



EchoAssist

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

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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



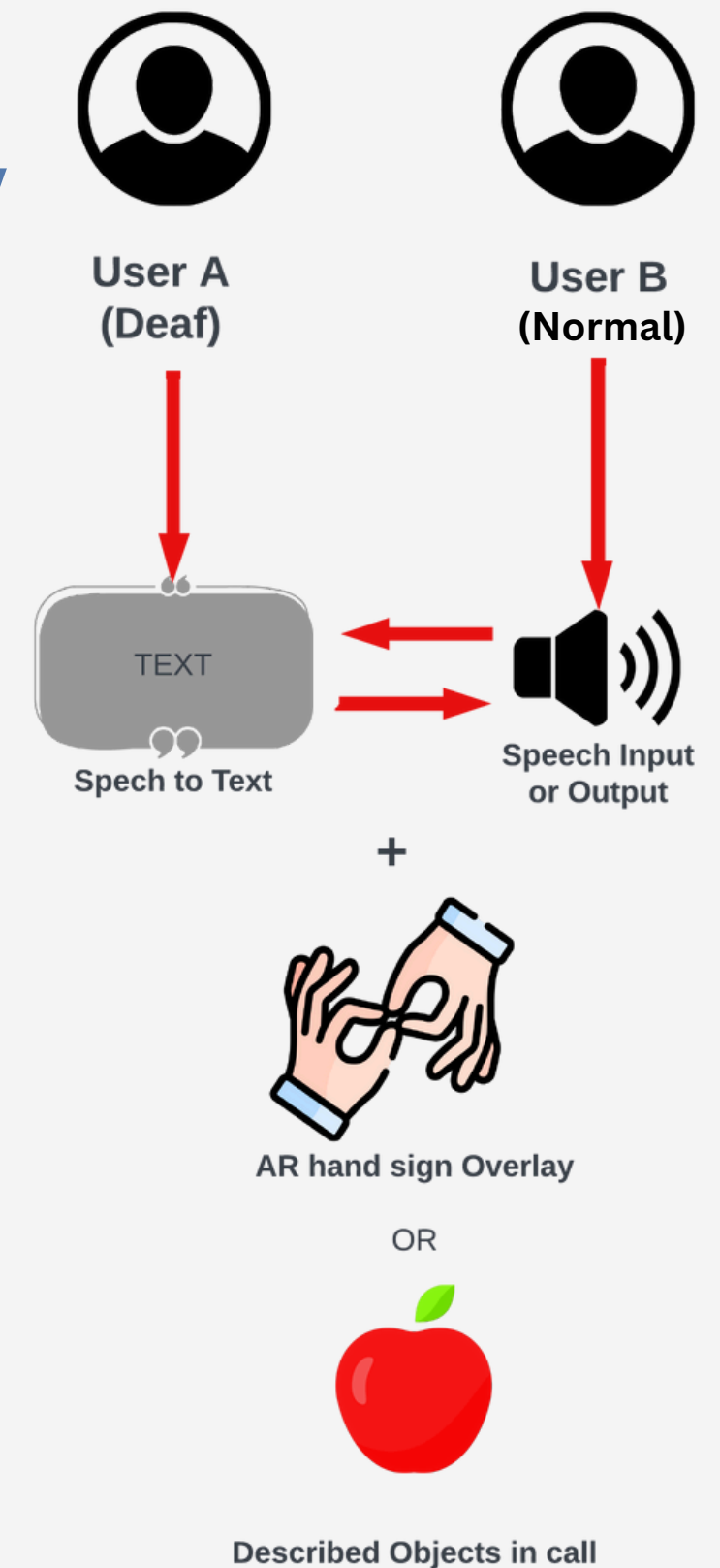
Offline functionality & Voice Command operation

