

# **Assistive Technology: A Workforce Shortage & Safe Independent Living Solution**

Presented by:

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August 2022

North Dakota Assistive · [www.ndassistive.org](http://www.ndassistive.org) · 800-895-4728

# Today's discussion

- ▶ We will do a 50 Cent Tour of ND Assistive Services
- ▶ We will discuss how Smart Home, Safety, Memory, and Sensory Devices can:
  - ▶ Increase independence
  - ▶ Increase safety
  - ▶ Provide monitoring of the person in need
  - ▶ Provide caregiver peace of mind
  - ▶ Reduce caregiver workload

# Who are we?

- We are North Dakota's Assistive Technology Act Program
- Non-profit organization with offices in Bismarck and Fargo
- Assistive Technology (AT) to ALL ages, disabilities, and needs
- Our job is to stay up-to-date w/ the latest in technology and help people access and acquire AT



# ND Assistive's Vision

We strive to put Assistive Technology within reach of every person in our region who needs it.

# How do we do this?

- Demonstration Centers
- Short-Term Equipment Loans
- Funding Programs
- Device Reutilization
- In-services and Trainings
- State and Federal Contracts that provide various Equipment and Services to NDs and MNs

# Case Study 1-Transitioning to an Apartment, Reducing Staff Time

## Background & Goals

- ▶ Group home transition to apartment
- ▶ Needed to reduce staff time
- ▶ Will open the door to anyone
- ▶ Did not want to be alone
- ▶ Had previous experience with Echo Show



## AT Solutions

- ▶ [Tessan Alarm System](#)
  - ▶ Easy to use and set up
  - ▶ Notification pushes
- ▶ Echo Show
  - ▶ Communicate with mom
  - ▶ Drop-In calls
  - ▶ Calming music and other benefits



# Case Study 1-Transitioning to an Apartment, Reducing Staff Time-Cont'd

## **Result**

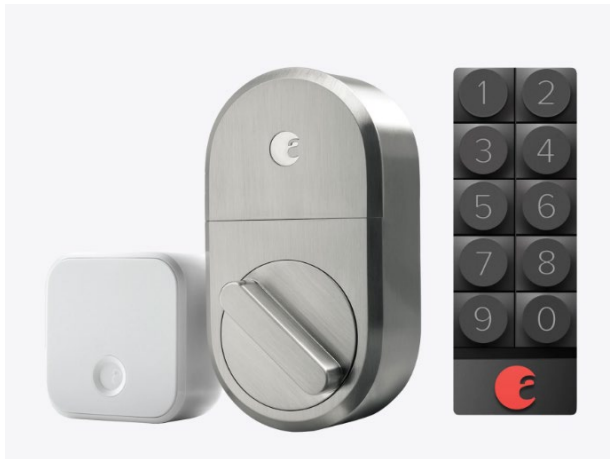
Reduced her staff time by 2-3 hours per day...so far.



