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Research

Adaptive Computing Lab

MOBILE DEVICES AND APPLICATIONS FOR PERSONS WITH DISABILITIES

iDevices

Objectives

- ❑ Define mobile devices & mobile operating systems OS
- ❑ Tablets
- ❑ Specifically look at iDevices
- ❑ Apple Accessibility Features
- ❑ Apple Applications with AT functionality
- ❑ Types of Assistive Apps
- ❑ Physical Solutions
- ❑ Upside v Downside
- ❑ The future

Mobile Devices

- Mobile devices are defined here as small, portable, smart devices that typically are capable of connecting to the Internet.
- These devices put computing power in the pocket or purse of the average consumer
- This group may include:
 - Cell phones
 - PDAs
 - eReaders
 - Tablets
 - Netbooks

Operating Systems

- Major players
 - Android (open source)
 - iOS from Apple
 - Windows 7 from Microsoft (Starter, Pro, Home)
- Minor players
 - Blackberry OS
 - HP WebOS



Mac OSX Lion

Windows 8

- New operating systems for computers will behave much more like tablet operating systems
- Mac OS X Lion is the latest OS from Apple...it already has gesture capability etc that has been derived from iPhone and iPad technology
- The new Windows 8 OS will be the most radical design change since Win 95



Tablet Comparisons

- Major players
 - ▣ Android (open source)
 - ▣ iPad from Apple
 - ▣ Windows 7 from Microsoft (Starter, Pro, Home)
- Minor players
 - ▣ Blackberry OS
 - ▣ HP WebOS
- New players
 - ▣ Kindle Fire

Tablet Terminology

- Slate...touch screen without a physical keyboard
 - ▣ Kindle Fire
- Convertible...touch screen capable notebook or netbook
 - ▣ Asus Eee Pad
- Hybrid...convertible with a detachable keyboard
 - ▣ Acer TravelMate
- Booklet...dual screen tablet that folds like a book
 - ▣ Microsoft Courier

iDevices

- The family of devices from Apple that run the iOS
- iPod Touch
 - ▣ Started as a music player
 - ▣ Now the Touch runs iOS
- iPhone
 - ▣ Defined the smart phone
 - ▣ 3G network plus Wi-Fi
- iPad
 - ▣ Created the tablet phenomenon
 - ▣ Wi-Fi, 3G available

Apple Accessibility Features

iDevices

- Sensory...Visual
 - VoiceOver with adjustable speaking rate
 - Screen Reader
 - Wireless Braille Displays
 - Large Text Options
 - Zoom
 - Speak Selection
 - Physical Buttons with Tactile Feedback

Apple Accessibility Features

iDevices

- Sensory...Hearing
 - ▣ Audible, Visible and Vibrating Alerts
 - ▣ LED flash for incoming calls
 - ▣ Compatibility with speakers and amplification
 - ▣ Closed Captioning

Apple Accessibility Features

iDevices

- Physical Input Assists
 - Word Prediction
 - Spelling Correction
 - Voice Activated Phone Operation
 - Assistive Touch
 - Multiple Orientations
 - External Bluetooth Keyboards

Apple Applications with AT Functionality

- Reminders
- Calendar
- iCloud
- Voice Control
- Voice Recognition
- Digital Voice Recorder
- Notes
- GPS
- Siri Personal Assistant

Apple Applications

Reminders



Apple Applications

Calendar



Apple Applications

iCloud



Apple Applications

Voice Control



Apple Applications

Voice Recognition

Voice Recognition Built In (iOS 5)



Apple Applications

Voice Memos

Digital Voice Recorder
iPhone, iPod



Apple Applications with AT Functionality

Notes



Apple Applications

GPS

GPS

Find My iPhone
App



Apple Applications

Siri Personal Assistant

Beta iPhone 4S, iOS 5

- Voice input
- Dictation
- Send messages
- Schedule Events
- Reminders
- Internet Search
- VoiceOver responses



Types of Assistive Apps

- Aid in access to device
- Access to other devices
- Therapeutic
- Cognitive
- Communication
- Aids for Daily Activities
- Informative

