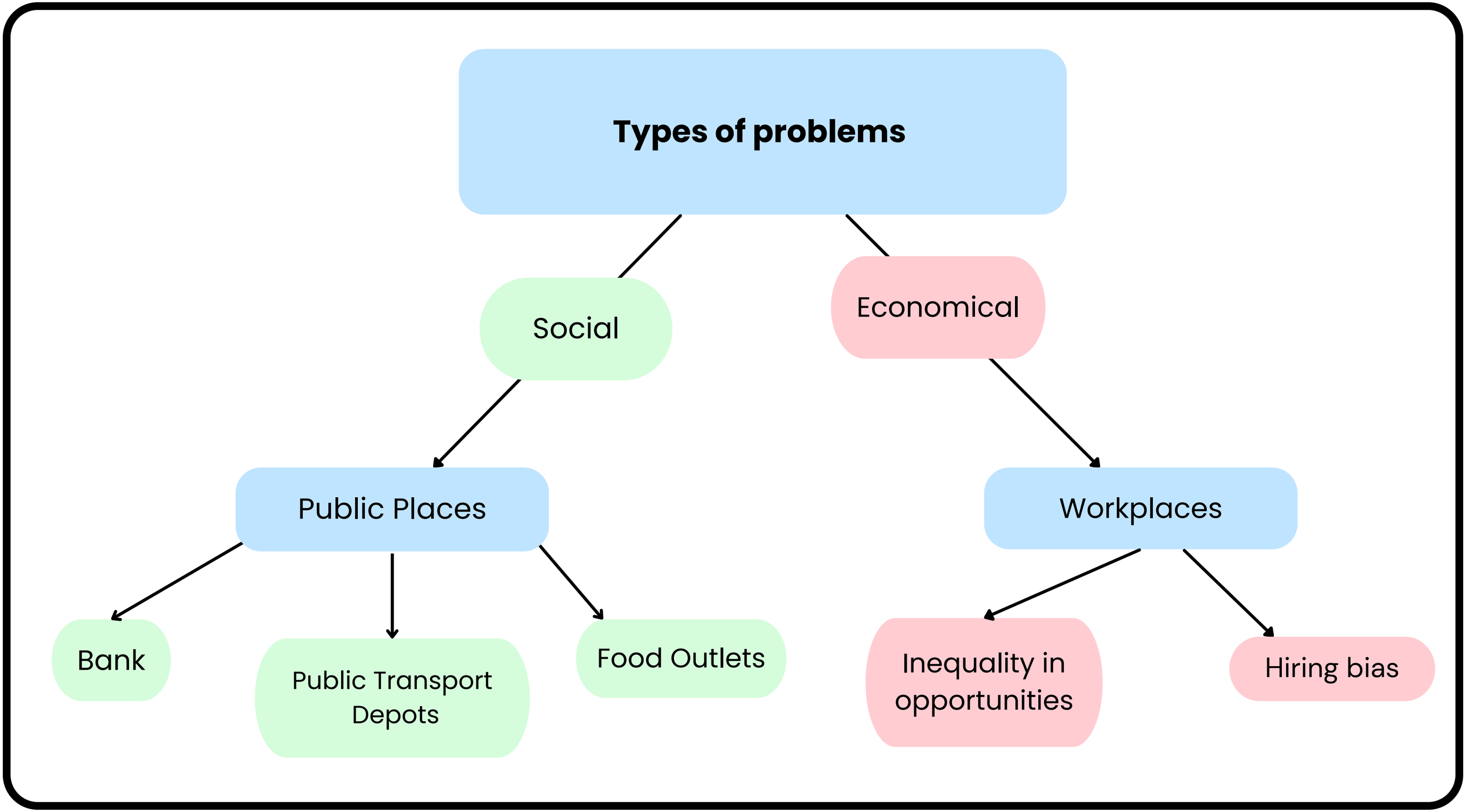
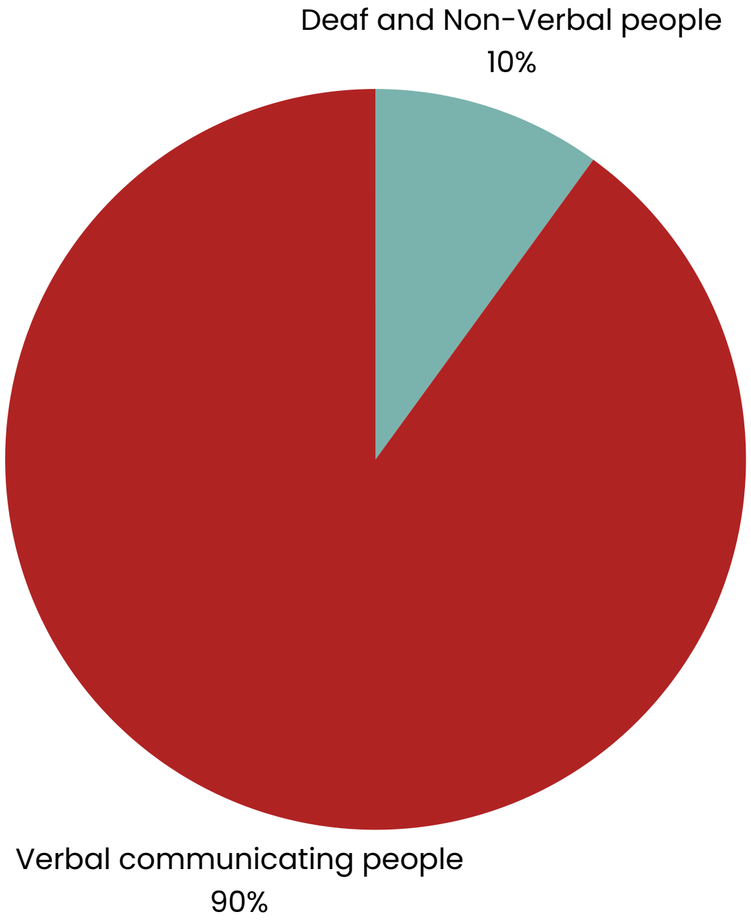