# Case Study 2: Be more Independent & Thrive

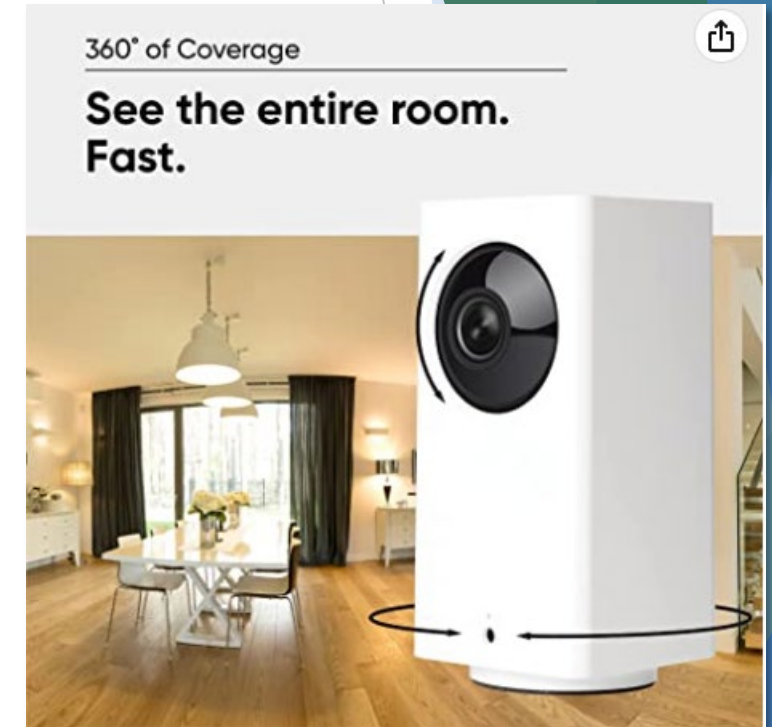
## Background & Goals

- ▶ Tired of having to ask staff to do everything
- ▶ Wanted to be able to
  - ▶ Control a thermostat
  - ▶ Turn on all lights
  - ▶ Check out noises and see his apartment when staff have left, and he is in bed
  - ▶ Turn on lights, fans, etc.
  - ▶ Unlock and open the door
  - ▶ Control TV



## AT Solutions

- ▶ Smart Home Package with
  - ▶ Echo Show
  - ▶ Echo Dot
  - ▶ Smart Plugs
  - ▶ Smart Cameras
  - ▶ Smart thermostat
  - ▶ Smart Lock
  - ▶ Automatic Door Opener
  - ▶ Roku TV
  - ▶ iPad





## Case Study 2: Be More Independent & Thrive-Cont'd

### **Result**

Finally has control of his own life and staff doesn't have to hover and tend to his every need.

# Case Study 3: Comfort & Connection

## Background & Goals

- ▶ Elderly lady with advanced dementia living in assisted living
- ▶ Home care visits 2x/daily
- ▶ Daughter visits almost daily
- ▶ Family wanted to use AT to keep her comfortable and connected.



## AT Solutions

- ▶ Lamps were set up with smart plugs and programmed to turn on/off at specific times each day to assist with day/night orientation.
- ▶ TV - Routine programmed so TV turns on to the local news channel every evening.
- ▶ Familiar music programmed to play every morning.
- ▶ Echo Show for Drop-In video calls.
- ▶ Daughter remotely adds social items to her calendar. Echo Show displays and announces these events.
- ▶ Pictures of her family are displayed on Echo Show.



# Case Study 4: Snacks & Safety

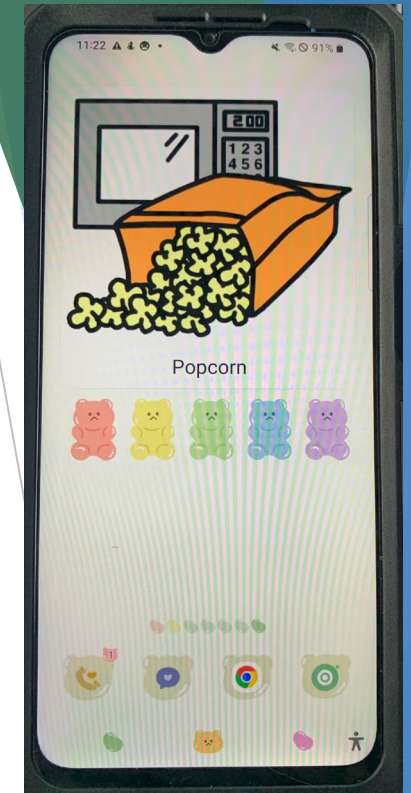
## Background & Goals

- ▶ Child living with parents and younger sibling in the home
- ▶ DSP in the afternoons
- ▶ Family wanted to use AT for independence and safety.



## AT Solutions

- ▶ Ring Alarm System for doors
- ▶ Action Block on his smartphone that brings him to a video of how to make popcorn
- ▶ Popcorn sticker on the popcorn button of the microwave
- ▶ Picture labels on dresser drawers
- ▶ Invisible magnetic locks on cabinets for nighttime
- ▶ Combo lock on the fridge for nighttime



# Categories of Assistive Technology

- ▶ Daily Living
- ▶ Vision
- ▶ Hearing
- ▶ Speech Communication
- ▶ **Learning/Memory/Cognition**
- ▶ Adapted Toys and Recreation
- ▶ **Environmental Modifications**
- ▶ Computer Access
- ▶ Vehicle Modification & Transportation
- ▶ Mobility Seating & Positioning