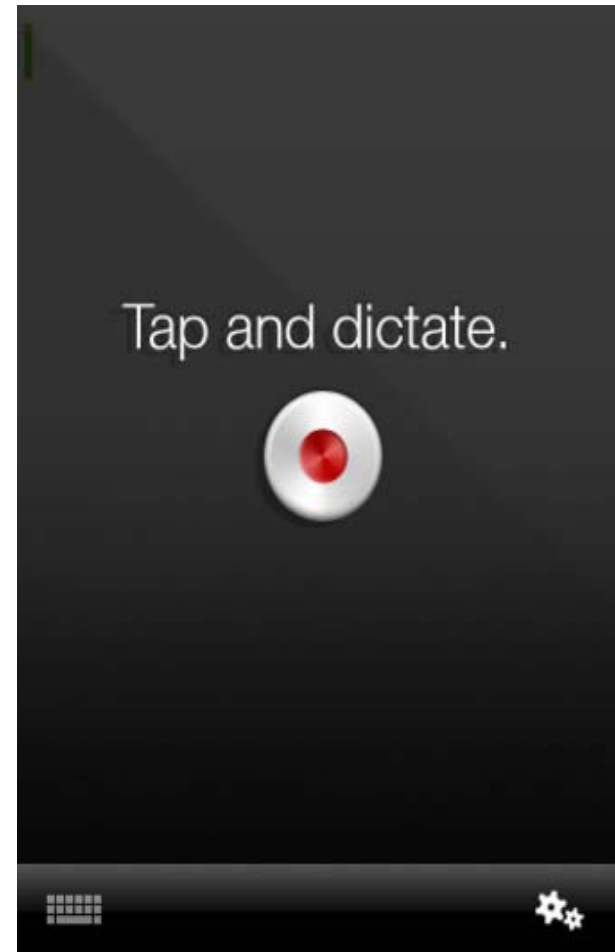
Types of Assistive Apps

- Aid in access to device
 - ▣ Rate Enhancement
 - ▣ Speech to Text



Free

www.nuancemobilelife.com



Types of Assistive Apps

- Aid in access to other devices
 - ▣ Hippo Remote
 - ▣ Makes your iPhone a touchpad
 - ▣ Control a computer



Lite = Free
Pro = \$4.99

www.hipporemote.com



Types of Assistive Apps

- Therapeutic

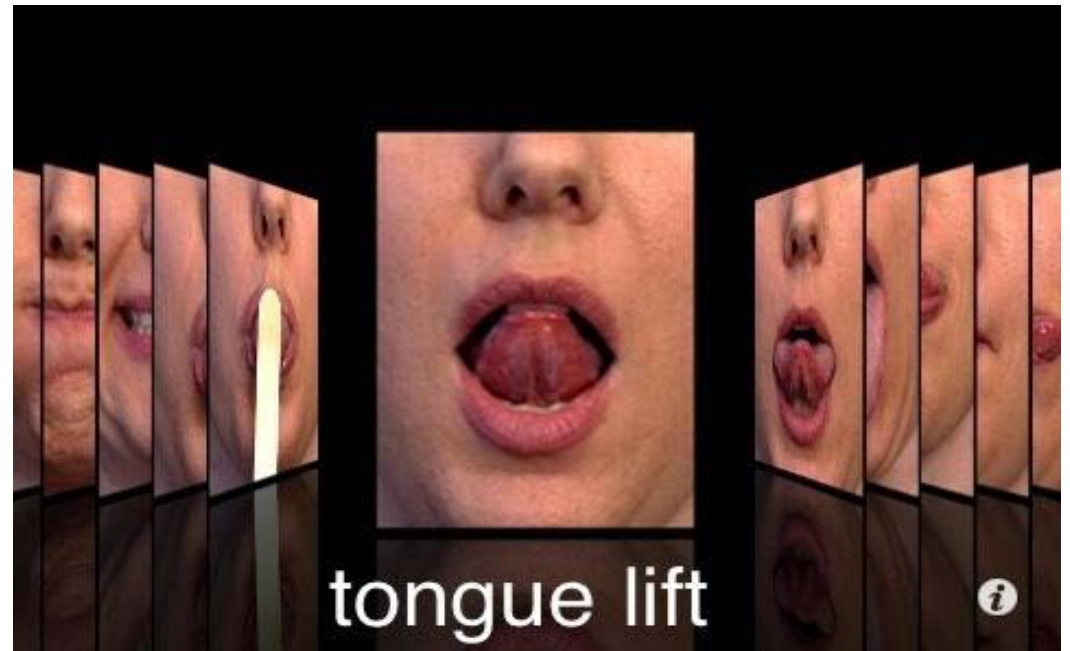
- SmallTalk

www.ispeakapp.com

- Oral Motor Exercises



Free



Types of Assistive Apps

□ Cognition

- ▣ Memory assist
- ▣ My Medical Information



\$1.99

www.mymedicalapp.com



Types of Assistive Apps

- Communication
 - ▣ **Speak It!**
 - ▣ **Text to Speech**



\$1.99

www.future-apps.net



Types of Assistive Apps

- Aids for Daily Activities
 - ▣ Jumbo Calculator
 - ▣ Vision and target acquisition



