



# EchoAssist

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

# Overview

- Application uses **AI** with **Augmented Reality (AR)** to enable **real-time language translation** for normal as well as deaf and speech-impaired users in **Multiple languages**.
- The app converts different languages as well as Speech to Text and vice versa, offers the **AR overlays** for sign language.
- The 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



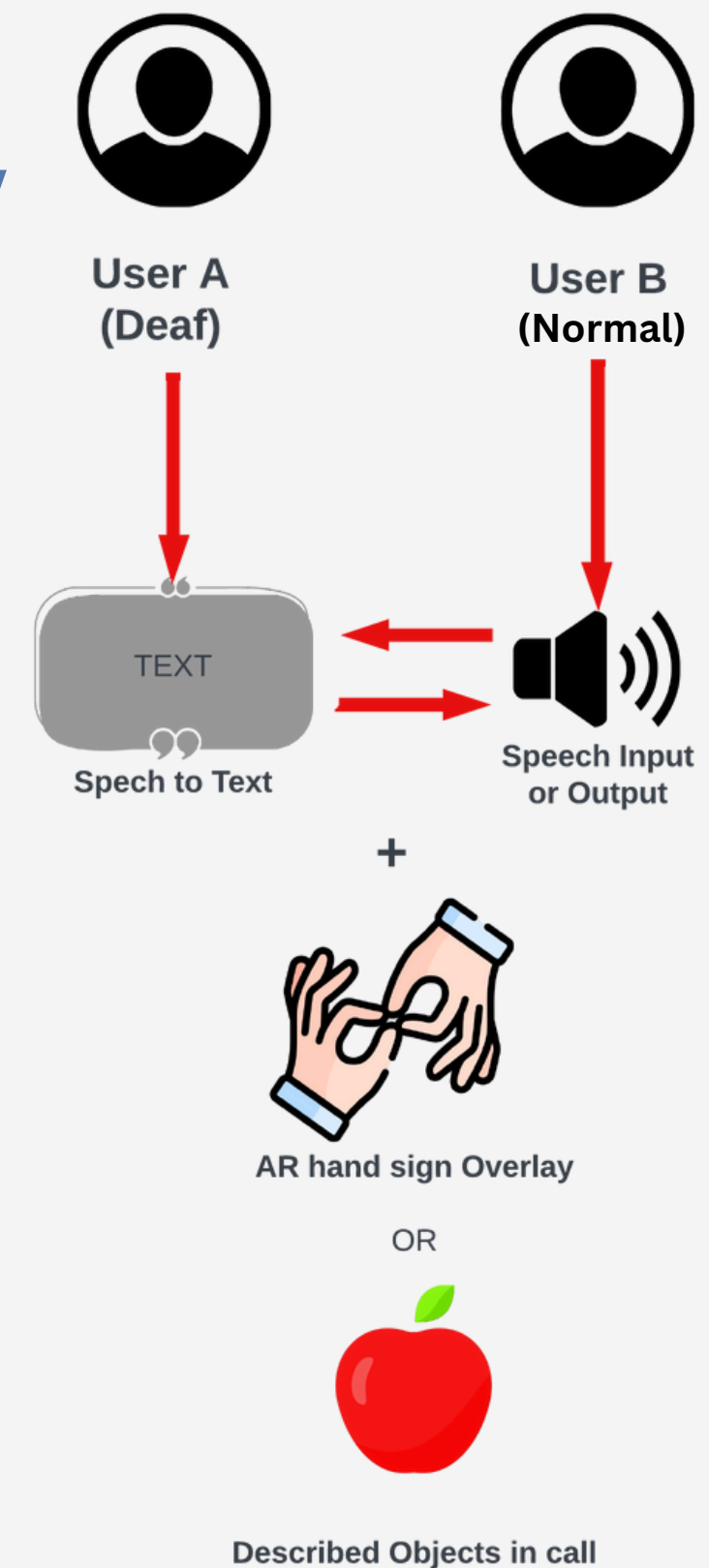
### Offline functionality & Voice Command operation