For reliable and easy operation



Interview rounds for Normal & Speech-impaired candidates during Recruitment

Will support wide range of candidates



Process Flow

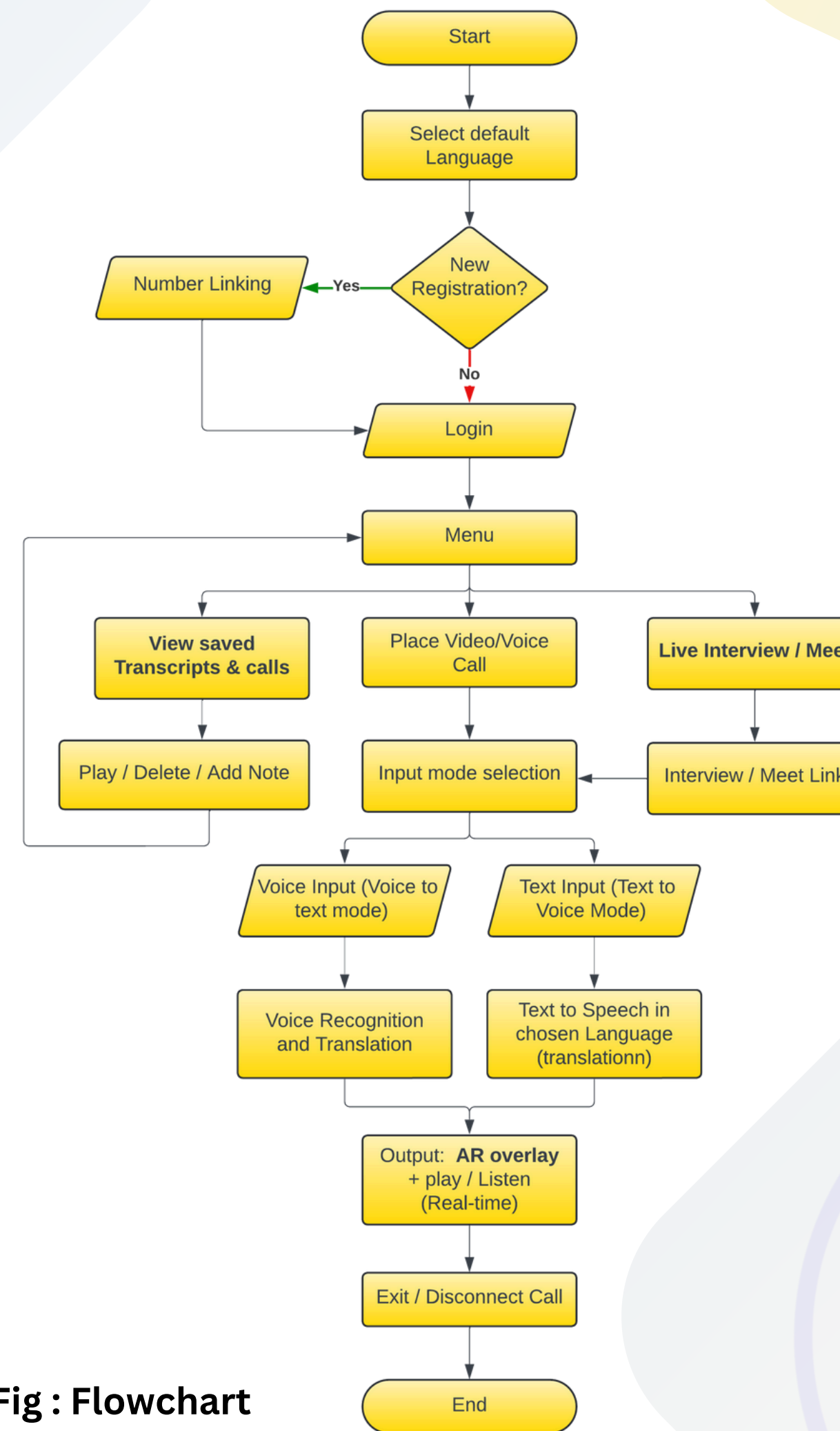


Fig : Flowchart



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.

