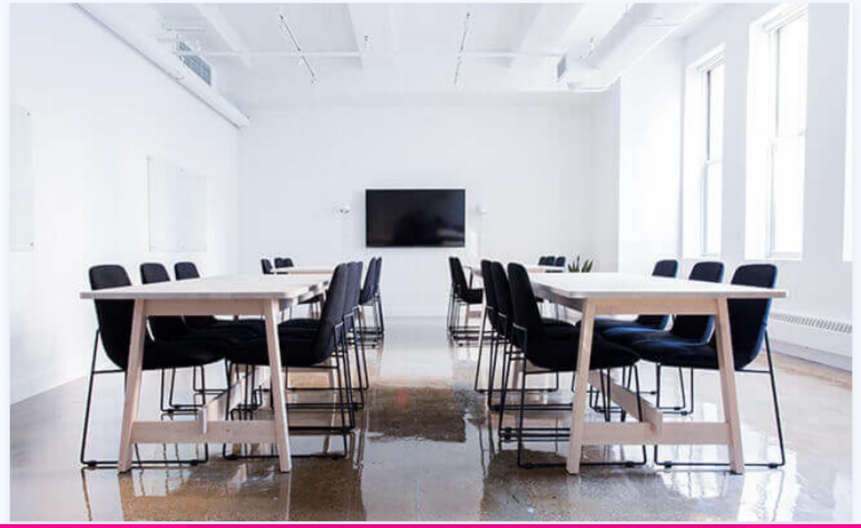

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Team Members

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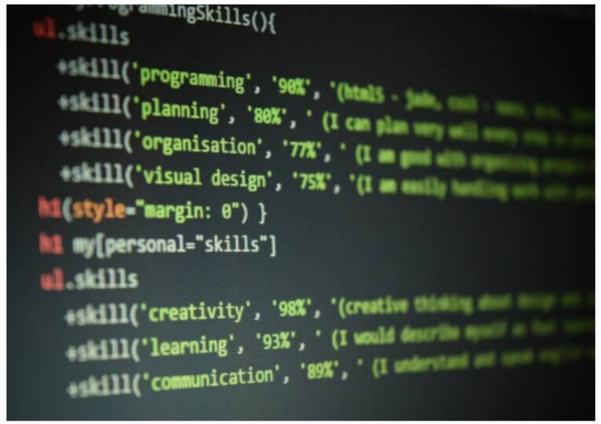

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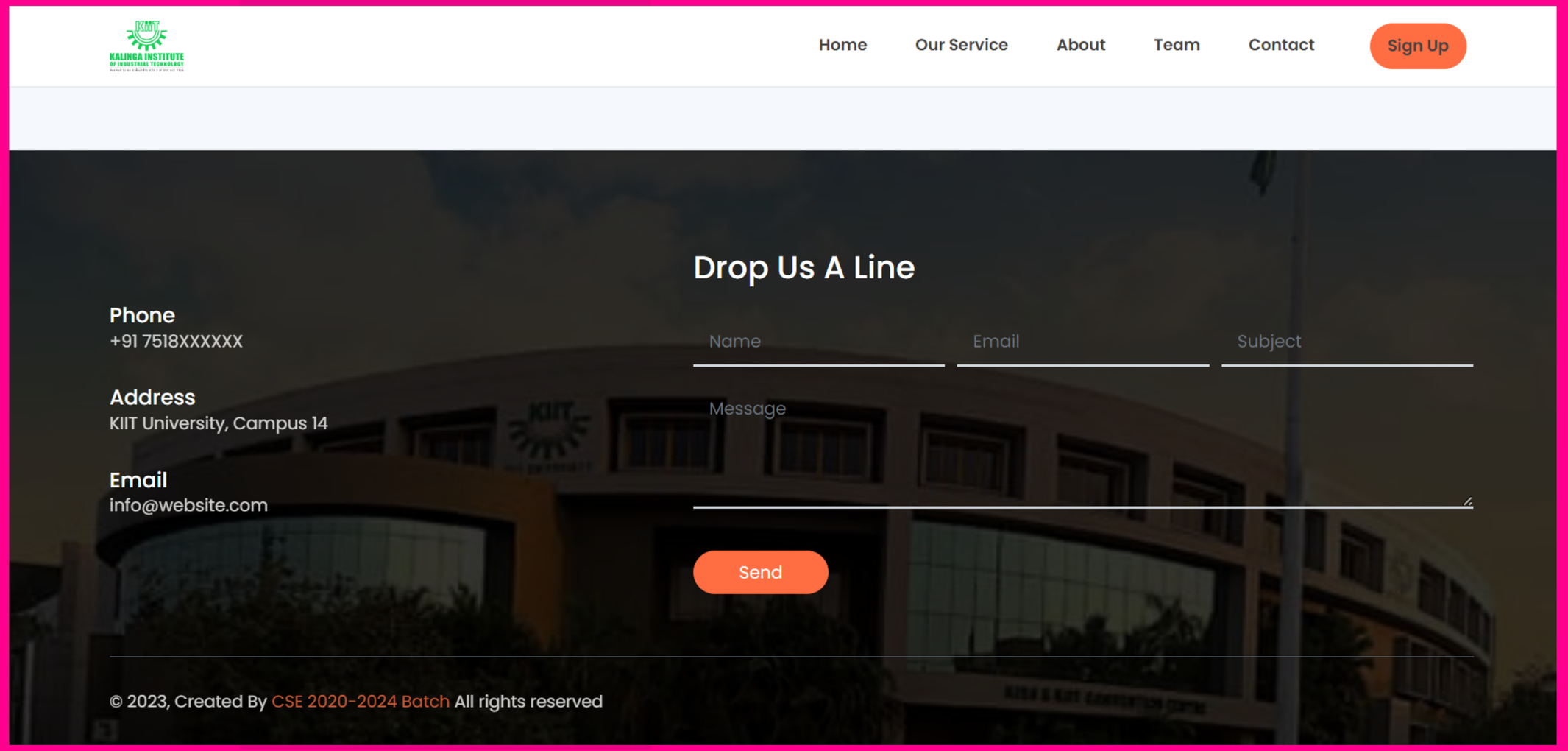