For reliable and easy operation



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

Will support wide range of candidates



# Process Flow

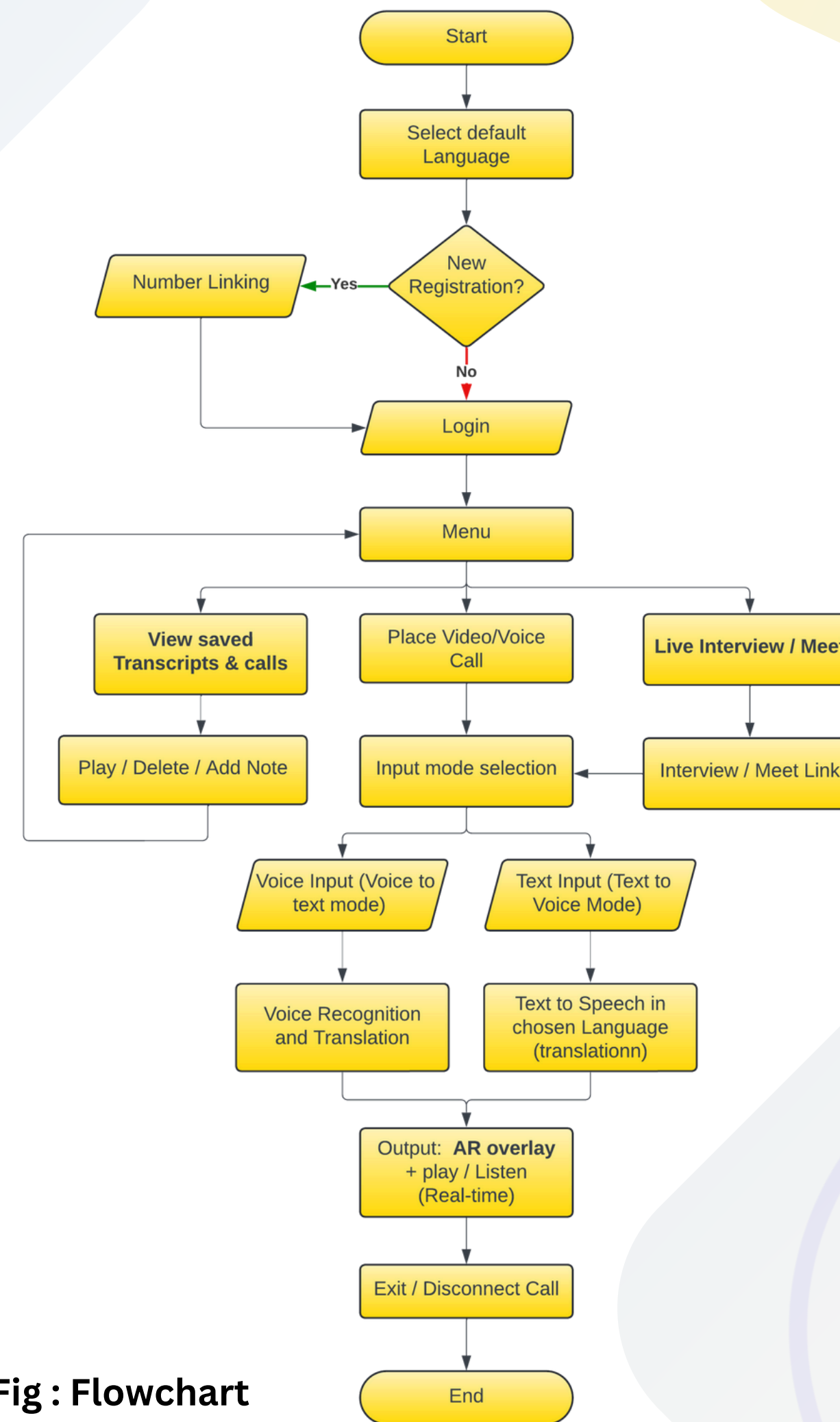


Fig : Flowchart



# Methodology

- **AR Overlays** : Using ARCore with Unity to create hand sign Animations.
- **AI Models** : Using AI image processing for translation and for **transcribing** video calls. **BERT** for Natural language processing in Multiple Languages.
- **Video/Voice call** : Integrating features with calling APIs like socket.io .
- **Offline Functionality** : Pre-defined Datasets for basic conversations without internet.
- **Speech-Text Conversion**: Microsoft Azure or Google Text to Speech APIs as affordable options. **Techotron 2** for conversion.
- **Interviewing Platform** : Unique codes for **encryption**, easy communication for speech/ hearing **impaired** candidates through video calls that will display AR hand signs overlays.