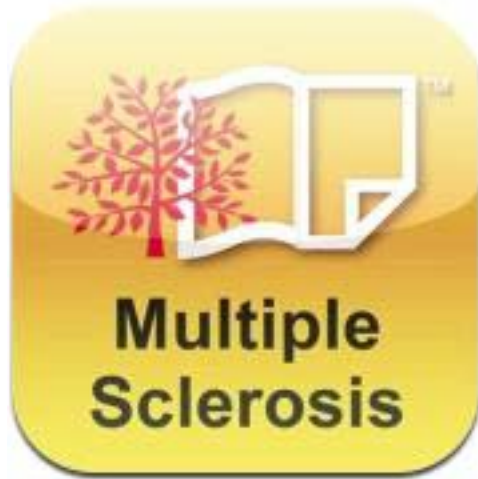
Free



Types of Assistive Apps

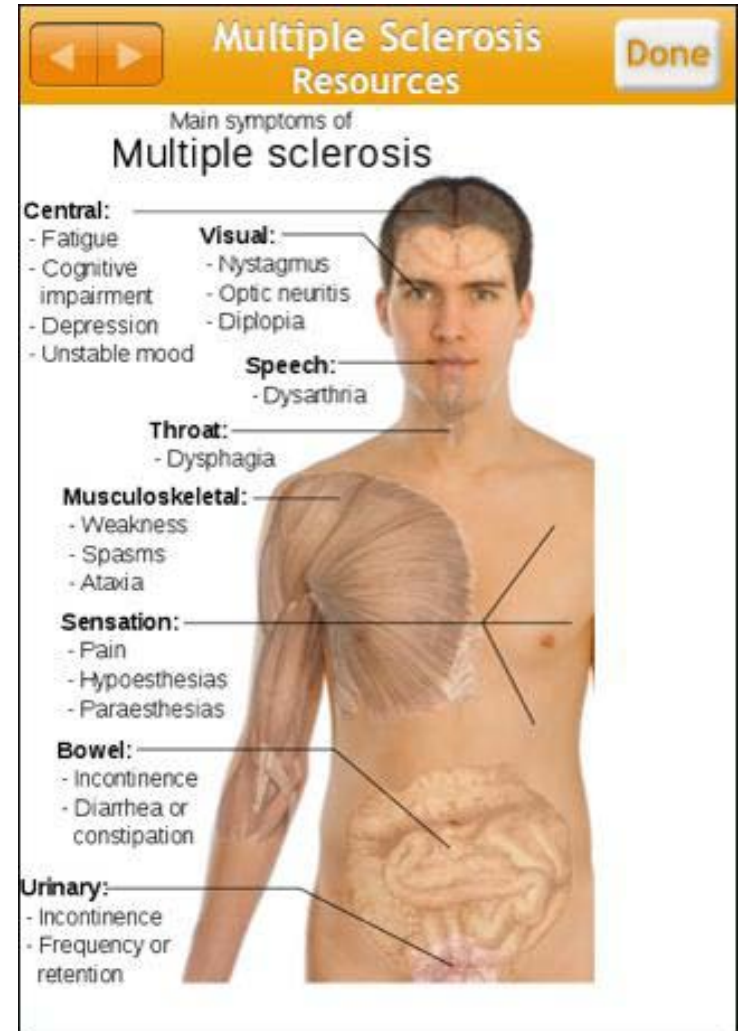
□ Informative

- ▣ Living Medical eTextbooks
- ▣ Multiple Sclerosis



Free

www.lmt.projectsinknowledge.com



How to Find Assistive Apps

- Don't start search in the App Store
- Google
 - iPad apps Multiple Sclerosis
 - Look for resources collected by others
 - Read over the resources, find an interesting app
- Check out their websites
- Then search for apps in the App Store