## Today's discussion

- ▶ Smart Home
- ▶ Safety
- ▶ Memory
- ▶ Sensory

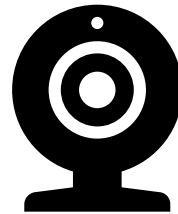
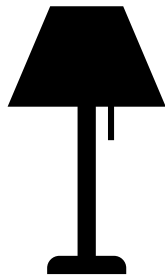
# Recipe for a Successful Smart Home

- ▶ Strong Wi-Fi network
- ▶ Smartphone or tablet for set up and maintenance
- ▶ Some devices require a smart hub to work
- ▶ **Point Person – Someone who will be responsible for regularly checking that things are working, installing updates, troubleshooting, replacing batteries, etc.**



# What can be controlled in a Smart Home

- ▶ Lights - overhead, lamps, colorful light strips
- ▶ Fans
- ▶ Plugs
- ▶ Thermostats
- ▶ Cameras
- ▶ TVs & soundbars
- ▶ Music, podcasts, & audiobooks
- ▶ Video doorbells
- ▶ Locks
- ▶ Doors
- ▶ Garage doors
- ▶ Window coverings - shades/blinds
- ▶ Pet food dispensers
- ▶ Faucets
- ▶ Appliances - microwave, stove, air fryer, toaster, Instant Pot, etc.
- ▶ Robotic vacuums & mops
- ▶ & much more





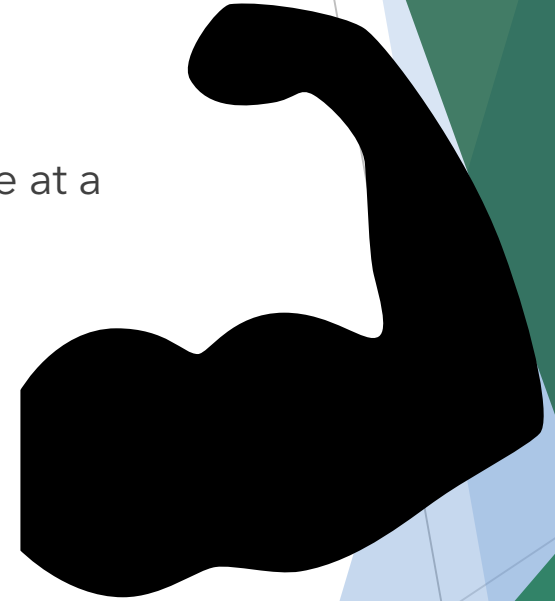
# What can be monitored in a Smart Home

- ▶ Doors
- ▶ Windows
- ▶ Thermostat/ temperature
- ▶ Water sensors
- ▶ Getting in/out of bed
- ▶ Smoke/fire alarms
- ▶ Fridge - number of times opened, glasses of water dispersed
- ▶ Medication intake
- ▶ Bathroom scale
- ▶ [Toothbrush](#)
- ▶ Fitness and sleep tracking - requires a smartwatch



# Routines Allow You to Harness the Power of Smart Homes

- ▶ LIGHTS, CAMERA, ACTION!
- ▶ Allow you to group actions together
- ▶ Actions can be triggered by a phrase, button, date/time, arrival/departure at a location, etc.
  - ▶ Alexa understands AAC voices! (So do Google and Siri)
- ▶ Select a pre-made routine or create your own
- ▶ Your imagination is your limitation!
- ▶ [Alexa Routines](#)
- ▶ [Google Nest Routines](#)
- ▶ [Siri Shortcuts](#)
- ▶ [IFTTT](#)



What can you do with Routines?

