Environmental Control
Through Consumer Products for People Living With ALS

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Objectives

• Understand the role of the Input Device, Control Unit and Appliance in Environmental Control

• Identify 3 consumer products that can be used as the Input Device

• Describe the difference between individual smart devices and device hubs
Goal

• Educate health professionals on consumer-based environmental control technology and how it can be used by individuals with ALS

• Everyone will use this information!
Disclosures

• Nothing to disclose

• Brands/Brand names will be used for examples throughout the presentation, it is not possible to name all of the products available
Smart Home

• A home that uses internet-connected devices to enable management of appliances and systems
• Requires electricity, internet and WiFi
Components

• Input Device
  – Determines how you control the appliance

• Control Unit
  – Central processing unit
  – Receives the input (signal) and translates the information into an output (command)

• Appliance
  – Receives the output signal and performs the desired command, such as turn on/off
How Do You Make a Smart Home?

• Commercially Installed Systems

• Integration with Durable Medical Equipment (DME)/Assistive Technology (AT)

• Do It Yourself (DIY)

• Consumer Products
Commercially Installed Systems

- Gold Standard for Electronic Aids for Daily Living (EADLs)
- Evaluation to determine individual’s capabilities and access
- Designed, engineered, manufactured and installed by trained professionals
  - Entire home or residence
  - Customizable
  - Able to keep up with changes in technology
  - Technical support
Commercially Installed Systems

- Promixis Environment Automation Controller (PEAC)  www.peacautomation.com
  - ALS Residence Initiative  www.alsri.org
    - Steve Saling and Dapper McDonald ALS Residences at the Leonard Florence Center for Living
    - The Team Gleason House for Innovative Living in St. Margaret's at Mercy
- SAJE  www.sajetech.com
- Quartet  www.qtiusa.com
- Control 4  www.control4.com
Integrated Assistive Technology

• Augmentative and Alternative Communication (AAC) Devices/Speech Generating Devices (SGDs)
  • TobiiDynavox www.tob
    – Infrared (IR) control
Integrated Assistive Technology

- **Power Wheelchairs**
  - Permobil  [https://permobilus.com](https://permobilus.com)
  - Quantum  [http://www.quantumrehab.com](http://www.quantumrehab.com)
  - Invacare  [http://rehab.invacare.com](http://rehab.invacare.com)
- Bluetooth
- Enhanced displays for IR control
- Add-on EADL devices
Do It Yourself

- **Retail**
  - Initial smart home products were much more DIY
  - X10 – used electrical wires in the home

- **Maker**
  - Build homemade smart devices
  - Arduino/Genuino
Consumer Products

• Input Devices
  – Tablets/Smartphones
  – Smart Speakers/Home Assistants

• Control Unit
  – Individual Smart Device or Hub

• Appliance
  – Direct – Wifi enabled
  – Indirect- Outlet
Consumer Products

Internet

Input Device(s)

Smart Device/Control Unit

Control Cloud

Appliance
Tablets or Smartphones

• Tablet or Smart phone will be the input device or controller

• Need
  – Smart Device or Hub
  – App
  – Appliance

• Input Device ➔ Control Unit ➔ Appliance
iPhone/iPad Example

- Apple HomeKit App
Apple HomeKit

HomeKit accessories. The list keeps getting smarter.
Leading worldwide brands offer accessories that are compatible with HomeKit and your Apple devices — with more and more on the way. Check back for updates on what’s available.

Look for this symbol in stores and online.

What you can control
Apple HomeKit

- **Smart Plug**

  - Purchase a device with that is compatible with Apple Home Kit
  - Plug it in to an outlet
  - Plug in the appliance you want to control

Insignia
Apple HomeKit

- Smart Plug continued

- Download App
- Register
- Pair with device
Tablets or Smartphones

- iPhone and iPad turning a light on/off
- Voice Controlled (Siri)
- Accessible Switch
Smart Speakers/Home Assistants

- Amazon Echo
  - Echo ($100)
  - Dot ($50)
  - Plus ($150)
  - Spot ($130)
  - Show ($230)

https://amazon.com
Smart Speakers/Home Assistants

• Google Home
  – Home ($129)
  – Home Mini ($49)
  – Home Hub ($149)
  – Home Max ($399)

https://store.google.com/us/category/connected_home
Smart Speakers/Home Assistants

- Apple
  - HomePod ($349)

