



Executive Summary

SignBot is an AI-driven tool that converts text into sign language using semantic matching and a pre-recorded video library. Built for educational and accessibility-focused institutions in India, it reduces content creation time by up to 80% and lowers reliance on human interpreters. The solution enhances inclusivity and accessibility through a user-friendly, real-time interface across devices.

Client Profile

Industry: Educational Institutions, Accessibility NGOs, Hearing Impaired Communities  
Location : India

Business Challenge

Bridging the communication gap for hearing impaired individuals using sign language often requires trained interpreters, which are not always readily available. Additionally, converting textual or spoken content into sign language in real time is resource-intensive and expensive.

Objectives

- Provide an automated, accurate conversion of text into sign language.
- Reduce reliance on human interpreters for basic content translation.
- Improve accessibility and inclusivity in education, training, and customer support.

Solution Overview

- Develop an AI application integrated with SBERT based semantic similarity and exact phrase matching for sign video retrieval.
- Build a sign clip library with pre-recorded sign language videos and implement real-time matching and concatenation for dynamic sentence generation.

Implementation Details

- Optimize the backend to process and concatenate sign clips in a seconds per input sentence.
- Use semantic similarity to ensure fallback when exact sentence matches are unavailable, increasing coverage and accuracy.
- Deploy the final frontend solution with an interactive interface accessible on desktop and mobile devices.

Key Results

- It is expected to reduce the time for sign language content creation by 70–80% compared to manual methods
- It will improve accessibility for hearing impaired users, leading to better engagement and inclusivity.
- It will enable educational institutions and NGOs to reach a wider audience without needing dedicated interpreters for every session.

Testimonial

This solution is expected to significantly improve communication for hearing-impaired learners and will be simple to use. It is anticipated to make digital training sessions much more inclusive.

— Project Manager, NGO Organization

Key Takeaway

AI-assisted sign language bots have the potential to make digital content accessible, inclusive, and cost-effective, ensuring equal communication opportunities for the hearing-impaired community.

Impact at a Glance

+45%

Team Skill Growth

+100%

Client Satisfaction

+60%

Cost-effective

+100%

Inclusive