

New and Emerging Assistive Technologies

Ohio Technology Center for Aging and Disability

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1

A look back in history....

2

The Time Machine

- The Acousticon
 - One of the earliest form of mechanical hearing aid.



3

The Time Machine

- Raised Print Bible
 - One of the earliest form of mechanical hearing aid.



4

The not so distant past....

- **Technology featured in previous versions of New and Emerging Technology!**

5

Aging in Place

Mother



1. Motion-detection system allowing people with disabilities to remain in their homes.
2. How far have you walked today?
3. How many cups of coffees have you had today?
4. Has anyone come to see you today?
5. Have you brushed your teeth and taken your pills today?
6. How did you sleep last night?

\$400 on Amazon.

6

Aging in Place

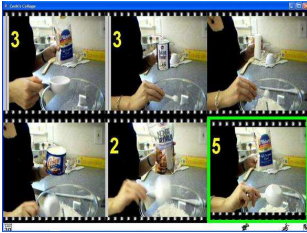
Robovie R3



1. 3 feet tall, 77 pounds
2. Designed to help people with disabilities grocery shop and get around in public places.
3. Makes shopping suggestions to customers.
4. Can hold hands to help secure balance.
5. Costs \$40,000. Significant DECREASE from previous models.

7

Medical Care: Cook's Collage



8

E-Z Eat



9

Mobility: Think-A-Move

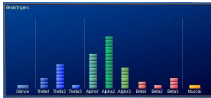
- Located in Beachwood, Ohio
- Puts Microphone in your ear to listen to the movements of your tongue
- Translates the signals to the wheelchair to move according to your tongue movement
- www.think-a-move.com



10

Brainfingers

Brainfingers



1. Put sensors on forehead to control a computer.
2. Also has the ability to monitor alpha, beta and theta brain waves.
3. Your ability to focus and increase these types of waves can be used to manipulate your environment.
4. Targeted toward ALS and other disabilities.

11

Why some devices don't make it....

- Difficult field to work in...
 - Finding sweet spot between being an impactful helping device and while also appealing to wide audience
 - Expensive devices for population with low employment rate and limited finances
 - Challenge to get Medicaid / Medicare approval
 - Challenge to meet / find customers
 - Fortunes of company often ride on one device

12

RNIB GLASSES

- Royal National Institute of Blind People
 - Uses low existing vision
 - Easy-to-recognize shapes and silhouettes
 - Detects nearby objects and turns them in to high contrast shapes.



13

Feeding Robots

- Obi Robot
 - Four different compartments of food
 - Command when food is captured
 - Easy to program delivery point.
 - Made in Ohio!



14

Feeding Robots

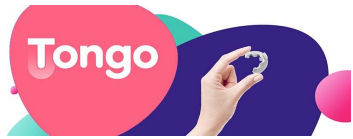
- Assistive Dexterous Arm
 - Figures out the best way to pick up food.
 - Uses cameras, object recognition, and haptic sensors
 - Brings food to best place for user to eat it.
 - Video



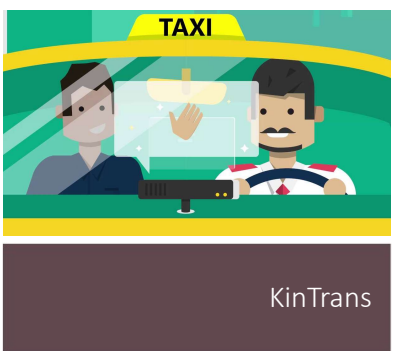
15

Tongue Control

- Tongo
 - Tongue-based control of devices
 - Allows hands free control of wheelchairs
 - Wirelessly control smartphones and computers and ECUs
 - Made in Israel. Patent pending
 - video



16




KinTrans

- Hands Can Talk
 - Recognizes and converts sign language to spoken text
 - Uses speech recognition, converts to text, converts again to avatar sign language.
 - Can recognize and convert sign language in one language to spoken words in another language, and vice versa.