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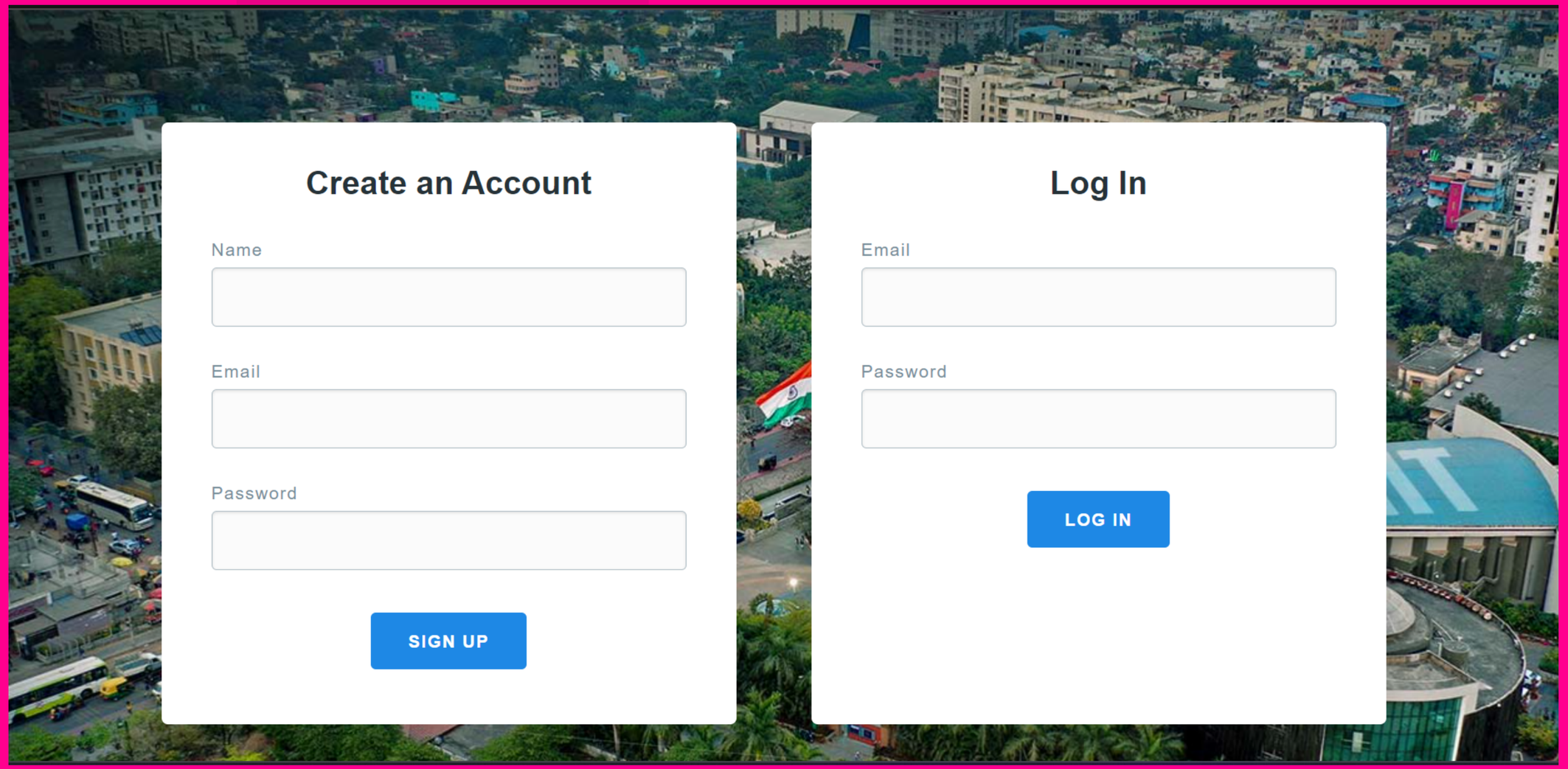

