Assistive Technology to Address Limitations in Vision and Hearing

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Agenda

- Technology for Individuals with Hearing Impairments
- Technology for Individuals with Vision Impairments
- Technology for Individuals with limitations in both hearing and vision

Technology for Individuals who are Deaf or Hard of Hearing

- Technology for Individuals with Hearing Impairments
  - Case Study - Zimmer Dodge
  - Case Study - Post Office
  - Case Study - ReStore
  - Case Study - AAC app

Case Study - Zimmer Dodge

Technologist: Dave

Job: Zimmer Dodge; Service Tech (oil changes, tire rotations, etc.)

Difficulty:

- communicating with the service manager, parts department, and service advisor
- Safety - garage opening closing; service bays; lifts
- One-on-one communication with peers

Boogie Board

Alert Flashers

Garage Doors

Lift

Paging

Old -style pager, but instead of receiving a pho
number to call, you can receive a text telling yo
where to go.

- Can have custom messages programmed
  send at the press of a button.

Messages he needs:
- Oil change
- Oil change/tire rotation
- Report to service manager
- Report to service advisor

Beartooth/Gotenna

Allow texting communications between two or more phones without WiFi signal or data usage.

- Warehouses often have places with poor reception or wifi coverage.

2 way radios

Text message on standard 2 way radios
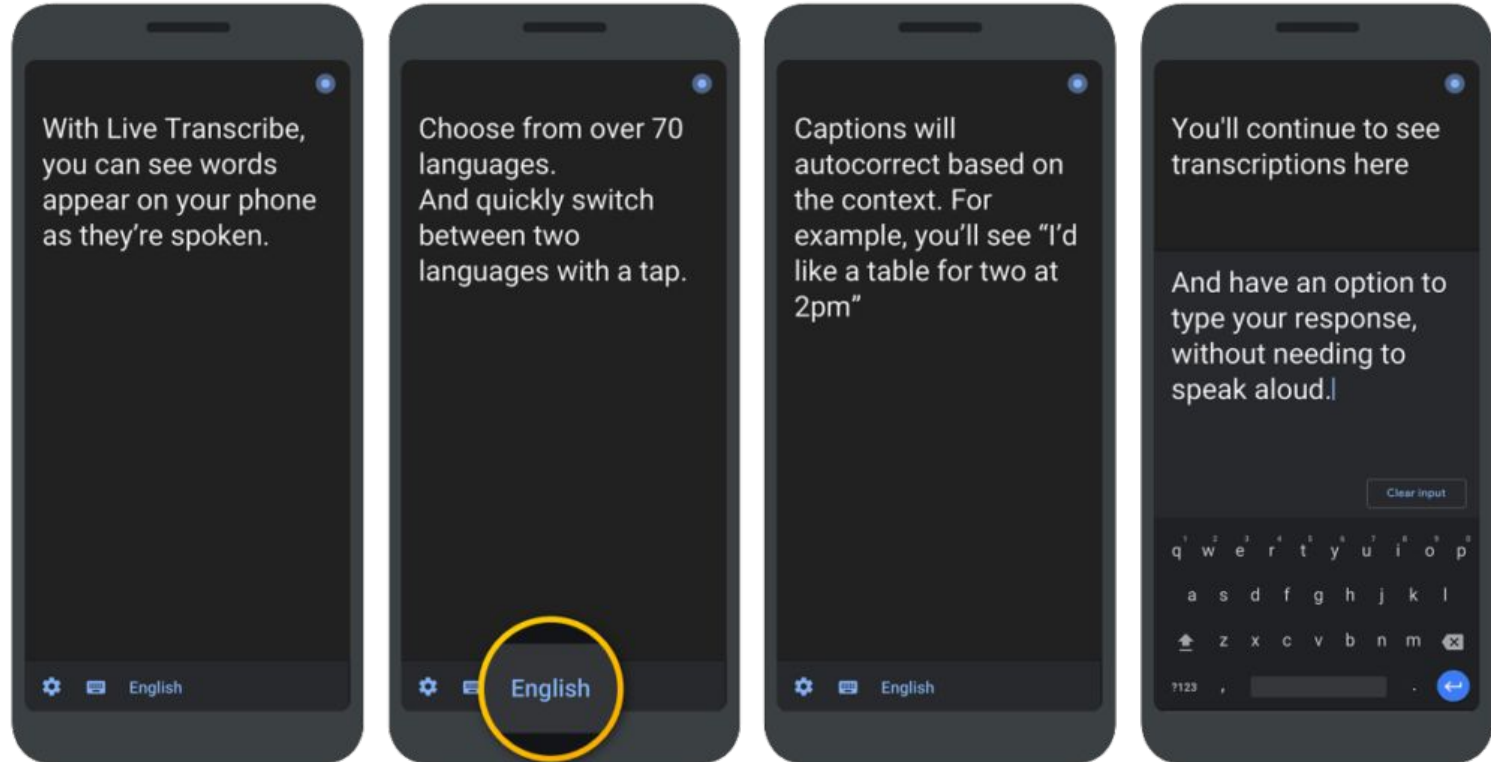
Case Study - Post Office