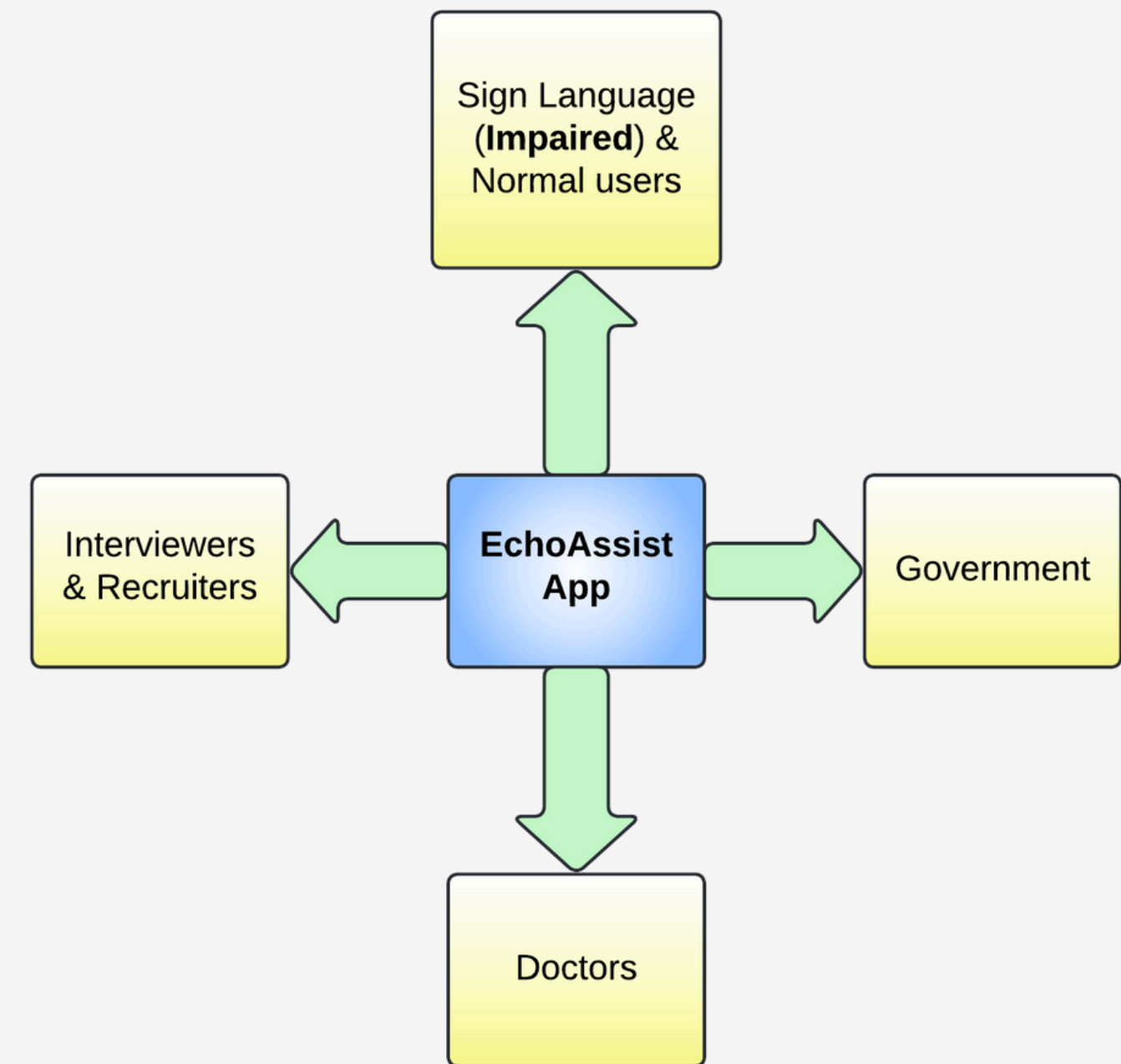


Fig : Applications

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