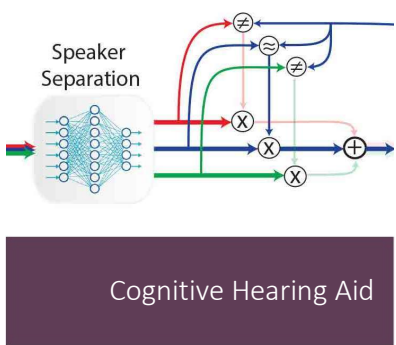
17

Brightsign sign language smartglove

- Brightsign
 - Translates sign language performed by user into written text.
 - Glove recognizes signs and, with the push of a button, speaks the message aloud.
 - Works with multiple sign languages and is programmable.



18

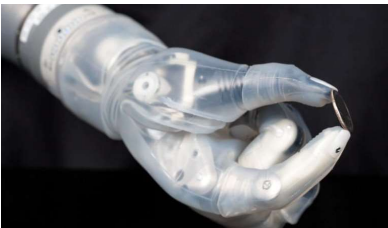


Speaker Separation

Cognitive Hearing Aid

- Cognitive Hearing Aid
 - Uses brain waves to focus on specific sounds in the environment.
 - Gives one the ability to filter out other voices
 - Amplifies and clarifies one voice while minimizing the others
 - Could have hearing "powers" in excess of normal hearing people.

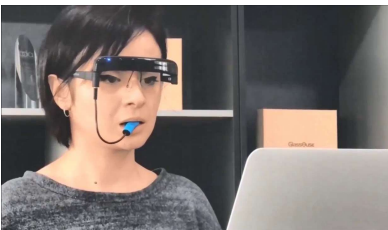
19



Neuroprosthetics

- Prosthetic Arm
 - Robotic hands can be added to amputees, allowing fine motor control
 - Adding the sense of touch / pain to device increased ability
 - Decreased issues with phantom pain
 - Pick up a grape without crushing it
 - Known as "Luke" Arm.

20



GlassOuse

- GlassOuse
 - Wearable Mouse
 - Can be used in partnership with a mouth switch
 - For people with good head control, but little or no ability to use their hands.
 - Requires no calibration.
 - Synchs with all blue appropriate blue tooth devices.
 - Video

21

SureSafeGo

1. "Find Me" Function
2. Sends GPS location when activated
3. Automatic Fall Alert Technology
4. Water Resistant (can be worn in the shower)
5. Talking pendant with two-way communication



22



Quha Gyroscopic Air Mouse

1. Can be used up to 30' away
2. Don't need line-of-sight to a camera
3. Has contactless puff switch
4. Windows based
5. Settings can be transferred / plug and play
6. Can have docking station to load headset by yourself.
7. \$1,099.00

23

Find Me Carers Watch by Tunstall

1. You set "barrier" for resident.
2. If the barrier is breached, alert is sent to the company and to designated caregivers.
3. Resident can push a button to communicate directly with the company
4. Requires 3G phone service
5. Available currently only in Australia / Oceania
6. \$88.00 set up plus \$56/month.



24

ATVisor



- Type in profile of client
- Rate severity and type of disability
- Generates types of A.T. to address those issues
- Offers products for purchase
- Claims to use "Artificial Intelligence."

25

RightHear

- App for Smart Phones
- Indoor orientation and mobility system
- Place sensors in an environment, such as a hotel or bus station
- Tracks your movement through the RightHear app, giving the user verbal cues as to their surroundings.
- Free app for users. Business must purchase service.



26

TuneFork App

- Runs a hearing test on you to figure out your "hearing fingerprint."
- Audio personalization technology
- Assesses your strengths and deficiencies
- Turns your Smartphone into a personal hearing aid.
- Crowd funding technology



27

UpnRide



- Replaces the power wheelchair
- Standing, moving wheelchair for paraplegics and quadriplegics
- Good for health, self-esteem
- Able to handle uneven terrain
- Crowdfsource - \$25,000

28

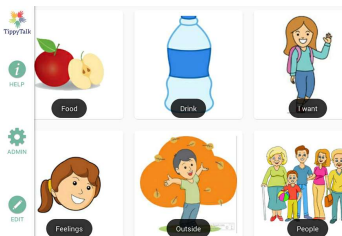
Sunu Band Smart Watch



- Smart Watch / tells time haptically
- Uses Echolocation Ultrasonic (soundwave) Technology
- Uses haptic feedback
- Indoor / outdoor mode
- Haptic feedback increases as you get nearer to the device
- Uses iOS and Android app
- Used in partnership with cane and guide dog.
- \$300-\$412