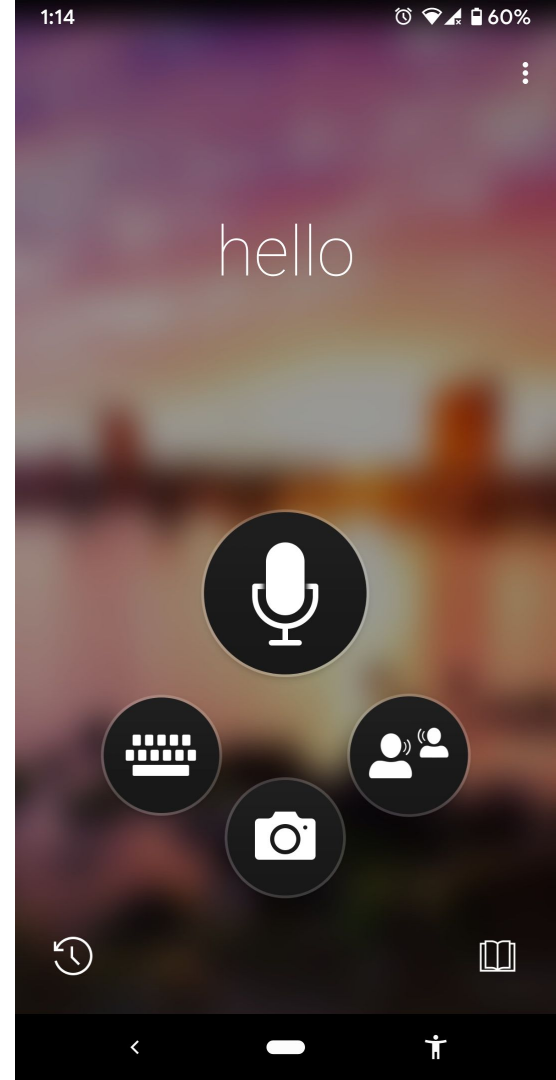Technologist: Kevin

Job: Postal Support Employee at post office

Difficulty: accurate and timely face to face communications with manager and coworkers

- Paper and pencil were tried and not effective

Live Transcribe (Google)

Microsoft Translator Demo

Case Study - ReStore

Technologist: Kevin

Job: Habitat for Humanity Re-Store
- Receive donations at loading dock
- Stock the store
- Load customer purchases

Difficulties:
- Loading dock alert is auditory only
- FRS radios used to page employees to help load purchases
- Communication with customers
- Fire alarms are auditory only

Sound Sensors & Pager

Case Study - Kohl's

Technologist: Karen

Job: Picker at Kohl's for online orders

Difficulty: Communicating with coworkers and supervisors

Solutions:
- iPod with text to speech app - he can type what he wants to say and it reads it aloud to coworkers and supervisor.
- Lip-reading*** generally not recommended
- Text supervisor when he is in another part of the store (instead of calling on the phone)