**Creativity is KEY**

**The only  
limitation is  
your  
imagination!**

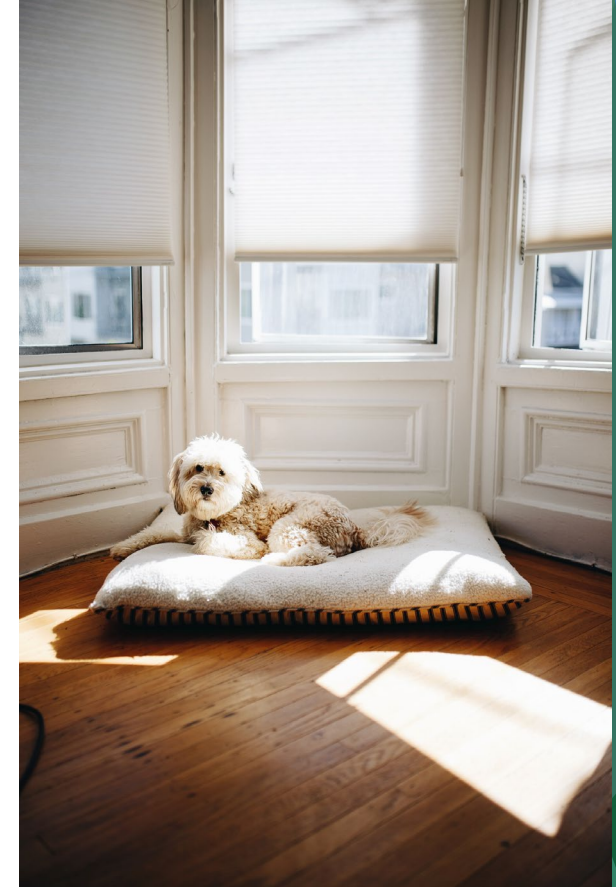


# Example Routines

Increase independence, reduce caregiver burden.

# Waking up the Beast

- ▶ Trigger: Time - every morning at 6:30 am
- ▶ Shades open
- ▶ Overhead light slowly turns on to max brightness
- ▶ Alexa announces "Good Morning Sunshine"
- ▶ Favorite playlist plays
- ▶ 6:50 am - Alexa says the forecast then reminds you to get dressed for the day



# Out the Door without the Struggle

Family Bell routine for the household is set up and shows on all Nest Hub Max devices and everyone's Android smartphones

- 7:15 am      Feed the Pets – Nemo and Sparky are hungry!
- 7:20 am      Ding, ding it's breakfast time
- 7:30 am      Time to put your dishes in the sink and grab your lunchbox from the fridge.
- 7:32 am      Put your shoes and coat on.
- 7:33 am      "It's the Final Countdown" starts playing. Family's objective is to be out the door before the song ends.
- 7:38 am      Everyone is out the door!





# Arriving Home after Work

- ▶ Routine is triggered by a geofence when you return home
- ▶ Text is automatically sent to Mom & Dad that you've arrived home
- ▶ Your apartment lights turn on and your heat turns up
- ▶ Google says Hello and reminds you that Wednesdays are laundry days
- ▶ Your laundry playlist plays
- ▶ Google gives you friendly reminders every 20 minutes to keep working on your laundry



# Bedtime is a Breeze

- At 9 pm Google says "It's time to get ready for bed."
- Reminder to brush teeth
- YouTube video of a toothbrushing song plays
- Reminder to put on pajamas
- Sunlight emulator slowly dims
- Sleep story podcast plays
- Calming ocean sounds play
- Lights turn off at a set time

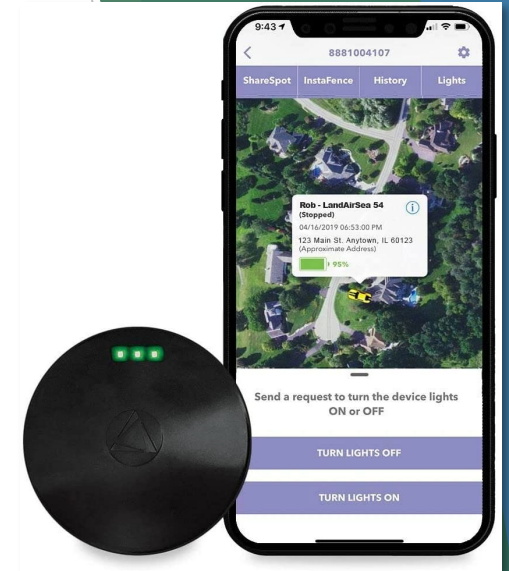


# Assistive Technology for Safety

# Safety - Home or Remote Monitoring

## -Things to consider

- ▶ What does the **person** need?
  - ▶ Elopement/tracking
  - ▶ Getting out of bed at night
  - ▶ Physical independence (help with cooking, dressing, bathing, etc.)
  - ▶ Memory needs (i.e. taking medication, stove shut off, remembering how to do tasks)
  - ▶ Personal Emergency Response System (in home, out in the community, fall detection?)
  - ▶ Social isolation needs
  - ▶ What equipment do they already own and use



