

# **Signly** 40. Visionary

### Executive Summary

When employing individuals with auditory impairment, the most pressing issue is clear communication. They often use lip-reading, written notes, and visual cues to comprehend instructions; however, 70% of deaf employees still report that these inefficient forms of communication cause great confusion.<sup>1</sup> This is because a large portion of the deaf community utilizes sign language as their primary language and struggle to comprehend spoken languages.<sup>2</sup>

with Recently, innovative applications, communication barriers have decreased. However. despite innovations. the such environment within manufacturing and retail industries is built to accommodate not individuals. hard-of-hearing Rather, due to stereotypical assumptions about inefficiency and high employment costs, deaf people are often not hired.<sup>3</sup>

Studying at a school that employs many deaf personnel, we see firsthand the challenges of training deaf employees. Instructions must be repeated, and there is great frustration when the employer and employee fail to understand each other. Taking inspiration from our experience of witnessing deaf employee training, we wanted to pursue a technologically modern solution. Our solution, Signly, is an Al-powered app that translates between real-time speech and sign language, providing an avenue for deaf individuals to communicate in their language of comfort. We aim to offer a high-quality communication experience with lower costs than the traditional practice of hiring specialized interpreters.

#### Product Description

Signly is especially designed for employees who rely on sign language to communicate. Our vision for this app is a two-way communication system between deaf and non-deaf employees. A non-deaf employee can utilize the app's built-in camera feature to translate sign language from deaf employees into text and audio. Innovative AI technology can also help translate non-verbal cues, such as facial expression and tone, to

https://education.nationalgeographic.org/resource/sign-language/. <sup>3</sup>US EEOC. "Hearing Disabilities in the Workplace and the Americans with Disabilities Act." January 24. 2023. prevent miscommunication. Conversely, when attempting to understand instructions, the deaf employees can toggle the microphone feature to convert speech into an AI avatar that generates sign language. Through this, we streamline communication and foster an environment inclusive for emplovees with hearing impairments. This matches our goal of fully integrating deaf



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individuals into their workspaces, aligning with the efforts of the United Nations' Sustainable Development Goal 10: Reduced Inequalities.

Furthermore, managers can oversee employees' accounts to assign responsibilities, which appear as haptic notifications on their screens, enabling employees to check for tasks to complete.

#### **Competitive Analysis**

With sign language translation products already in the market, Signly differentiates itself by leading in a real-time two-way communication system. Moreover, our use of AI to switch between different versions of sign language also appeals to the global aspect of the company, not limiting our viability to just one region of the globe. No other company currently provides a diverse and multifaceted integration of different sign languages into one app.

| Signly's Close<br>Competitors   | Signly's Relative<br>Advantages  | Signly's<br>Relative<br>Disadvantages   |
|---|--|---|
| - <b>Ava:</b> Real-time<br>captioning<br>interaction for<br>hard-of-hearing<br>individuals <sup>4</sup>                               | - Incorporates sign<br>language avatars<br>- Has a two-way<br>communication<br>feature, is<br>workspace-focused                        | <ul> <li>Less focused<br/>on captioning</li> <li>A more<br/>complicated<br/>system</li> </ul>   |
| - <b>Signapse:</b><br>Utilizes AI to<br>convert English<br>text to British<br>Sign Language<br>(BSL) using AI<br>avatars <sup>5</sup> | <ul> <li>Real-time<br/>translations</li> <li>Dual system for<br/>communication</li> <li>Targeted towards<br/>deaf employees</li> </ul> | - Not<br>incorporated in<br>public systems<br>(Signapse is<br>involved in UK<br>transportation) |

<sup>4&</sup>quot;Ava - All-in-One Click Captions for All Conversations." Accessed May 17,

<sup>&</sup>lt;sup>1</sup>Global Disability Summit "Global Disability Inclusion Report

https://www.globaldisabilitysummit.org/wp-content/uploads/2025/03/GIP03351-UNICEF-GD IR-Full-report\_Proof-4.pdf?.

<sup>&</sup>lt;sup>2</sup> National Geographic Society "Sign Language." March 28th, 2024.

https://www.eeoc.gov/laws/guidance/hearing-disabilities-workplace-and-americ ans-disabilities-act.

<sup>2025.</sup> https://www.ava.me/.