AAC App

AAC Text to Speech Demo

Technology for Individuals with Vision Impairments

- Case Study - Kroger
- Case Study - Office of Vocational Rehabilitation

Case Study - Kroger

Technologist: Karen

Job: Re-shelving Clerk; Kroger

Difficulty:

- Identify details of each product to be re-shelved
- Locate specific shelf and exact placement for items

Portable CCTV & Monocular

Case Study - Vocational Rehabilitation Counselor

Job Duties requiring assistance:
- Reading paperwork documentation
- Signing paperwork
- Reading computer documents
  - Filling out forms

Demonstrate
- Braille Labeler - locate proper file folders
- CCTV - sign documents
- Phone Apps - read paper documents
- Computer Access

Braille Labeler

CCTV & Arrows

Bone Conduction Earbuds

Using VoiceOver on Your Phone
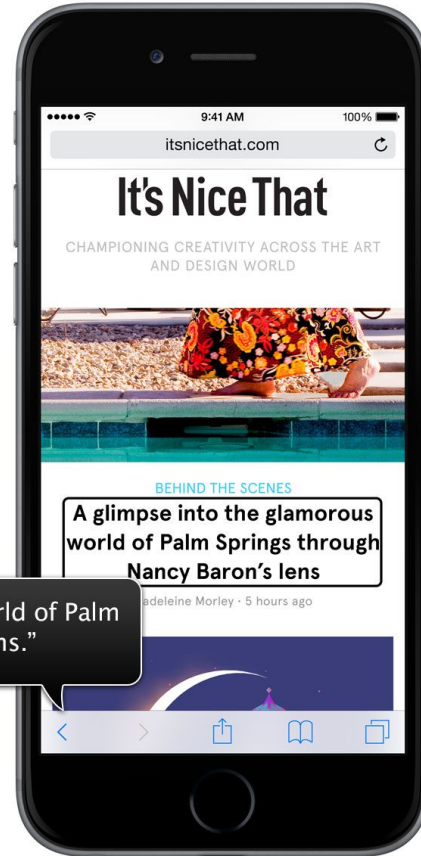
Phone Apps for Reading
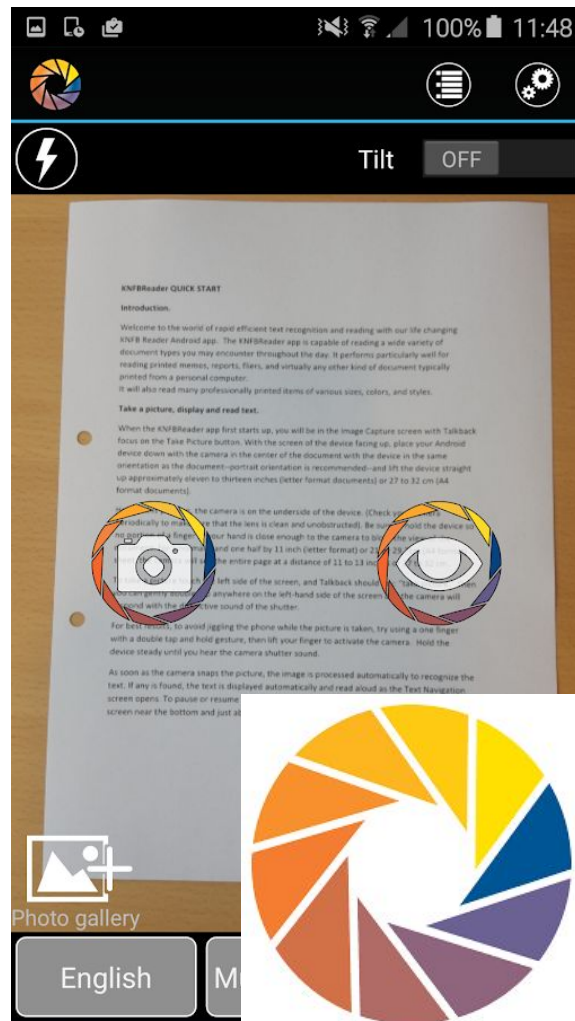
Computer Access - High Contrast

Computer Access - Screen Readers

Technology for Individuals who are Deaf-Blind

Most of the technology will be a combination of technology for people who are deaf or hard of hearing and technology for people who are blind or have low vision.