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3 DOCUMENTS 1 INDEXES

Documents | Aggregations | Schema | Explain Plan | Indexes | Validation

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BACK-END PROCESSING:

The Convolutional Neural Network (CNN) model, specifically the VGG16, is employed for feature extraction from sign language images, capturing essential visual patterns and details from each gesture.

The Long Short-Term Memory (LSTM) network is used for temporal analysis and classification, considering the sequential nature of sign language gestures and allowing for accurate recognition and understanding of the movements.

By combining the strengths of the CNN and LSTM models, the back-end processing ensures high-precision gesture identification and enables the system to effectively recognize and interpret sign language.

AUDIO OUTPUT?!!

- The text-to-speech module is integrated into the system to convert recognized sign language gestures into audible English, providing a seamless translation from visual communication to spoken language.
- By incorporating this audio output feature, the system bridges the communication gap between deaf individuals and others, enhancing the overall accessibility and inclusivity of the technology.

01. Computer understands signs

02. Gives an audio output as well

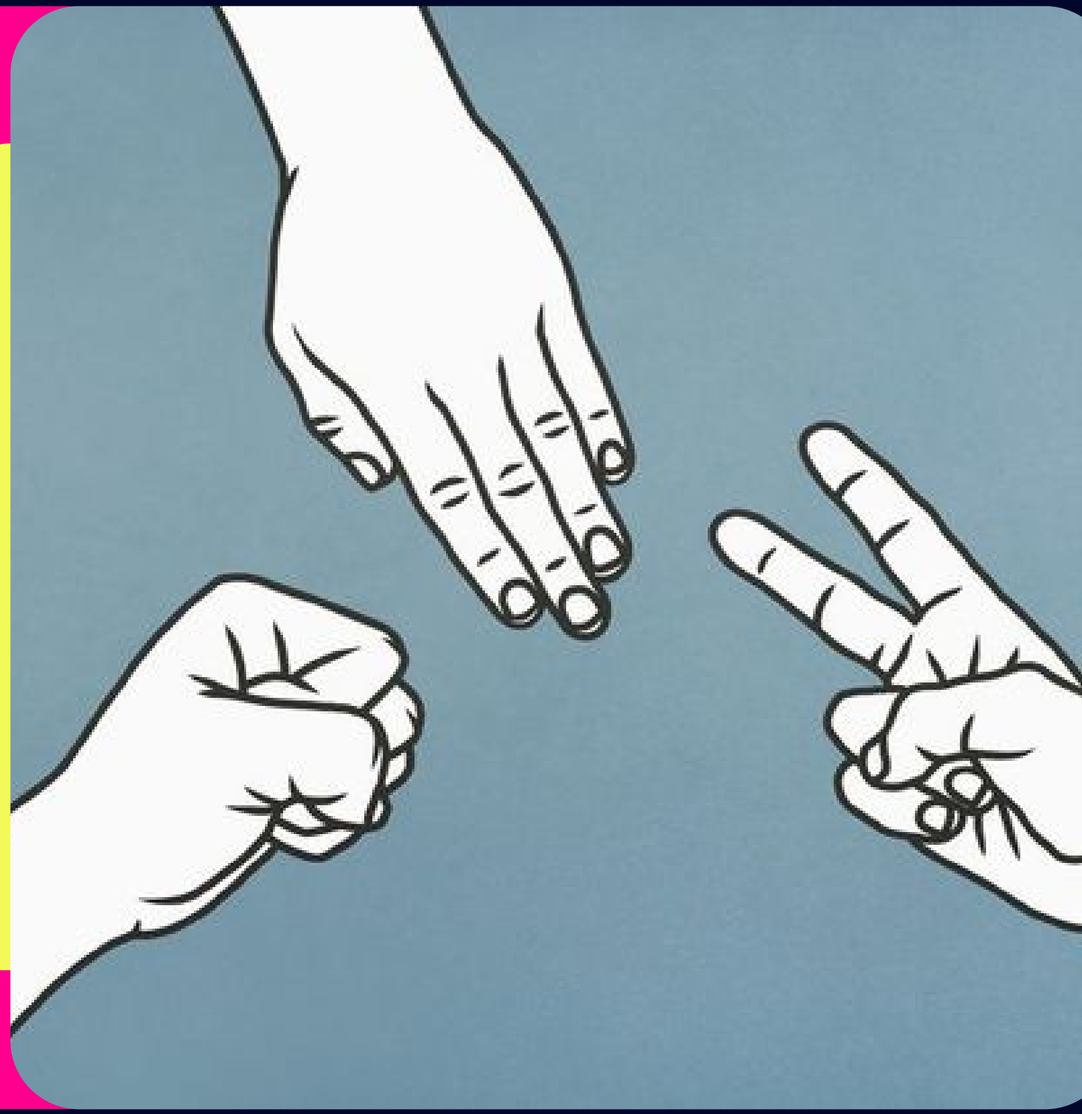
IMPLEMENTATION:

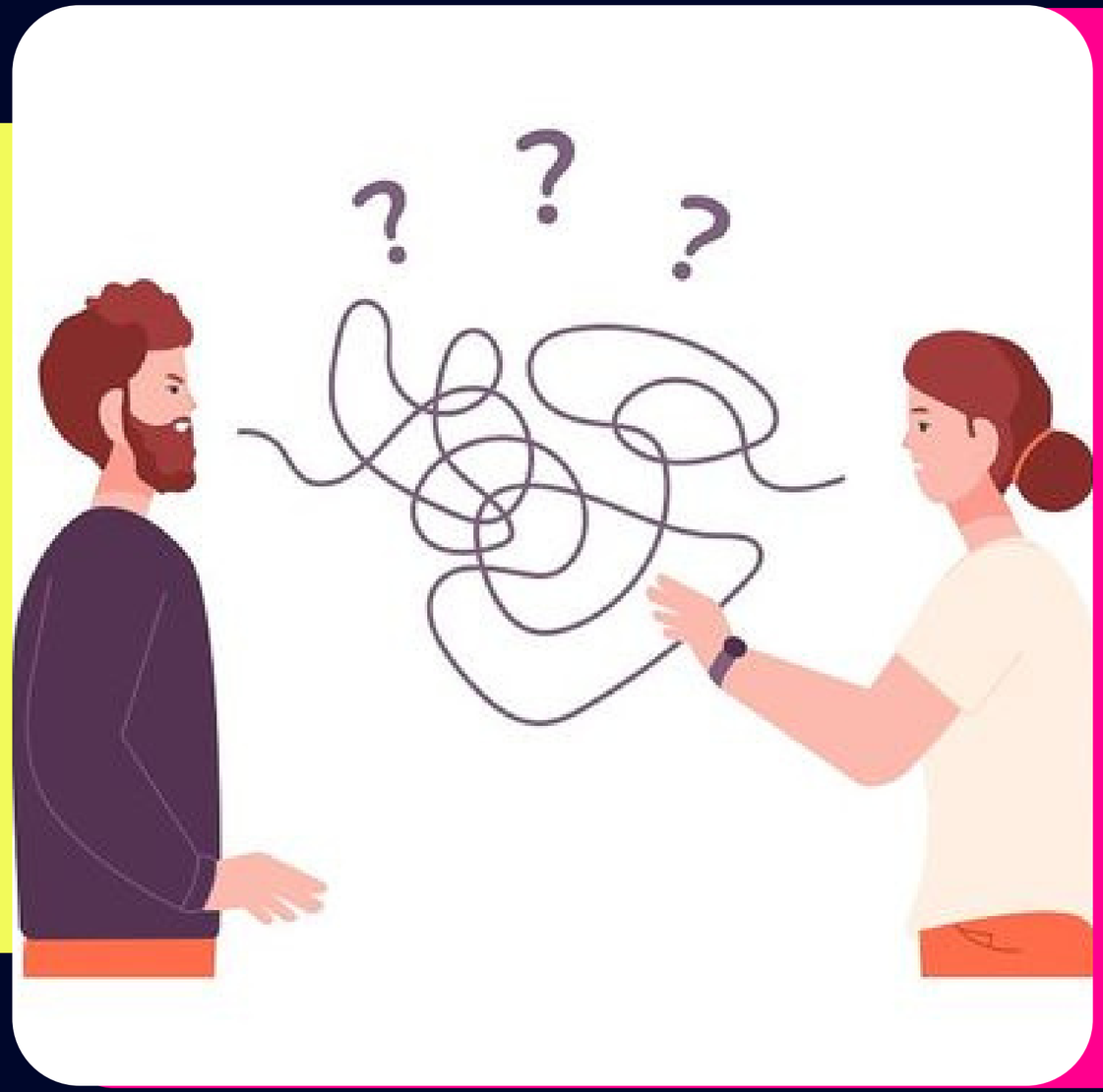
The CNN and LSTM models are trained through extensive experimentation and optimization of hyperparameters and training strategies, allowing for accurate gesture identification and interpretation.
The integration of the text-to-speech module involves selecting a suitable module and ensuring its seamless integration with the system, enabling clear and concise translation from sign language gestures to spoken English.
The graphical interface is meticulously designed, keeping in mind the needs and requirements of the users. The interface provides real-time feedback on gesture recognition, making it easy for users to understand the system's predictions and ensuring an intuitive and hassle-free user experience.