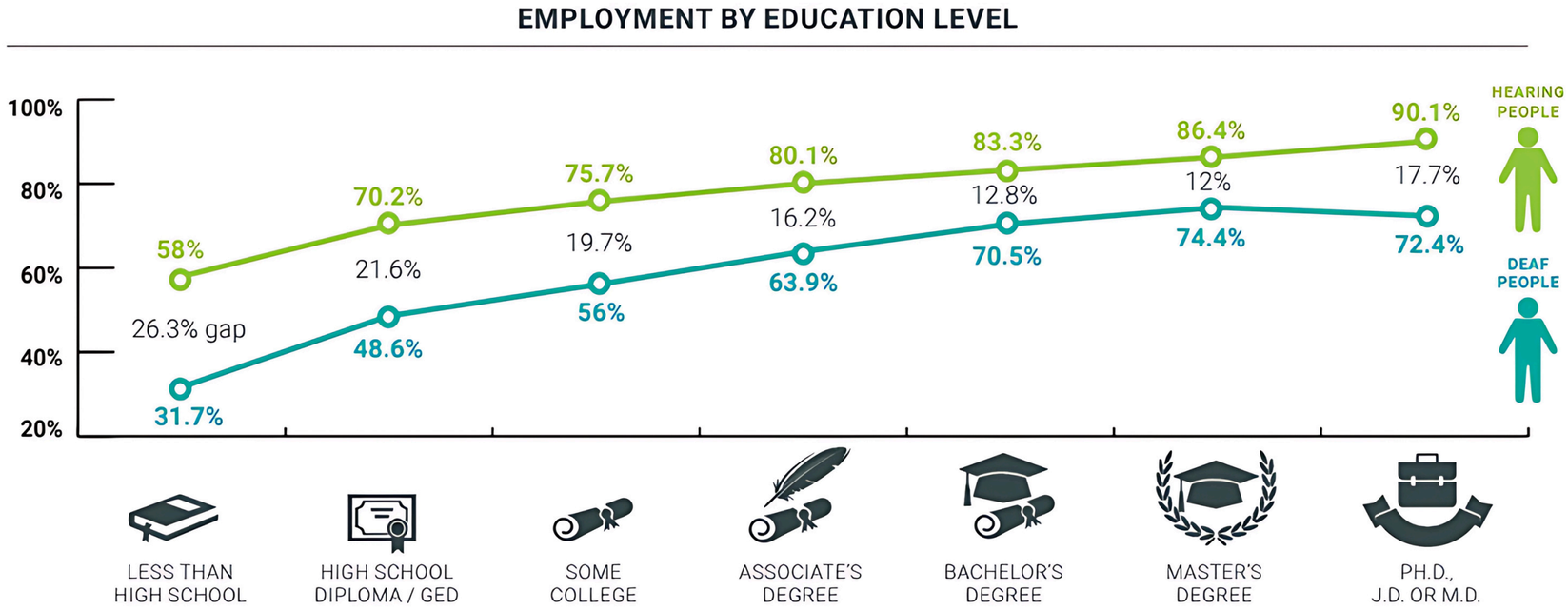
Problem Statement