# Safety - Home or Remote Monitoring

## -Things to consider 2

- ▶ Who will
  - ▶ Assess needs,
  - ▶ Match the needs to the appropriate assistive technology,
  - ▶ Design the system,
  - ▶ Purchase the equipment,
  - ▶ Set up equipment,
  - ▶ Provide training, and
  - ▶ **Support the system/person**



# Safety - Home or Remote Monitoring

## -Things to consider 3

- ▶ Do they need a Stand-alone system with staff monitoring or a Fee-based outside service





# Safety - Home or Remote Monitoring

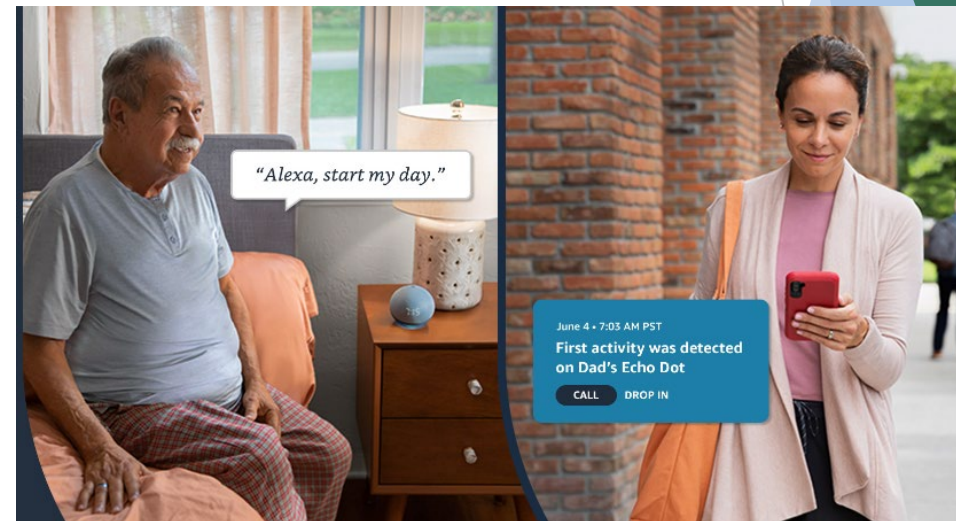
## -Things to consider 4

### ► If Fee-based outside service

- How much of the service do you want/need for the particular individual
- What kind and what level of services do they offer
- What kind of service is it? A call service or an actual 24/7 home monitoring service
- Monthly Fees/Contract-penalties for discontinuing
- What type of services are included with the fee
- How long has the company been in business
- What have been other's experiences



NOSS



# Safety- Home or Remote Monitoring

## -Things to consider 5

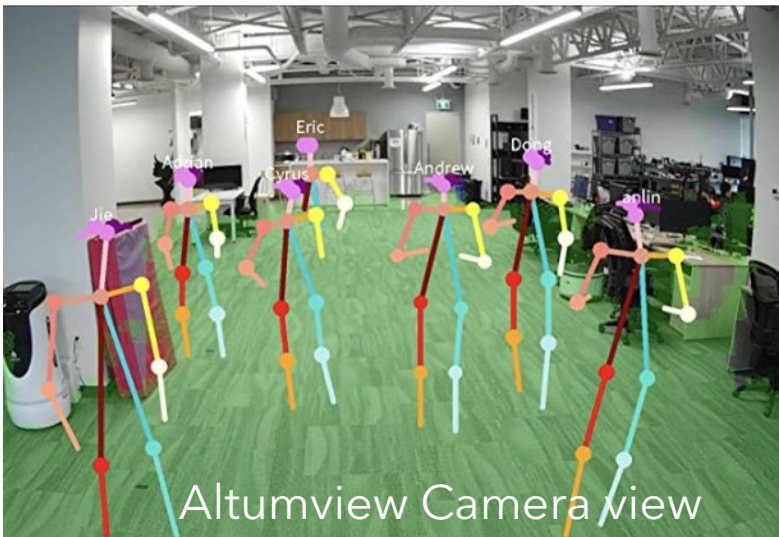
- ▶ Stand-alone system with staff monitoring/support
  - ▶ Will it be smart or not-smart
  - ▶ Does the home have good WiFi
  - ▶ Does it reach all areas of the home
  - ▶ Who will be the monitors and how will they monitor
  - ▶ Do the components work together