<sup>&</sup>lt;sup>2222</sup> https://www.ava.ine/. <sup>45</sup>Signapse's Sign Language Translation Using Generative AI: Achieving Photo-Realism and Accuracy| Signapse AI." Accessed May 17, 2025.

https://www.signapse.ai/post/signapses-sign-language-translation-using-generative-ai-ach ieving-photo-realism-and-accuracy?utm\_source=chatgpt.com.



Shown above is an analysis chart of similar competitors, emphasizing Signly's relative advantages and disadvantages. Despite being slightly more intricate than existing AI captioning or sign language systems, our application offers a more cost-effective alternative to traditional methods used within the workforce, such as hiring specialized interpreters.

### Target and Potential Markets

Our target market for this product is a global company that is involved in both the manufacturing and retail of household goods. The global aspect is incorporated in the comprehensiveness of our AI sign language system, and we aim to specifically address the language barriers faced by deaf employees within the retail space.

Regarding our potential market, we're looking for similar retail corporations that have issues hiring personnel experienced in working with deaf individuals. Currently, many retail businesses tend to underutilize sign language interpreters due to deterrents such as cost concerns and minimum time requirements.<sup>6</sup> Consequently, we provide them with a more efficient and cost-effective alternative, delivering smooth communication without the commitment of employing specialized personnel. Thus, we become highly cost-saving in the long term.

## Implementation Strategy

We plan to have four main implementation phases to allow Signly to function in a global environment. First, we plan to train our AI model to accurately interpret sign language by collecting training data across the workplace. Once our app has been developed, we will experimentally introduce it in one major office while noting any issues and critical areas for improvement. Then, we plan to do a gradual global rollout, hosting introductory training sessions that train employees to use the product as an efficient way of communicating with the auditorily impaired coworkers. Finally, we aspire to routinely invite employees to provide feedback that improves our Al algorithm, including a guarterly meeting with a 6-member deaf employee advisory board.

# Finance (Costs)

| Cash Outflows                        | 2025     | 2026     | 2027     | 2028     |
|--------------------------------------|----------|----------|----------|----------|
| Apple App Store                      | \$99     | \$99     | \$99     | \$99     |
| Storage Cost (User Data)             | \$2,500  | \$2,500  | \$2,500  | \$2,500  |
| Server Cost                          | \$1,800  | \$1,800  | \$1,800  | \$1,800  |
| Elevenlabs (Text-To-Speech)          | \$10,000 | \$10,000 | \$10,000 | \$10,000 |
| GPT -40 Mini API                     | \$11,700 | \$11,700 | \$11,700 | \$11,700 |
| SignAll SDK (Animation)              | \$5,000  | \$5,000  | \$5,000  | \$5,000  |
| MediaPipe (Sign                      | \$5,000  | \$5,000  | \$5,000  | \$5,000  |
| Whisper (OpenAI)<br>(Speech-To-Text) | 0        | 0        | 0        | 0        |
| Total Annual                         | \$36,099 | \$36,099 | \$36,099 | \$36,099 |

Shown above is our predicted financial outflows for the following 4 years, as well as our app's total upfront production cost. We will need an upfront investment of \$63,000 with annual maintenance costs of

| app development          | \$25,000 |
|--------------------------|----------|
| UI/UX                    | \$3,000  |
| AI Intergration          | \$8,000  |
| Sign Language Recognitic | \$10,000 |
| Sign Language Animation  | \$6,000  |
| Cloud                    | \$2,000  |
| Security                 | \$2,000  |
| Mangament and Testing    | \$4,000  |
| Legal Lisencing          | \$3,000  |
| Total Upfront Cost       | \$63,000 |

\$36,000. This figure was realized after we adopted cost-efficient technologies whilst not sacrificing ease of use or innovation. With the use of GPT-40 Mini API, we can have the fastest response time, which is integral to real-time communication tasks. Our high investments in SignAII SDK and MediaPipe allow our app to both process and animate sign language efficiently in fast-paced environments.

In year 2, we will break even and position ourselves as a sustainable and scalable business (shown below). With this initial capital, we are able to integrate the auditory-impaired employees into company workflows at a significantly cheaper price. As shown in the graph, after four years of implementation, Signly will have saved around 53,000 USD compared to an interpreter. Executives, help us make your company more inclusive!



<sup>6</sup> "Ready to Be Heard." Accessed May 17, 2025. https://www.shrm.org/topics-tools/news/hr-magazine/ready-to-heard.