In a hearing-centric world, deaf and mute individuals face social and economic exclusion due to the limited accessibility and understanding of sign language, despite its expressive power


Types of problems
Social
Economical
Public Places
Workplaces
Bank
Public Transport Depots
Food Outlets
Inequality in opportunities
Hiring bias

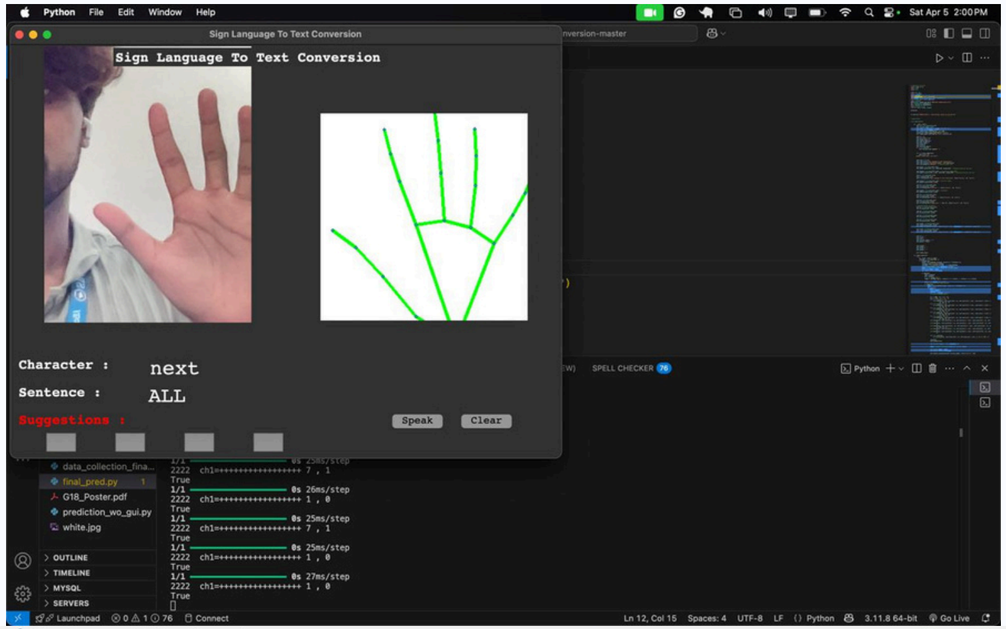

Deaf and Non-Verbal people
10%
Verbal communicating people
90%

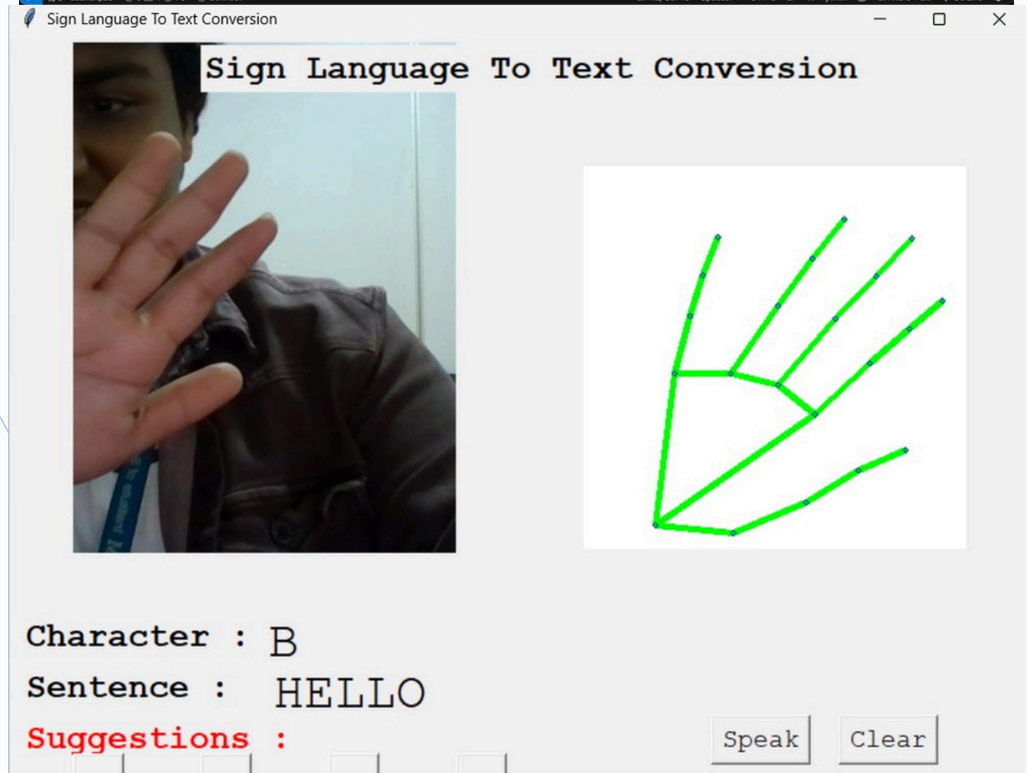

EMPLOYMENT BY EDUCATION LEVEL
100%
80%
60%
40%
20%
HEARING PEOPLE
DEAF PEOPLE
58%
70.2%
75.7%
80.1%
83.3%
86.4%
90.1%
31.7%
48.6%
56%
63.9%
70.5%
74.4%
72.4%
26.3% gap