29

Tippy Talk




- Instant communication for non-verbal individuals
- Translate pictures into text messages, which are sent to caregivers or family members.
- Allows instant communication easily to non-verbal people
- Must have Internet access to send a message, not to receive.
- \$350

30


ReadEasy Evolve

- Made by HumanWare
- Can capture 11x17 newspaper page
- Can capture both pages of a book
- Adjust camera to the overall size of the object to be captured
- Comes with wireless controller
- Can skip sentences and paragraphs
- \$3,850

A black and silver ReadEasy Evolve device is shown on a wooden desk. It has a camera mounted on top and a large speaker grille on the front. A person's hand is visible holding an open book, which is being scanned by the device. A wireless controller with a yellow button is also on the desk.

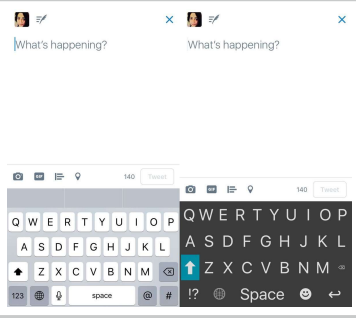
31

Wheelmate App

The image shows the Wheelmate app interface on a smartphone. The screen displays a map with various locations marked. Below the map is a stylized graphic of a city skyline with the Eiffel Tower. The text "WheelMate™ app" is visible on the left side of the screen.

- App for smartphones
- GPS system that gives users information on the nearest accessible restrooms
- Shows where one can find accessible parking
- Built by users who identify and rate accessible restrooms and parking lots.
- Free app

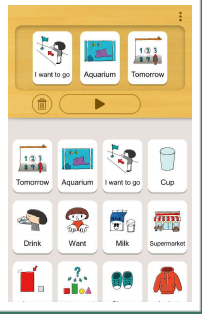
32

The image shows the Big Keys Keyboard app interface on a smartphone. The screen displays a large, clear keyboard with a numeric keypad. The text "What's happening?" is visible at the top of the screen.

Big Keys Keyboard App

- Adjust the font size and emojis on the keyboard
- Numeric keypad for faster data entry
- Direct links to iTunes, iHeart radio YouTube, and others.
- \$3.99

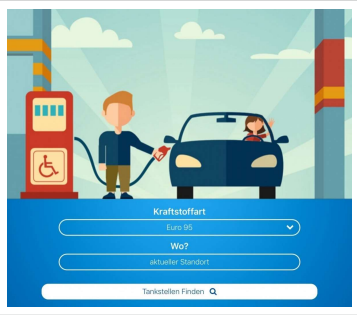
33



Card Talk App

- Communication with cards for children with communication difficulties
- Japanese company that specializes in communication disabilities.
- Uses same cards that are available through the Litalico system used in classrooms.
- \$0.00


34



fuelService app

- Seems to work very well – if you are in Europe at the time.
- Tells you which stations have attendants that can help.
- Notifies attendant you have arrived.
- \$0.00

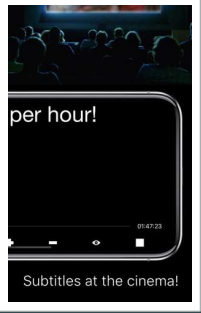
35



Access Now

- Uses maps technology
- Provide detailed ratings on the accessibility features and levels of public places.
- Rated Accessible / Partially Accessible / Not Accessible
- Leave reviews and descriptions.
- \$0.00

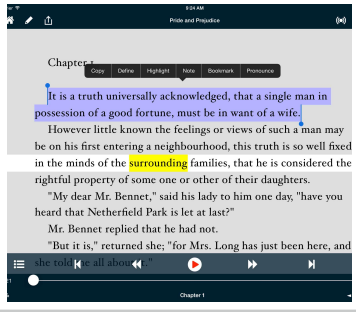
36



Subtitles Viewer!

- Has timed subtitles of thousands of movies and TV shows in the system
- Search for the show
- Start the subtitles either when the movie starts or when the dialogue starts.
- Provides subtitles for the hearing impaired.
- \$0.00

37



Voice Dream Reader App

- Low cost app that accepts scanned images and is able to convert images to text.
- Quickly able to read the text to you.
- Backgrounds can be changed to account for visual deficits.
- Incorporates features helpful for dyslexia.
- \$14.99

38