# Safety - Home or Remote Monitoring

## -Things to consider 6

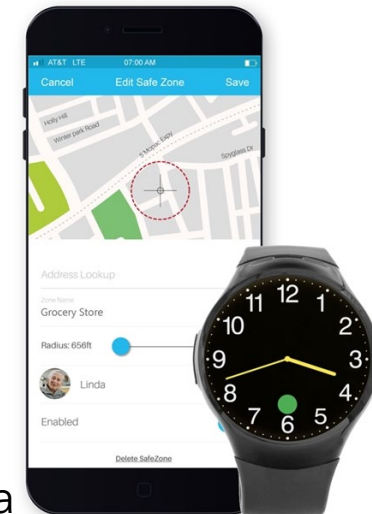
- ▶ Stand-alone system with staff monitoring/support-cont'd
  - ▶ How does the system send notifications
  - ▶ If applicable, how will the system be accessed by the individual (voice, AAC device, etc.)
  - ▶ Where do sensors, motion detectors, cameras need to be placed?
  - ▶ Do you need video?
  - ▶ What about power (does it need to be periodically charged, need batteries, etc.)



CompX eLock  
-use proximity keycards/WiFi-based

# Safety - Tracking, SOS, Fall Detection Devices - Things to consider

- ▶ What does the person need?
  - ▶ SOS, Fall Detection, GPS, monitoring service, etc.
- ▶ How will it be attached to clothing, shoes, backpack, car, etc.
  - ▶ Will they keep it on
- ▶ Monthly Fees/Contract-penalties for discontinuing
  - ▶ What type of services are included with the fee?
- ▶ Coverage area if cellular
- ▶ Is it a stand-alone device with a SIM card or does it require a smartphone nearby
- ▶ How long has the company been in business
- ▶ What have been other's experiences



Theora  
Care

# Safety - Tracking, SOS, Fall Detection - Things to consider 2

## ► Things to consider with each device

- Ease of Use for Caregiver and person
  - Does it need tech support to set up, maintain, etc.
  - What kind of user interface for the caregiver/individual-i app
- How accurate is the GPS
- Water resistance vs Waterproof
- Battery life-Charging-how long does it take
- Fall Detection-does it really work
- SOS button
  - Can the person access it? How is it activated?
- Two-way communication
- GeoFencing
- Force answering