Use your favorite search engine

The image shows a screenshot of a Google search results page. At the top left is the Google logo. The search bar contains the text "iPad apps Brain Injury". Below the search bar, it says "Search" and "About 3,750,000 results (0.32 seconds)". On the left side, there is a vertical menu with options: "Everything", "Images", "Maps", "Videos", "News", "Shopping", and "More". Below "More" is a section for "Flowood, MS" with a "Change location" link. The search results are displayed in two columns. The top result is an advertisement for "Traumatic Brain Injury? | JacksonMSPersonalInjuryLaw.com" with the URL "www.jacksonmbspersonalinjurylaw.com" and the text "Get the Most Compensation from An Experienced Brain Injury Attorney!". The second result is "27 Life-Changing iPhone and iPad Apps for People with Brai..." from "www.brainline.org" with the text "TBI Topics › Assistive Technology by CR Premium" and "May 23, 2011 – Revolutionary apps for simplifying everyday life with brain injury-". The third result is "24 Life-Changing iPhone and iPad Apps for People with Brai..." from "www.brainsong.org/news/66372/" with the text "The BrainLine team sifted through many resources to collect this list of".

Google iPad apps Brain Injury

Search About 3,750,000 results (0.32 seconds)

Everything Ad - Why this ad

[Traumatic Brain Injury? | JacksonMSPersonalInjuryLaw.com](#) ⓘ
www.jacksonmbspersonalinjurylaw.com
Get the Most Compensation from An Experienced **Brain Injury** Attorney!

Images

Maps

Videos

News

Shopping

More

Flowood, MS
Change location

[27 Life-Changing iPhone and iPad Apps for People with Brai...](#)
www.brainline.org › TBI Topics › Assistive Technology
by CR Premium
May 23, 2011 – Revolutionary **apps** for simplifying everyday life with **brain injury**.

[24 Life-Changing iPhone and iPad Apps for People with Brai...](#)
www.brainsong.org/news/66372/
The BrainLine team sifted through many resources to collect this list of

Look for info collected by others

27 Life-Changing iPhone and iPad Apps for People with Brain Injury

BrainLine



Revolutionary apps for simplifying everyday life with brain injury

Almost everyday, we hear of new smartphone applications ("apps") developed for just about everything — from staying organized to finding pharmacies or restaurants while on the road. It's hard to keep up.

The BrainLine team sifted through many resources to collect this list of iPhone, iTouch, and iPad apps that could be useful to people with a brain injury — and their families and caregivers. We will cover other smartphone platforms in the next installment of this series.

[Download a chart of all 24 Apps.](#)

But let's backtrack for a moment. What makes a smartphone different from a regular mobile phone? And what exactly is an "app"?



play



Scan for an interesting app

27 Life-Changing iPhone and iPad Apps for People with Brain Injury

BrainLine



The image shows a screenshot of an app store listing for the 'Breathe2Relax' app. On the left, there is a preview of the app's interface, which features a blue-tinted human figure with a green light beam scanning across the chest area. A menu on the right lists various body parts: Brain, Eyes, Ears & Hearing, Immune System, Muscles, Lungs & Breathing, Heart & Circulatory, Stomach, and Fingers & Toes. Each item has a corresponding icon. Below the menu is a large, stylized logo for 'Breathe2Relax' (BR) with a red star. To the right of the preview, the app title 'Breathe2Relax' is displayed in orange. Below the title, the price is listed as 'Free'. A detailed description follows, explaining that the app is a portable stress management tool that uses diaphragmatic breathing exercises to reduce stress and help with mood stabilization, anger control, and anxiety management. It is particularly useful for service members or veterans with PTSD and/or TBI. At the bottom of the description, there is a link to 'View in iTunes App Store >'. At the very bottom of the screenshot, there is a navigation bar with a series of app icons, a play button, and a share icon.

