**Mobile Devices in the
Assistive Technology Industry**

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Richard Mander Background

- Stanford - Psychologist interested in making technology understandable
- Apple, Group Manager - Advanced Technology, Interactive Media
- Zanzara, Principal - User-centered design of technology products
- Navman, CTO - GPS for car, boat, and personal navigation
- HumanWare, CEO - Blind, Low Vision, and Learning Disabled devices
- Board member - Several startups
- BigScreenLive, CEO - Internet access for seniors

- Interested in making technology work for people
- Universal design is the future
- Blog www.designedfortherestofus.com
- Helping UW Tech Transfer Office explore commercialization of research

The Assistive Technology Market

- Markets: How big? Growing? Well served?
- Blindness
  - Small percentage of the population
  - Slow growth rate
  - Well penetrated market. Sympathetic.
- Low vision
  - Bigger market than blindness
  - Growing due to Boomer bubble and longer life expectancy
  - Not well penetrated. Hidden.
- Learning disabled
  - Much bigger market - could be 5+% of students
  - Growing due to greater awareness
  - Almost a new market. Very hidden.
- Augmentative and alternative communication
- Deafness
- Mobility
- Prosthetics
- Cognitive disability
- Aging?

Blind products

- Work in Braille, Text to Speech, Navigate

Scannar HumanWare

Stream HumanWare

BrailleNote HumanWare

Brailliant HumanWare

Breeze HumanWare

KNFB Reader

Tiger ViewPlus

Screen Readers

- Read the screen to me

JAWS
Freedom Scientific

Window-Eyes
GW Micro

VoiceOver
Apple

Mobile Speak
Code Factory

Low vision

- Magnify text and my viewing experience

Clearview
Optelec

Compact
Optelec

Jordy
Enhanced Vision

Mobile Magnifier
Code Factory

Graduate
HumanWare

ZoomText
Ai Squared

Learning Disability

- De-cypher text, read it, or help me read it

Kurzweil 1000™

Kurzweil
Cambian

Reading Pen
Wizcom

ClassMate
HumanWare

The major players

- Blind
  - HumanWare - Notetakers, DAISY Players, Braille displays, GPS
  - Freedom Scientific - JAWS, Notetakers
  - Optelec - Notetaker
  - Duxbury - Braille
  - Code Factory - Screen readers for mobile devices
  - Apple - Accessible PC, iPod shuffle
  - KNFB - KNFB Reader
- Low vision
  - Ai Squared: Screen magnifier
  - Optelec: CCTV, Hand-held magnifier, Portable viewer
  - Freedom Scientific - CCTV, Hand-held magnifier, Portable viewer
  - HumanWare - CCTV, MyReader, Hand-held magnifier, Portable viewer
  - Enhanced Vision: Jordy
- LD: Learning disability
  - Cambium (Kurzweil 1000),
  - HumanWare (ClassMate)

Challenges in the AT industry

- Small market
  - Lack of funding
  - Niche market to the big companies
  - Many small companies > low investment in 'R' of R&D
- Low volume manufacturing
  - Makes products expensive
  - Can lead to low quality
- Channel to market
  - Where to buy?
  - How to market
- High support costs
- Most disabled people have limited funds
- Adapt mainstream products or build dedicated products?

Solutions

- Build a custom device
  - e.g. HumanWare Trekker Breeze

- Adapt mainstream devices
  - e.g. KNFB Reader

- Create special I/O peripherals
  - e.g. Braille displays with Bluetooth to PC

- Make mainstream products work for everyone
  - e.g. Apple iPod Shuffle and VoiceOver

Technology trends in mobile

- Processing power
  - Text to speech, Voice recognition, Image processing
- Storage
- Addition of sensors: accelerometer, camera, video ...
- Connectivity, bandwidth
- Positioning: GPS, FM, WiFi, integration
- PAN: Bluetooth
- Touchscreen UX
- Web 2.0 LAMP
  - Linux, Apache, MySQL, PHP
- Mobile devices with SDKs - Microsoft, Apple, Palm ...
- Cloud and SaaS
  - Storage and server power with no investment
  - Ability to scale on demand
- It has never been easier than now to create something

Finding an opportunity

Low vision   Blind   Deaf   LD   Developmental   Mobility

- Who is the user?
  - How old, school/home/work ...
  - What's the job they are trying to get done?
- Who is the customer?
  - Parent, Teacher, Doctor, Therapist, Employer?
- People buy solutions not a products
  - Your product will be part of a larger solution. Where can you add value?

Some opportunities

- Color picker for Blind
- Location flashlight for Blind
- Daisy reader for Blind/Low Vision
- Magnifier for Low Vision
- NIMAS reader for LD
- Games

- What are your ideas?

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