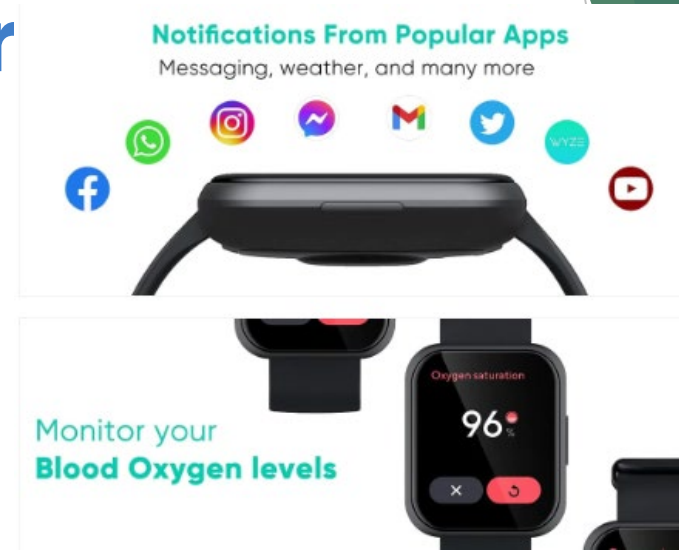


# Assistive Technology for Memory



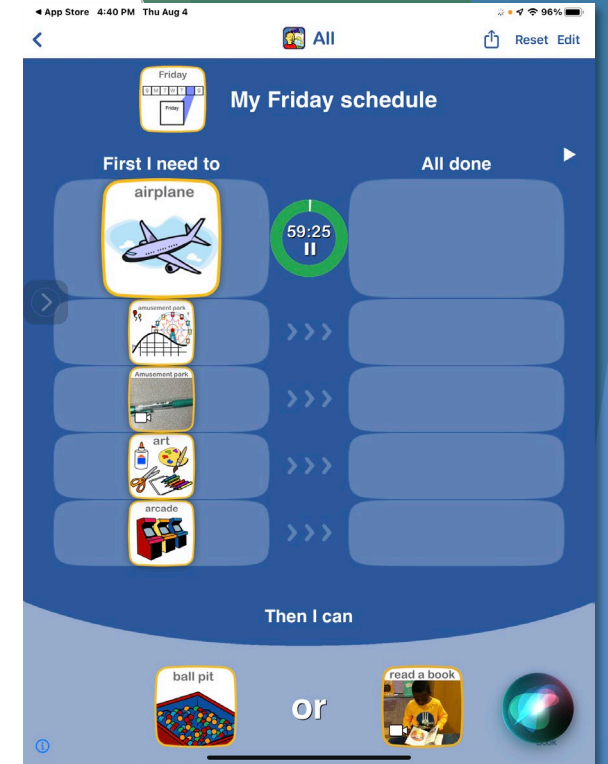
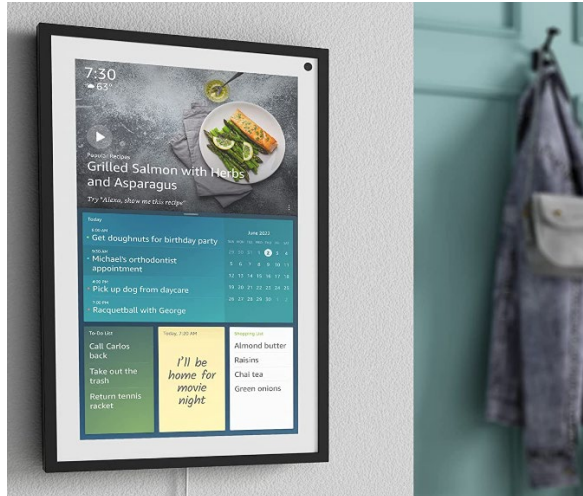
# Memory - Things to consider

- ▶ What do they need to remember
  - ▶ Appointments
  - ▶ Daily schedule
  - ▶ Feeding a pet/watering the plants
  - ▶ Turning off the stove, shutting off water



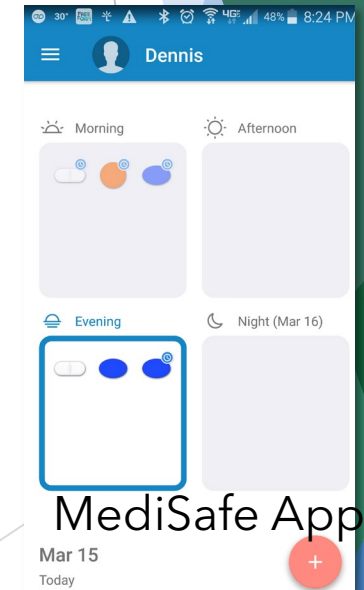
# Memory - Things to consider 2

- ▶ What do they need to remember-Cont'd
  - ▶ To eat
  - ▶ How to do tasks-i.e. getting dressed, brushing teeth
    - ▶ Can this person learn new skills and can they be retained
    - ▶ Or do they need picture/text reminders
  - ▶ Do they also need help with transitioning
  - ▶ Communicating on the Phone
  - ▶ Orientation