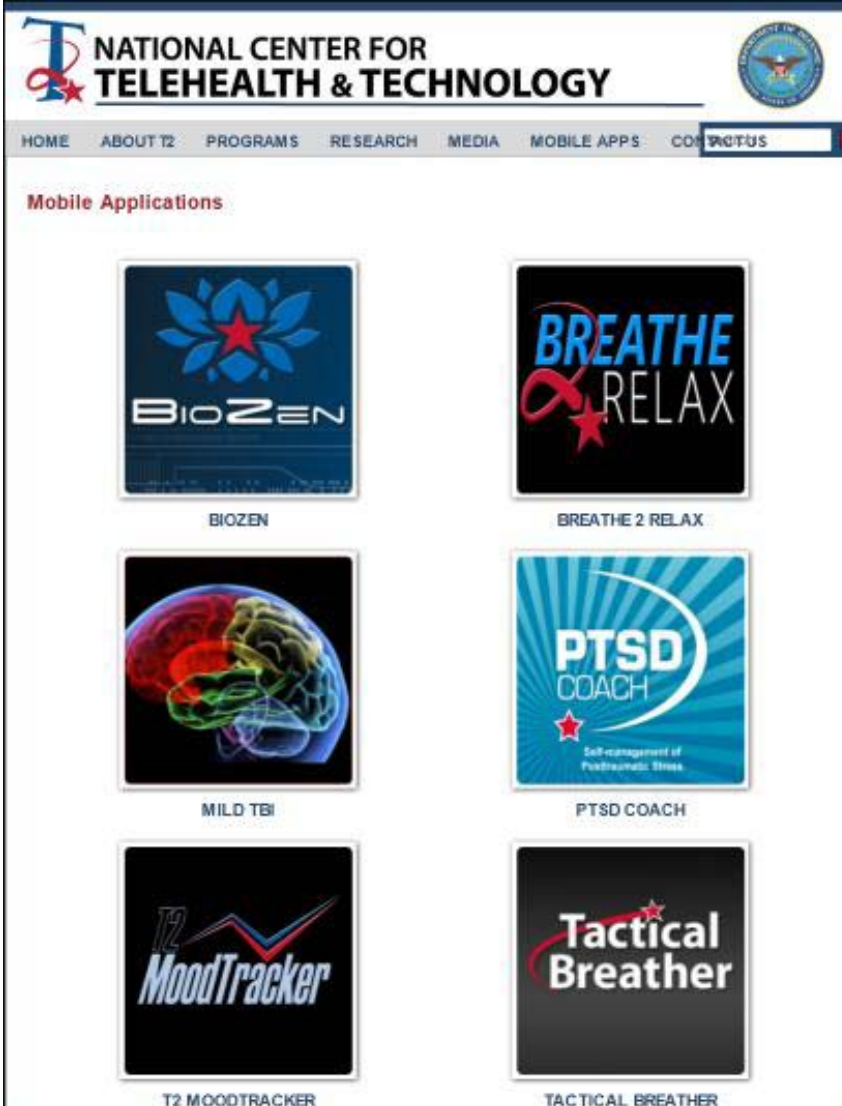
Breathe2Relax

Price: Free

Breathe2Relax is a portable stress management tool. The app is a hands-on diaphragmatic breathing exercise. Breathing exercises have been documented to decrease the body's "fight-or-flight" (stress) response, and help with mood stabilization, anger control, and anxiety management. Particularly useful for service members or veterans with PTSD and/or TBI, Breathe2Relax can be used as a stand-alone stress reduction tool, or in tandem with clinical care directed by a healthcare worker.

[View in iTunes App Store >](#)

Check out the website of that app



The screenshot displays the website for the National Center for Telehealth & Technology. The header features the organization's logo and name, along with a navigation menu including Home, About T2, Programs, Research, Media, Mobile Apps, and Contact Us. A search bar is also present. The main content area is titled "Mobile Applications" and lists six apps in a grid:

- BIOZEN**: App icon featuring a blue starburst design.
- BREATHE 2 RELAX**: App icon with the text "BREATHE 2 RELAX" and a red star.
- MILD TBI**: App icon showing a 3D brain model with red and green highlights.
- PTSD COACH**: App icon with the text "PTSD COACH" and a red star, with the subtitle "Self-management of Posttraumatic Stress".
- T2 MOODTRACKER**: App icon with the text "T2 MoodTracker" and a red and blue line graph.
- TACTICAL BREATHER**: App icon with the text "Tactical Breather" and a red star.

For final check & download go to iTunes or the App Store


iTunes Preview

[What's New](#) [What is iTunes](#) [What's on iTunes](#) [iTunes Charts](#) [How To](#)

Breathe2Relax

By The National Center for Telehealth and Technology [View More By This Developer](#)

Open iTunes to buy and download apps.



Description

Breathe2Relax is a portable stress management tool which provides detailed information on the effects of stress on the body and instructions and practice exercises to help users learn the stress management skill called diaphragmatic breathing. Breathing exercises have been documented to decrease the body's 'fight-or-flight' (stress).

