



# Echo Assist

An Application that offers seamless real-time language translation for wide range of users

**Problem Statement:** Real-time Language Translation: "Create a real-time translation tool that facilitates conversations between speakers of different languages, integrating speech recognition and synthesis for seamless communication."

# Overview

- Web-Application uses **Augmented Reality (AR)** to enable **real-time language translation** for normal as well as deaf and speech-impaired users in **Multiple languages**.
- The Web-app converts different languages as well as **Speech to Text** and vice versa, offers the **AR overlays** for sign language.
- The Web-app enables seamless **interview communication** by translating between different languages, including for candidates with **impairments**.
- Also assists **Illiterate** users as they get AR display of described objects on call for better comprehension.

Thereby focusing on wide range of users.



# Seamless Features of EchoAssist



## AR and Hand Sign Animated overlays for seamless Understanding :

For Sign Language Users and illiterate Users.



## Real-time translation between wide variety of languages

Also Speech to Text and Vice-versa



## Online functionality for live interaction

For reliable and easy operation



## Interview rounds for Normal & Speech-impaired candidates during Recruitment

Will support wide range of candidates



User A  
(Deaf)



User B

(Normal)



Speech to Text



Speech Input  
or Output

+



AR hand sign Overlay

# Process Flow

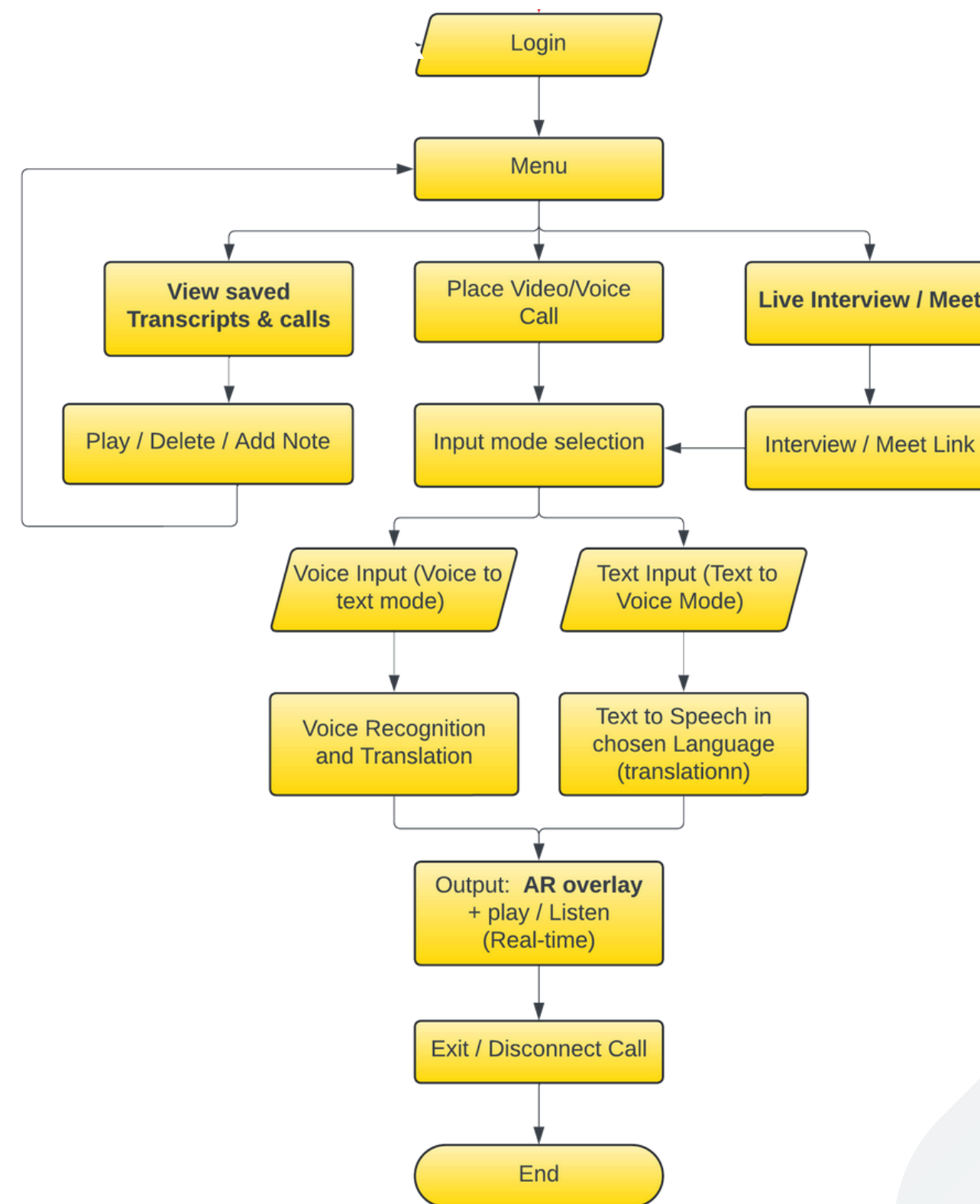


Fig : Flowchart





# Methodology

- **AR Overlays :** Using ARCore with Unity to create hand sign Animations.
- **Interviewing Platform:** Easy communication for speech / hearing impaired candidates through video calls that will display AR hand signs overlays.
- **Video/Voice call :** Integrating features with calling APIs like socket.io .
- **Speech-Text Conversion:** Microsoft Azure or Google Text to Speech APIs as affordable options. **Techotron 2** for conversion.