# Core Technologies



Flutter



Dart

Application  
Development



ARCore



unity

AR Overlays &  
Animation



Firebase



mongoDB

Authentication  
& Real-time  
Dataset retrieval



PyTorch



TensorFlow

Image  
Processing



socket.io



Azure

Transcribing &  
Translation

# 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.
- Areas with poor Internet facility: Communication translation and transcribing model for basic communication even in **offline** mode.

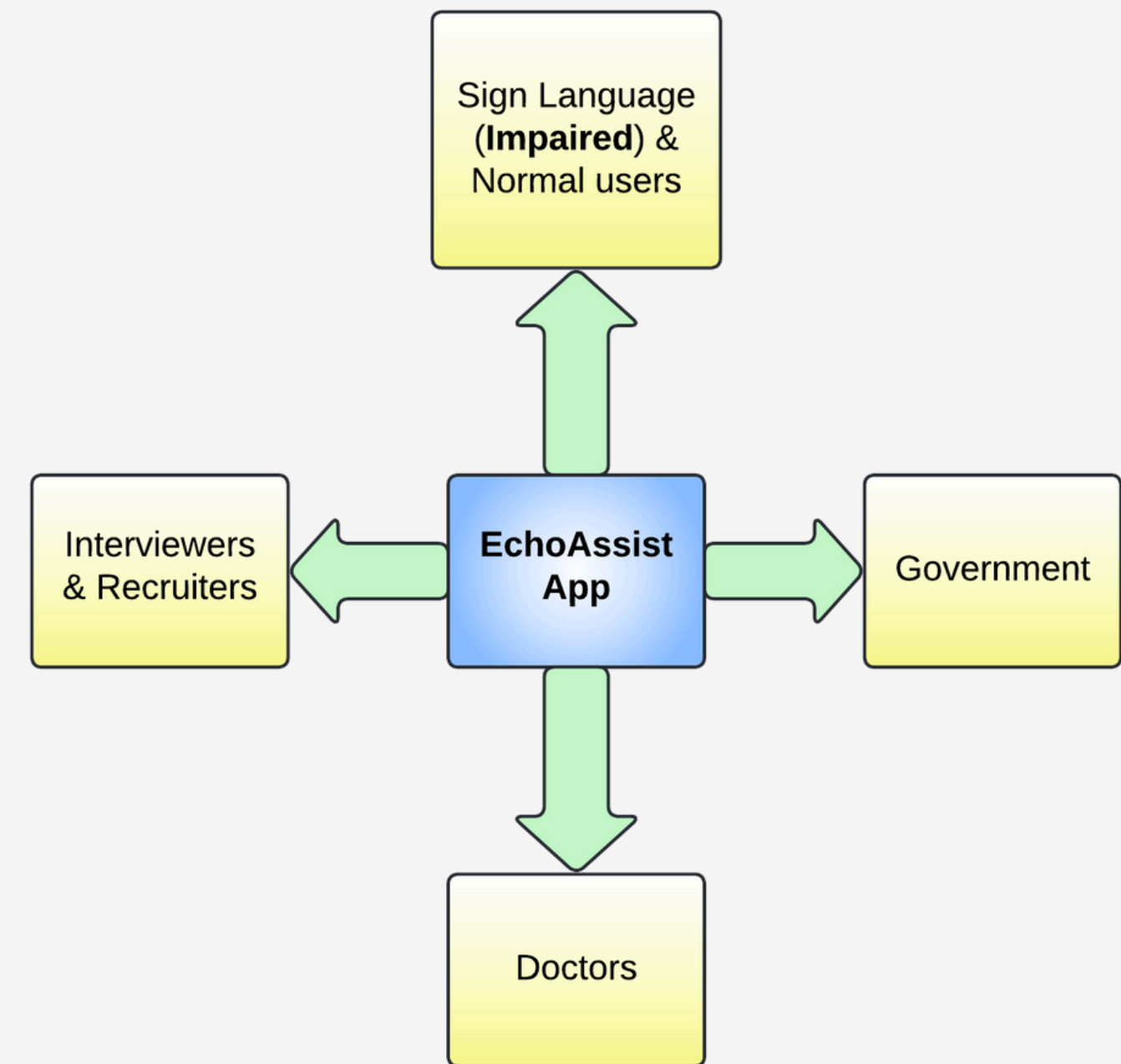


Fig : Applications

# Members

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