RESULTS AND EVALUATION:

SIGN LANGUAGE

The model accuracy and performance are evaluated through various metrics such as precision, recall, and F1 score. The results demonstrate high-precision gesture identification and accurate interpretation of sign language, indicating the effectiveness of the system in enhancing communication for deaf individuals.
The feedback from users is gathered through surveys and interviews, providing valuable insights into the system's usability and effectiveness in bridging the communication gap. The feedback is used to identify areas of improvement and enhance the system's overall usability and accessibility, ensuring a better experience for users.





CONCLUSION :

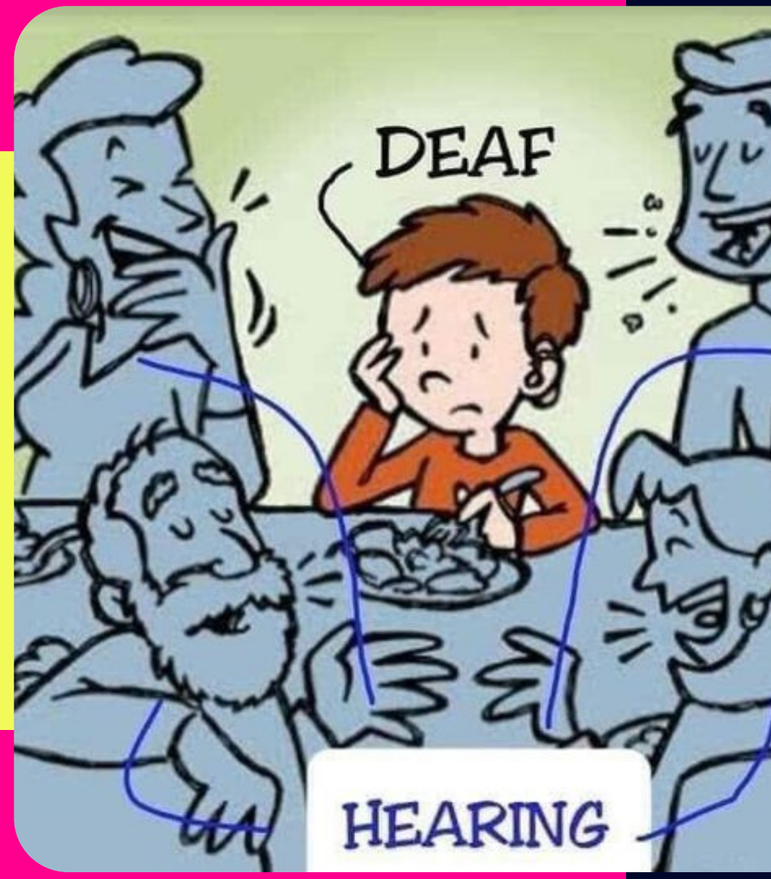
The project has successfully developed a sign language recognition system that accurately identifies and interprets sign language gestures and translates them into spoken English, fostering improved communication for deaf individuals.

The project has also developed an intuitive and user-friendly graphical interface that provides real-time feedback on gesture recognition, ensuring a seamless user experience.

FUTURE SCOPE:

Possible future improvements include integrating more sign language gestures for interpretation, improving the accuracy and performance of the models, and exploring the use of other audio output technologies.

Additionally, the project aims to collaborate with organizations to integrate the system into the daily lives of deaf individuals and create a more inclusive society.



THANK YOU