# Core Technologies



Web-Application  
Developement



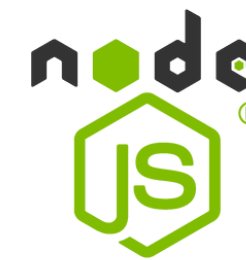
socket.io

Google APIs

Transcribing &  
Translation



Express



Authentication  
& Real-time  
Dataset retrieval



Firebase



PyTorch



TensorFlow

Image  
Processing



ARCore

AR Overlays &  
Animation

# Impact and Benefits on Users

- Facilitation of **Employment Opportunities**.
- Support for **Sign Language** users as well as Normal Users can benefit wide range of people.
- Reduction of Communication **Barriers** as it supports **multiple language** translation.
- Increased **Social Inclusion**.
- **Psychological Benefits** like Confidence boosting and reduction in anxiety.
- Aids the complex **recruitment** process easier for Normal and even impaired candidates.
- Patients can communicate with **Doctors** in mother tongue which system translates in user specified language.
- **Government** can use this as a platform to connect with speech and hearing impaired laborers and farmers to address their problems online.

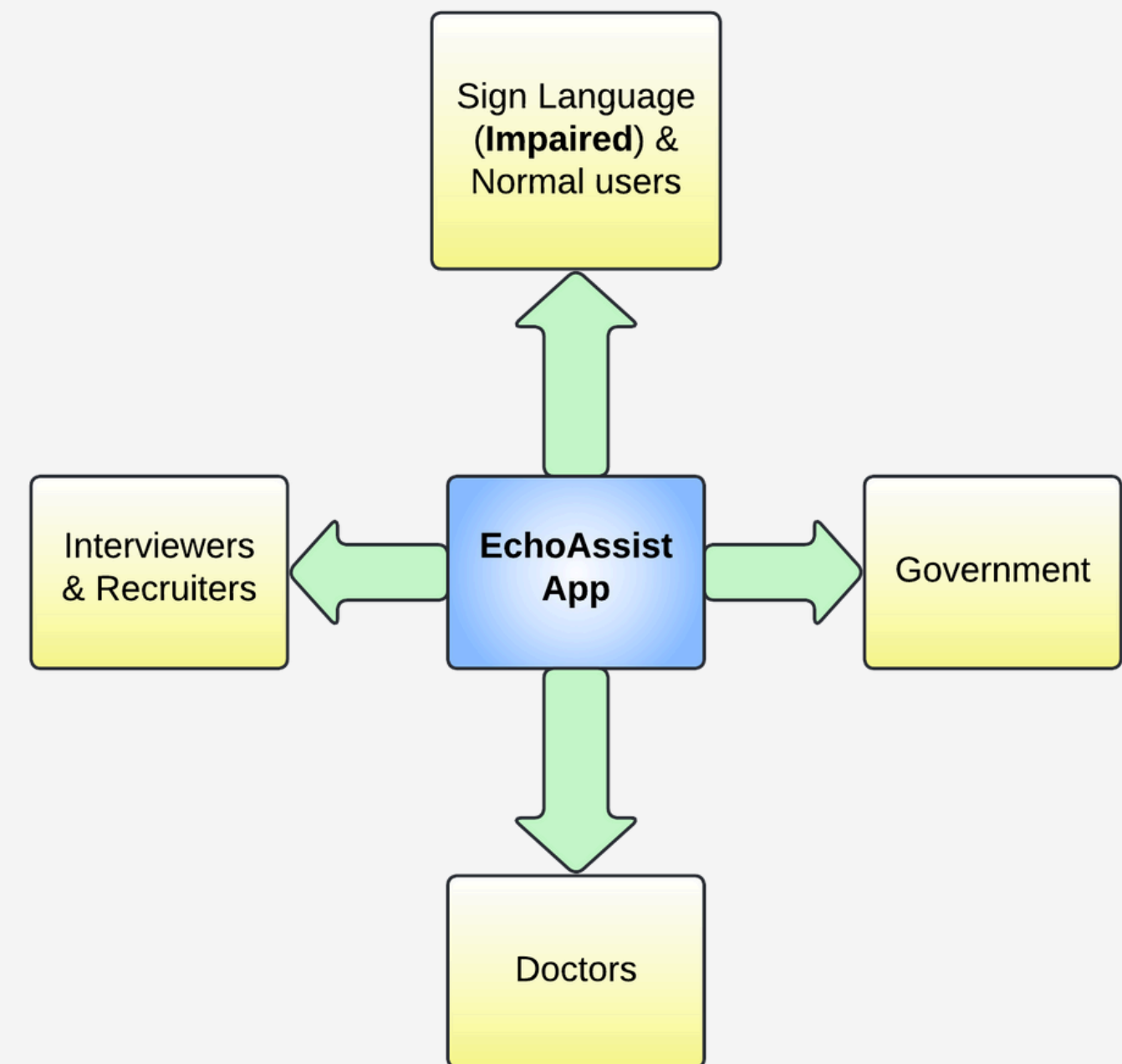


Fig : Applications

# Members

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