BioSpeech

“Speech Technology Solutions for Human Health”

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Recent SBIR projects ($4.5M)

- Hearing Impairment: hearapp™ Auditory Rehabilitation
- Autism, Parkinson’s: Speech Prosody Assessment
- Dyslexia: Nemies™ Phonemic Awareness Training
- Stuttering: Intervention Tracking
- Apnea: At home apnea detection
- Animal Models: Vocal behavior based drug testing
Executive Overview

Explore many markets / Technology driven

Speech Technology

Hearing Impairment hearapp™ Auditory Rehabilitation

Autism, Parkinson’s Speech Prosody Assessment

Dyslexia Nemies™ Phonemic Awareness Training

Algorithms that analyze / recognize / transform / compress / generate speech

Apnea At home apnea detection

Animal Models Vocal behavior based drug testing
Focus on the *Computerized Auditory Rehabilitation market*: hearapp™
Features:

- **Adaptive**: gets harder only when you’re ready
- **Individualized**: pre-test to find best starting point for you
- **Extensible**: clinician/user/parent can add words, using *text-to-speech synthesis*
- **Multimodal**: revert to lip reading if needed
- **No literacy required**: children, functionally illiterate adults
- **English & Spanish**: no Spanish language products exist
- **Adult and child versions**
- **Progress reporting** for clinician/user/parent

Competition:

- No other product has >1 of these features, *but rehab experts say we need all!*

Status:

- Field tests completed,
- Product launch on the AppStore, Oct 26, at $49.99
Problem **hearapp** Is Trying to Solve

- 50M+ Americans have hearing impairment [HI] …
  “… so severe that it may makes communication difficult”.
- This number is increasing
- Growing professional consensus:
  - Hearing aid and cochlear implant devices are not enough
  - Need intensive auditory rehabilitation – brain exercise
  - *Only computerized solutions can do that cost-effectively*

Market Opportunity & Competition

- **Market**: Hearing impaired English or Spanish speakers, worldwide, ages 2—119
- **Total Addressable Market**: 150M+ worldwide @ $35 per unit net..........$5.25B
- **Serviceable Available Market**: USA only, current device users: 10M....... $350M
- **Immediate-Term Target Market**: AppStore, Rehab experts, CI firm……..$300K
- **Drivers**: Aging population, younger folks with hearing damage due to loud music
- **Customers**: Users, Clinicians, Manufacturers, Audiology software providers
- **Competition**: LACE, ABLE CLIX (by Advanced Bionics)
IP/Management

TECHNOLOGY/IP
- Will obtain © for (massive, expert based) content: Visuals, word lists, recordings
- Have our own text-to-speech synthesis source code
- Software protected via standard methods for reverse engineering prevention

MANAGEMENT (early stage company …)
- President/CEO: Jan van Santen
  - Prof and Director of Center for Spoken Language Understanding at OHSU
  - 15 + 15 years speech technology research at AT&T Bell Labs + OHSU
  - Member BOD at SVOX AG, Scientific Advisory Board at Sensory Inc.
- CFO: Kimberly Basney
- Chief Engineer: Brian Snider
- Chief Scientist: Alexander Kain
- Product Design Director / hear app lead: Pamela Connors
- Board of Directors (pro forma): Jan van Santen

- Key hires the company desires to fill:
  - CEO, Marketing, Customer support, Software engineer
Momentum

- **Recent hearapp™ developments**
  - March 2015: Completed Phase II, including successful field test
  - June 2015: Completed NIH Commercialization Acceleration Program
  - July-Oct 2015: Demonstrated product at three conferences
    Distributed product to 50+ professionals for review
    Arranged for independent evaluation by House Ear Institute
  - Oct 26, 2015: Launched on AppStore

- **Moving forward**
  - Build up web and social media presence via
    - Reviews from professionals
    - Blog
    - On-line hearing test
  - Building up investment capital via 7% “fee” on SBIR’s
  - Licensing: Meet with a CI manufacturer
  - Licensing: Meet with an audiology office software provider
  - AppStore sales
Planned Apps

- **Auditory rehab:**
  - hearapp variants and versions in other languages (software *language-independent)*

- **Web based auditory testing**
  - Do I have a HI? Do I need a HA or a CI? Does my HA/CI work? What rehab do I need?
  - Fee based / links to BioSpeech products

- **Disrupting the value chain: algorithms for self-tuning smartphone based hearing aids**
  - *Now:* We pay $4.4K for pair of hearing aids, *every 4-6 years; no insurance (except VA)*
    - Breakdown: Manufacturing (10%) + R&D (30%) + Audiology services (40%) + Profit (20%)
  - *Mega trend:* Smartphone + Low-cost passive in-ear device + Minimal audiology services
    - *It’s suddenly all about speech technology based Apps, not hardware, not services!*

Slow scenario via NIH funding and BioSpeech reserves

- 5-year product development cycle / minimal marketing & sales capability
- May miss the boat on mega trend

Fast scenario

- 18-month product development cycle / aggressive marketing & sales
- Need: $5M
Thank You!