[The National Center for Telehealth and Technology Web Site](#) [Breathe2Relax Support](#) [Application License Agreement](#) [More](#)

What's New in Version 1.2

- Updated user interface, and streamlined functionality
- An initial setup guide added to assist with tailoring the application to the user's desire
- Relaxation music has been added as an option to listen to during the breathing exercise

[More](#)

Screenshots

[iPhone](#) | [iPad](#)

View in iTunes

Free

Category: Health & Fitness
Updated: Jun 10, 2011
Version: 1.2

Physical Input Issues

- Capacitive screen issues
 - Hand stick
 - Mouth stick
- False hits
- Lack of switch scanning
- Mounting issues

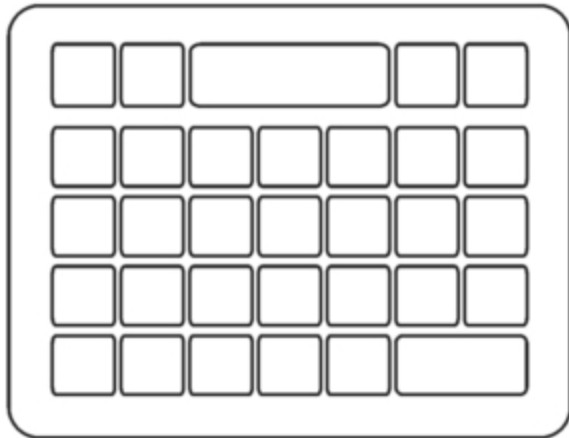
Capacitive Touch Input

Styli



False hit protection

Keyguards



Switch Scanning Problems

Issues with the way the iOS operates the touch screen input



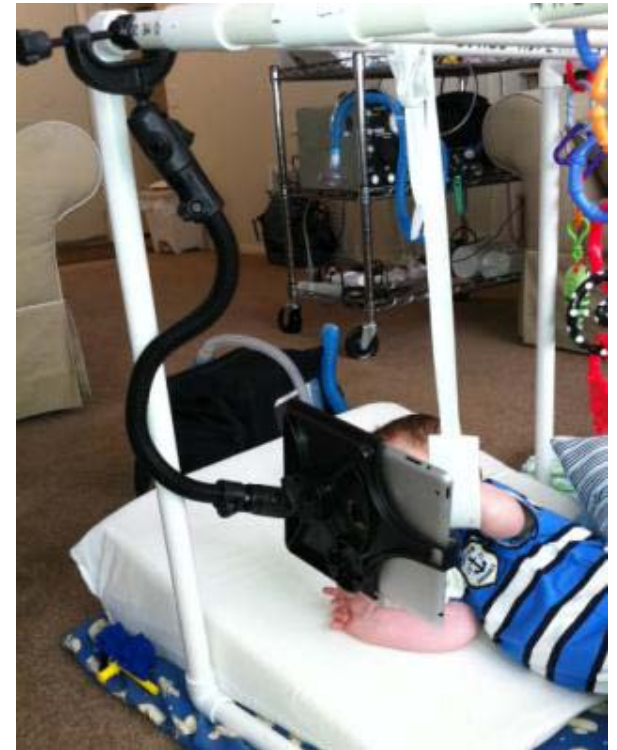
Switches work with specific apps but nothing has been developed for universal iDevice control

Mounting Solutions

Mount to
wheelchair



Mount to
the body



Custom
Mount

The Upside v the Downside

- Inexpensive in comparison to standard AT devices
- Voice Recognition Input capabilities
- People may have a number of options
- iDevices are cool and not embarrassing
- Lack of funding
- VR still in development; held back by physical input requirements
- People using poor apps without input from therapists
- They are hot items to steal

The Future

- Enhanced Voice Recognition...Siri
- Thunderbolt ® interconnectivity
- Interface of iDevice will control the environment
- Virtually every phase of a disabled person's life will be accessible by smart devices

The Future...Nest

- New business
- First product release last week was a smart thermostat
- Ex Apple engineers who invented the iPod are CEOs
- Great design...learns the user...AutoAway®
- Controllable via mobile app any where in the world



Resources

- www.assisttech.info
- Download this PowerPoint
- Download a PDF of the .PPT
- Links to Apple resources
- Downloadable PDFs
 - ▣ Apps subdivided by disabilities or diseases
 - ▣ Styli
 - ▣ Mounts