



## Harnessing Generative AI to Transform Speech for People with Autism and Language Barriers

### WINGS'

*mission is transforming the lives of individuals with moderate to severe autism and their families through a customized approach to lifetime services, education and advocacy.*

*We envision a Bay Area where historically marginalized individuals who learn and behave differently are accepted, respected and feel valued.*

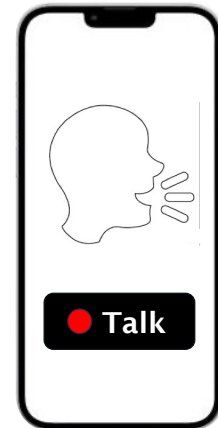
### Problem

Individuals with moderate to severe autism and similar neurodevelopmental disorders commonly struggle with speech and language; they are often minimally verbal or extremely hard to understand. While parents and teachers may know what they are saying, others who engage with autistic people while performing everyday tasks, such as grocery shopping or ordering food, do not. Being able to translate unclear speech into understandable speech *in real time* would be a game changer, not only for the autistic community but for people with language barriers.

### Community-informed solution

Generative artificial intelligence (AI) systems are turning a slew of futuristic ideas into reality. WINGS is harnessing generative AI to translate unclear speech into understandable speech specifically for people with moderate to severe autism and other speech disorders. Remember Star Trek's "universal translator" device for translating speech from one planet into another's native language? That's the idea: to begin with, ours will translate from hard-to-understand English to understandable English.

**Introducing the WINGS Smart speech translation mobile app**  
WINGS Smart for the iPhone (and later Android) will leverage chatbot capabilities, prompt engineering and generative AI. The app will learn about the user's speech patterns in real time, with no pre-training required. Users with speech disabilities will tap the app's button on their phones while speaking, and the app will interpret their speech in real time.



### Potential market

Around 80 million people, 1% of the world's population, have autism spectrum disorder. In the U.S., 26.7% of children with autism have "profound" (severe) levels, meaning they are minimally verbal, are unable to advocate for themselves and are likely to need 24-hour support throughout their lives. In California alone, even as its population shrank in 2023, **the autism caseload hit an all-time high of more than 177,400**. The **"severe behavior" population is also surging**: over 10 years, the number of these cases grew 1,116%.

### Test market

Volunteer WINGS families, students, teachers and others with lived experience

### Competing voice technology products

We view competing or related voice tech products as validation of market potential and desire among our target populations for speech-to-speech interpreter mobile apps like ours. Of the many augmentative and alternative communication (ACC) tech solutions available, Voiceitt's browser-based speech recognition app and speech output products from Tobii Dynavox are standouts.



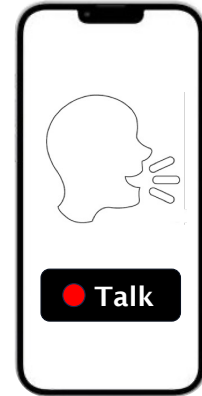
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**Funding Opportunity!** WINGS is seeking funding to transform the way Silicon Valley cares for those with moderate to severe autism and similar neurodevelopmental disorders. Autistic individuals and their families face systemic barriers—attitudes, policies, practices and systems—that have resulted in unequal access to and exclusion from employment, services, programs and other opportunities.

### WINGS Smart speech translation mobile app 6-month design/build start-up cost:

- 1 part-time app designer = \$50,000
- 2 app developers = \$175,000
- App testing by WINGS students, parents, teachers, others = \$0
- Whitepaper co-authored by WINGS, technical experts, partners = \$10,000
- Marketing/deployment to app store = \$300 annually
- Infrastructure costs = \$5,000 (hosting support)
- Contingency = \$15,000

**Total start-up cost: \$255,300**



After the **WINGS Smart** app goes to market, we project annual development and support costs in the range of \$50,000-\$100,000.

### Business Model

We anticipate a reasonable monthly subscription fee for the app and potential forms of membership subscriptions, subsidy for those unable to pay, group discounts, etc. While WINGS is seeking start-up capital in the form of a social good investment or a tax-deductible donation, we are fully aware of the need for specific ROI, go to market strategies, fee schedules and other business plans and also hopeful to leverage your networks to help us accordingly. The mobile app will also be suitable for those with other types of disabilities and speech challenges, further extending the market scope.

### High-level road map

#### Summer/Fall 2024

- Research, preliminary experimentation with OpenAI's ChatGPT tool
- Develop fundraising and marketing communication collateral
- Identify and meet with potential partner(s)/grantors

#### Winter/Spring 2025

- Sign partner(s) agreement(s)
- Hire app designer and developers

#### Summer/Fall 2025

- 6-month design/develop; evaluation; test with WINGS students, parents, teachers
- Audit app
- Marketing/deployment to app store

### Project leadership

WINGS' [six-member board](#) is uniquely positioned to have deep understanding of the challenges faced by those with moderate to severe autism. Anita Carey, board chair and parent, is spearheading our **WINGS Smart** development. She is staff infrastructure engineer at Wisq, maker of an AI-powered real-time guide for managers. Previously staff site reliability engineer at LinkedIn, Anita holds a bachelor's degree in aeronautical and astronautical engineering from MIT.



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### **About WINGS**

Founded in 2001, WINGS is a nonprofit provider of transformative, robust and individualized educational programs and lifetime services to help people with moderate to severe autism become as independent as they possibly can be across their entire lifespans. Certified by the California Department of Education, WINGS offers accommodated curricula and therapeutic programs encompassing speech pathology, occupational therapy, behavior management and sensory integration. Our functional-based elementary and secondary programs lead to a certificate of completion, which is different from the traditional high school diploma. Building upon our stellar interdisciplinary team's expertise, WINGS is strengthening our existing work in Silicon Valley by expanding our breadth of supportive lifetime services for neurodivergent youth, adults and their families. Our new WINGS 4Life inclusive adult services are designed for individuals who have aged out of specialized educational programs. Launching in 2025, the WINGS 4Life pilot program for adults ages 22+ will provide independent daily living skills training and assistance; comprehensive family support with coordination on funding, housing, health care and transportation; community integration with opportunities for internships, volunteering, employment and vocational training; and socialization, music, art, health and wellness, exploration, travel and fun.