Apple HomePod

https://www.apple.com/homepod/
Smart Speakers/Home Assistants

• Basic features
  – Built into smart speakers
  – First level of home automation
  – Ever changing

• Add Smart Devices
  – Increase ability to control environment
  – Makes it a Smart Home
  – Ever changing
  – Individual and Hubs
Amazon Echo Example

• Basic features
  – Hands free speaker controlled with voice
  – Connects to Alexa Voice Service
    • Plays music
      – “Alexa, play country music”
    • Answers questions
      – “Alexa, how many inches in a meter?”
    • Provides information, news, scores, weather
      – “Alexa, what time do the Super Bowl Champion Philadelphia Eagles play Sunday?”
    • Make calls, send and receive messages
Google Home Example

• Basic features
  – Hands free speaker controlled with voice
  – Connects to Google Assistant
    • Plays music
      – “OK Google, play country music”
    • Answers questions*
      – “OK Google, what does the fox say?”
    • Provides information, news, scores, weather
      – “OK Google, what time do the Super Bowl Champion Philadelphia Eagles play Sunday?”
    • Make calls, send and receive messages
Phone

• Amazon Echo
  – Calls numbers in your contact list
  – Echo Show does video calls
  – “Alexa, call...Hannah Banana”

• Google Home
  – Calls numbers in your contact list
  – “OK Google, call...Hannah Banana”

• Both can be set up for multiple users
Add Individual Smart Devices

- **Outlets**
  - Wemo Switch ($40)
  - Insignia Smart Plug ($25)
- **Lights**
  - On/off and dim
  - Philips Hue Lightbulbs (3 for $150)
- **Fans**
  - Direct or switch
- **Thermostats**

- **Doorbell**
  - Ring ($200)
- **Smart Locks**
  - August Home ($150-$250)
  - Schlage ($200-$300)
- **Video/Security Cameras**
  - Ring ($200)
- **Appliances**
Add Smart Device Hubs

- Hubs control multiple products
  - Samsung’s Smart Things Hub ($100)
  - Wink 2 ($99)
  - Logitech
    - Harmony Hub ($100)
    - Logitech Harmony Elite ($300)
  - Insteon
    - Hub ($79)
    - HomeKit ($149)
  - Nest ($249)
Device Hub

- Controls multiple products
  - Wink 2
Individual Device Example

- Want to turn a light on and off
- Wemo Switch by Belkin
  - WiFi enabled plug
  - Controls on/off
Individual Device Example

- **Wemo Switch**
  - Download App
  - Link device to Wifi and phone
  - Works via App
Individual Device Example

- Wemo can also be automated and can connect to Amazon Echo
Cameras and Monitoring

• Place
  – Indoor
  – Outdoor

• Storage of Video
  – Cloud
  – Local
  – None
Video Example

• mydlink Video/Camera
Television

- **Amazon Fire TV** ($40)
  - One-touch voice remote
  - Pair with Amazon Echo for voice
- **Chromecast by Google** ($35)
  - Control with Apps on smartphone
  - Pair with Google Home to use voice
- **Roku Streaming Stick** ($50)
  - Connects to smartphone
  - Voice remote with one-touch
Amazon Fire Stick with iPhone

Fire Stick attached to TV

Fire TV App

Remote on iPhone

Available Apps/Options for TV

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Connecting Fire Stick to Echo

Control your Fire TV with your Alexa device

Watching TV just got easier and hands-free! Now you can use your Alexa device to find your favourite shows, launch apps, control playback and more.

“Alexa, watch Transparent”

LINK YOUR ALEXA DEVICE
Amazon Echo with text to speech
Gaming Systems

• **Xbox One (Microsoft)**
  – Voice Commands
    • Kinect “Xbox, on”
    • Cortana
  – Limited uses
    • Can’t interact with Apps or external devices
    • Options change with each version
    • Generally don’t recommend purchasing, but check into features if you already own one
Cable System

- Television
  - Alternate access options
  - Apps
- Security Systems
Questions to Consider

- What do I want to do?
- How will I access it?
- What do I already have?
- Will other people use it?
- How much tech support do I want/need?
- How much do I want to spend?
Websites

• Jay Smith: Every 90 Minutes
  – Every90minutes.org
  – Tech Guide
  – Video of Jay using his eyegaze device to control Alexa

• YouTube
  – Search for any device or term

• ALS Hope Foundation
  – Resources
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Questions?

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