21.6%
19.7%
16.2%
12.8%
12%
17.7%
LESS THAN HIGH SCHOOL
HIGH SCHOOL DIPLOMA / GED
SOME COLLEGE
ASSOCIATE'S DEGREE
BACHELOR'S DEGREE
MASTER'S DEGREE
PH.D., J.D. OR M.D.

Our Solution

“Equal Speak” Our Assistive Technology

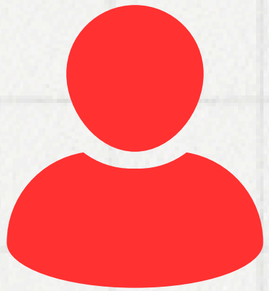
An AI system converts sign language to text or speech and vice versa, allowing for real-time communication and inclusivity. This advanced methodology and computer vision provide a scalable solution to bridge communication gaps effectively.



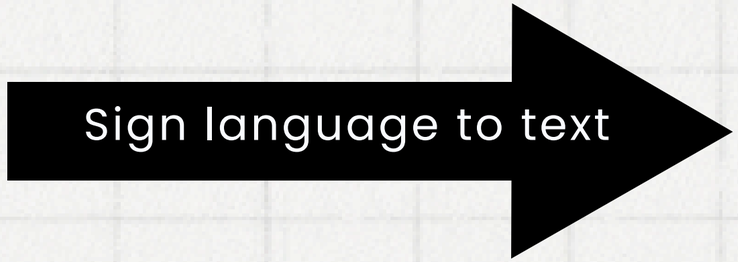


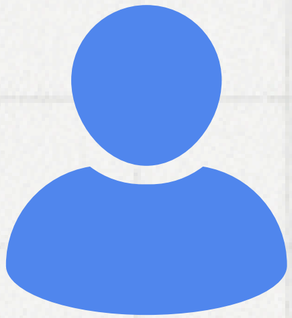
Technical Features

1) Sign Language Conversion :