- Braille - biggest TECHNOLOGY difference
    - It is the only access to a computer or written information for someone who does not have enough sight or hearing to use one of the other technologies discussed.
    - May be used by people who are blind - but the number of people using braille vs. screen reading technology is small - about 10% use braille

Demo braille display/writer

Ten Most Common Occupations at Case Closure Deaf-Blind Consumers

- Homemaker (20%)
- Stock clerks and order fillers
- Janitors and cleaners
- Customer service representatives
- Office clerks, general

- Production workers
- Teachers and instructors
- Food preparation workers
- Retail salesperson
- Business Enterprise Program operator

Types of jobs held by those closed with an employment outcome varied widely and included many professional and other high-income positions (e.g., lawyers, carpenters, computer occupations, financial advisors, administrative services managers, geological engineers).

Case Study - College Student

Technologist: Karen

Job: Engineering Major

Difficulty:

- Unable to access textbooks, particularly with diagram descriptions
- His personal Macbook that he used with Voiceover was unable to access everything on Blackboard
- He preferred to read via printed Braille, which would not work with the MacBook
- Had difficulties taking notes in class
- He was unwilling to address hearing loss

Braille Printer

- JAWS, Focus 40 Braille Display
- Olympus Digital Audio Recorder
- Blaze OCR Scanner and Stand
- Braille Printer -
    - Charts, graphs, diagrams
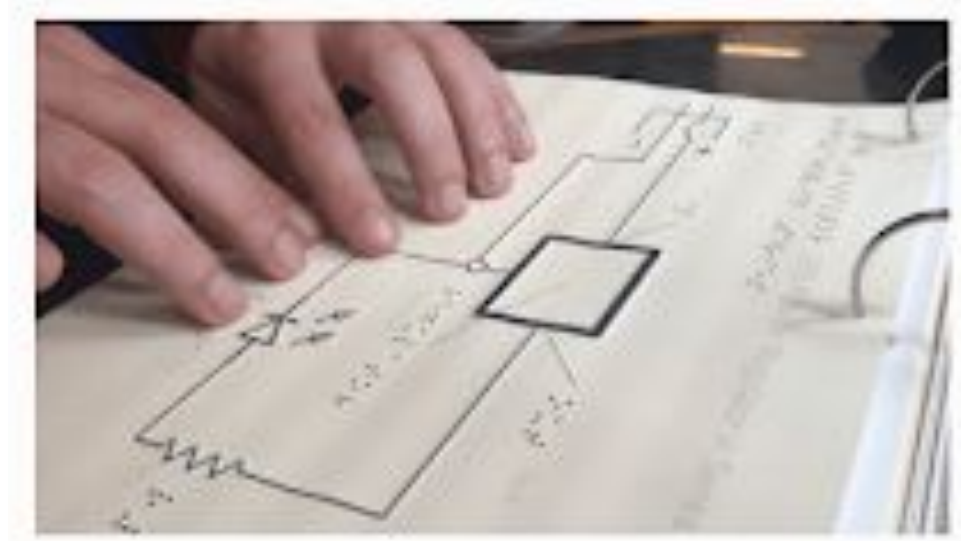
Engineering College Student Outcome

- Student did not complete college - why?
  - Failure to address hearing loss
- Found a job:
  - Stocking/restocking cell phone cards at various locations
  - Technology: Bar Code Scanner that creates tags for shelves and/or cards

Case Study - TJ Maxx

Job: Dressing Room Clerk

Difficulties:

- Need to know when someone enters the area
- Need to count number of items in and out of the dressing room
- Direct Communication with customers is difficult

Notification System

Braille Labeling and Bump Dots

Pocket Talker Audio Amplifier

Other cool technology for the end of the presentation

Iris glasses

Otter ai

Be my eyes

Orcam

Navigation apps - nearby explorer

Smart devices - Alexa