# Memory - Things to Consider 3

- ▶ What do they need to remember-Medication
  - ▶ Locked Devices
    - ▶ Monitored/Unmonitored
  - ▶ Unlocked Dispensers
  - ▶ Watches/Pagers
  - ▶ Apps
- ▶ [Epill.com](http://Epill.com) with so many choices like the MedCenter



# Assistive Technology for Sensory



# Sensory Tools - non-smart

- ▶ Compression and weighted items such as cocoons, blankets, lap pads, and bed sheets
- ▶ Flexible seating options such as wobble chairs, rocker chairs, bean bag chairs, or adaptations to existing chairs like balance disks and chair fidgets
- ▶ Foam rollers, exercise balls, exercise bands, mini trampolines
- ▶ Easily portable: Spiky massage balls, Koosh balls, stress balls/putty, Therapressure brushes, fidget poppers, cubes, keychains, etc.
- ▶ Wearables: Compression and weighted clothing, weighted jewelry, chewable jewelry, noise-canceling headphones or earbuds

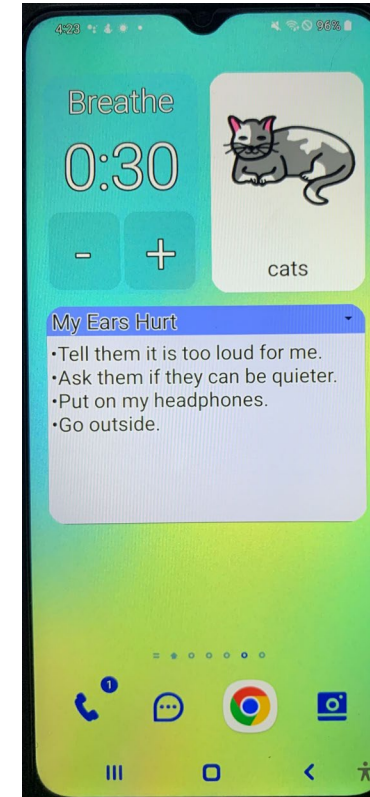


# Be Smart About Sensory Needs - Smartphone Tools

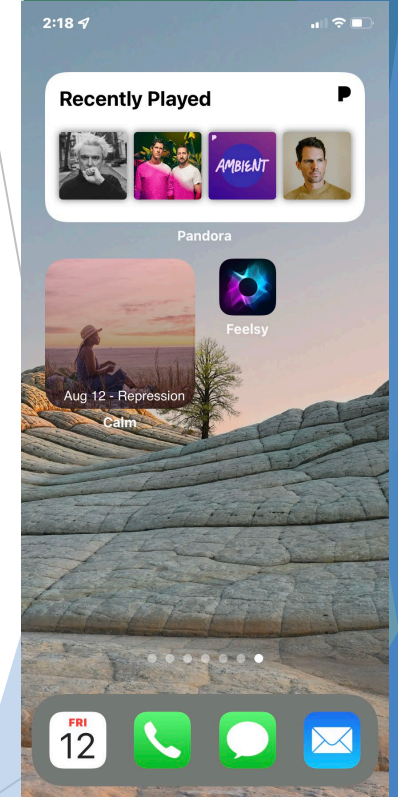
- ▶ Many apps and tools to help
  - ▶ [Choiceworks app](#) for iOS
  - ▶ Guided breathing and meditation apps like [Calm](#) and [Headspace](#)
  - ▶ [Calming colors and images](#)
  - ▶ Coloring apps
- ▶ Make them EASY TO ACCESS
  - ▶ Android - [Action Blocks](#) and [Widgets](#)
  - ▶ iOS - [Shortcuts](#) and [Widgets](#)



Choiceworks App



Android



iOS



# Be Smart About Sensory Needs - Smart Home Tools

- ▶ Create custom smart home routines to support sensory needs
- ▶ Consider how your client/child will access the routine when they need it
  - ▶ Voice command
  - ▶ Icon on communication board
  - ▶ Smart button



Flic smart buttons



# One Stop AT Shop

- ▶ Access us from any point-No referral required. Just email or call us.
- ▶ Use us a little or a lot and access at any point (i.e. start with a demo or start with a Senior Safety application)



# Contact Us

## **Jeannie Krull, MS/CCC-SLP, ATP, CAPS**

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## **North Dakota Assistive**

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