Non-Verbal





- Enabling Sign Language to text conversion
- Text is then converted regional languages if needed and then read aloud

TECHNOLOGIES USED :

PYTHON

Mediapipe, OpenCV, Keras, cvzone

OTHER TECH

Read aloud technology with pyttsx3
LSTM methodology

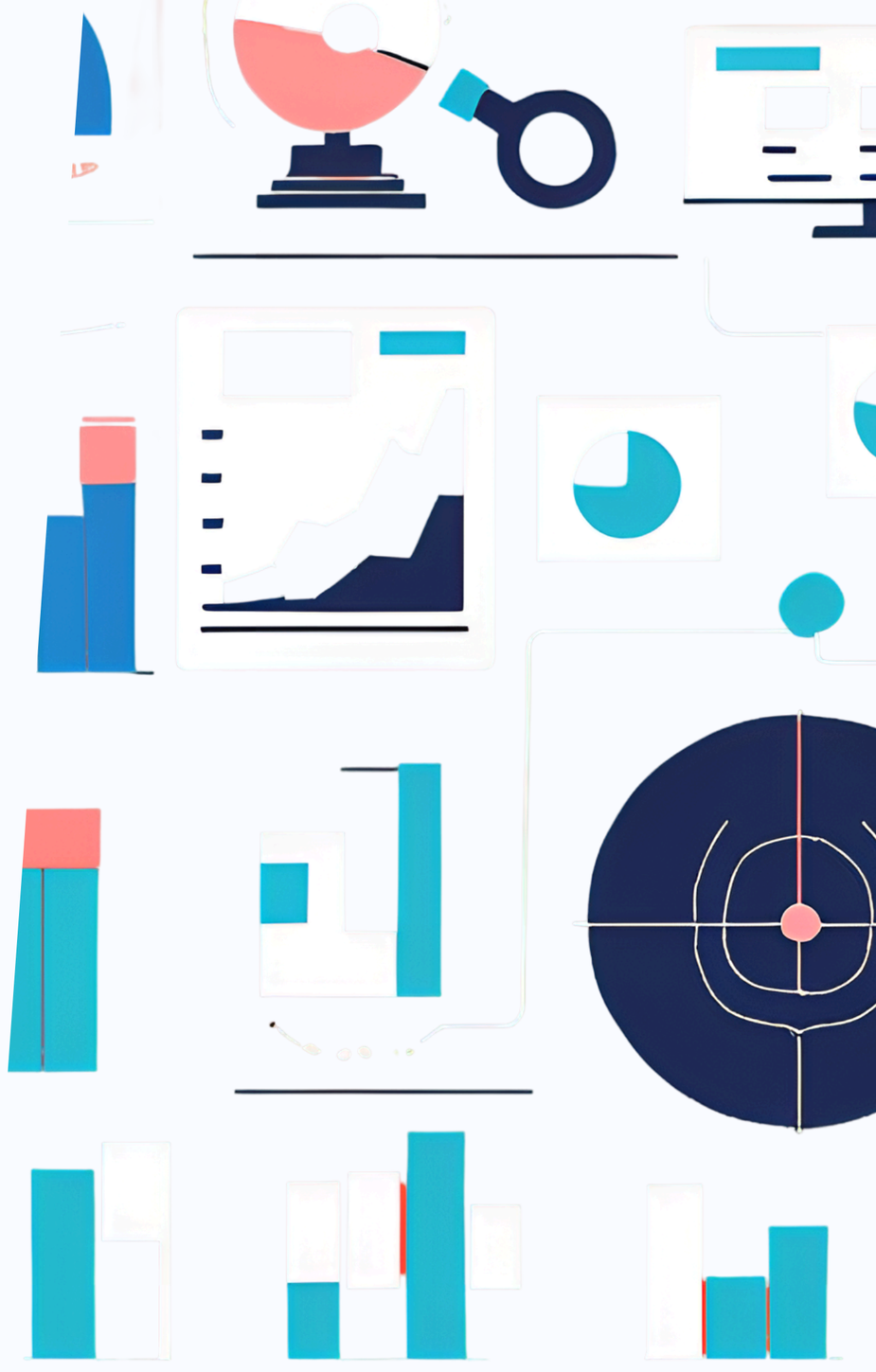
Market Research

Augmentative and Alternative Communication (AAC) Devices Market:

- AAC devices, which include tools that assist individuals with communication impairments, had a market size of **USD 2.31 billion in 2024.** This market is expected to grow to **USD 5.23 billion by 2031,** reflecting a CAGR of 8.11% (verifiedmarketresearch.com)

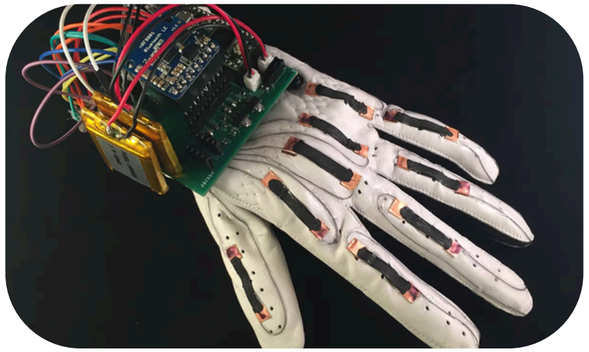
Sign Language translators Market:

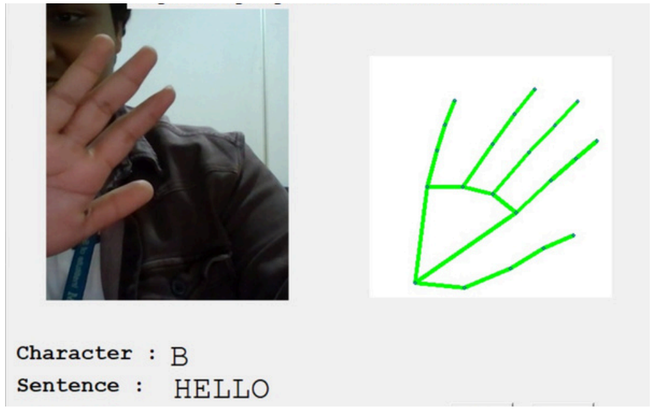
- The market for sign language interpretation was valued at approximately **USD 0.58 billion in 2024** and is anticipated to reach **USD 1.72 billion by 2033**, with a CAGR of about 15.2% from 2025 to 2033. (Businessresearchinsights.com)



Competitors versus Our Project :

SignAble





APP BASED

- A live sign language interpreter is connected on a virtual call
- Dependent on availability of interpreters
- Lack of privacy in conversation

GLOVE BASED

- Smart glove detects hand & finger movement and interprets
- Requires regular maintenance & frequent repair requirements
- Hardware based solutions are not as dynamic as AI solutions

OUR PROJECT

- Advanced AIML solution enabling contactless, real time interpretation
- Not dependent on a live person for interpretation and easier to push updates
- Compact & easy deployment

Business Model

- **Subscription-based Model:** Paid plans for organizations (corporates, hospitals, public places, educational institutions & platforms).
- **Freemium Model**: Free basic version for individuals for the first 45 mins of usage in a day. Features like unlimited usage, language customization and regional language support will be reserved for premium.
- **B2B & B2G Partnerships:** Collaboration with businesses and governments for large-scale adoption and deploying.
- **APIs for Integration:** Licensing AI models for integration into other applications.

IMPACTS & OUTCOMES :

Empowerment

We provide assistive technology that translates sign language into voice, enabling corporates to employ and empower deaf and non-verbal individuals.

Social Inclusion

Our technology bridges communication barriers, enabling deaf and non-verbal individuals to interact confidently in public spaces like food outlets and transport depots, helping them fully participate in society.

Awareness

Through our technology, we raise awareness about the challenges faced by the deaf and non-verbal community, advocating for a more inclusive society that values all voices.

Equal Employment

Our assistive technology allows corporates to hire and support deaf and non-verbal employees, promoting workplace diversity and inclusivity.

Technical Features

2) Deafness Assistance :

- When the sender is deaf, need for assistance is eliminated
- Assistance is needed only when the receiver is deaf
- Future developments may include converting to text into an animation showcasing it in sign language