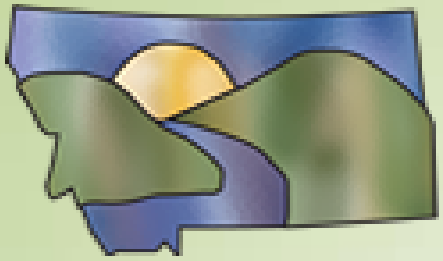


MonTECH

Assistive Technology for Aging in Place

Learning Objectives

1. Participants will be able to knowledgeably discuss devices that can help support safety and functioning within the home
2. Participants will learn where to find additional information (resources) about assistive technology tools for people as they age
3. Participants will be able to implement a process for determining how to best match a person's needs with the available technology options

- According to a 2014 American Association of Retired Persons (AARP) survey, 87 percent of adults 65 and older want to stay in their current home and community as they age.

What is Assistive Technology?

- Assistive Technology (AT), also called *adaptive technology*, refers to any "product, device, or equipment, whether acquired commercially, modified, or customized, that is used to maintain, increase, or improve the functional capabilities of individuals with disabilities."

  Assistive Technology Act of 1988

What AT Does…

- Assistive technology devices work by either **enhancing** an individual's existing abilities or by **compensating** for absent or diminished skills.
- AT offers an **alternative way** to accomplish a task

CCTV magnifies text for a person with low vision

Assistive Technology in the Home

For

- Reminders
- Organization and routines
- Time tracking – year, month, day of week, am, pm, elapsed time
- Assist with tasks – pictures, reminders, pre-programmed supports
- Home safety – monitoring; on/off options for lighting and appliances; tools for activities of daily living
- Alerts

Prompts and Reminders

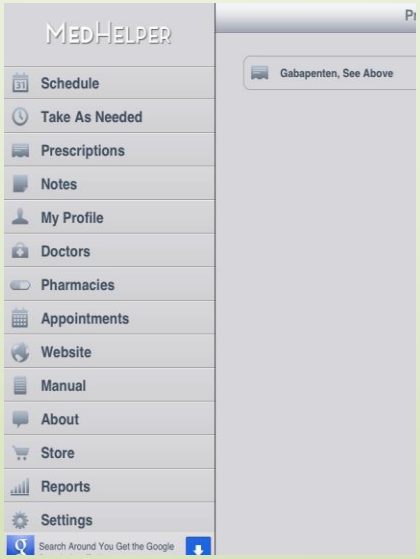
- Date and time
- Item locator devices
- Medication reminders and dispensers
- Voice recorders and memo reminders
- Signs, notices, and other environmental aids

Prompts and Reminders: Item Locator Devices

- Help to locate commonly misplaced items in the home such as keys, wallet, glasses case, etc.

Prompts and Reminders: Medication Reminders and Dispensers

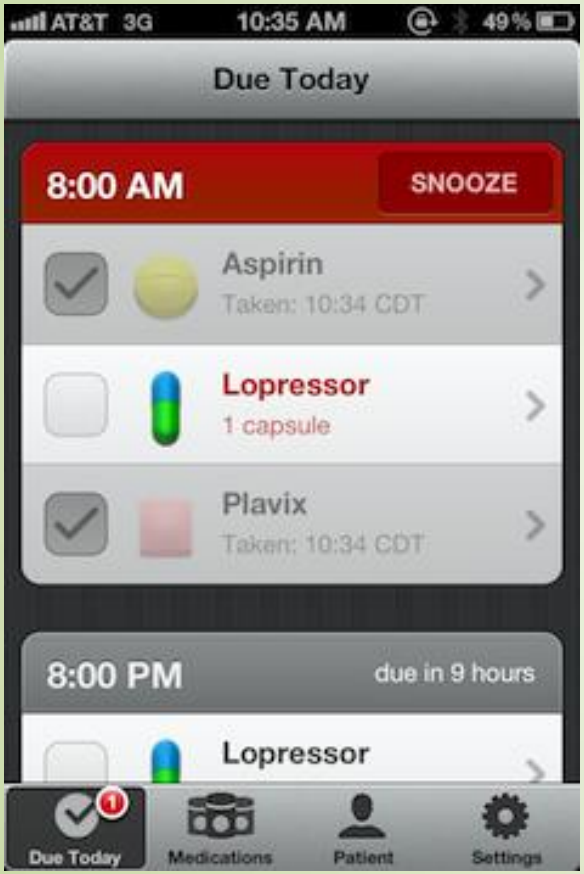
- Support for remembering to
  - Take medication
  - Time to take specific medication
  - What the medication is



MedHelper app

Vitality's Glow Cap

Pillboxie



- An easy, visual way to remember your meds
- Over 100 combinations of med shapes and colors
- Schedule reminders by dropping pills into a pillbox
- Reminds you on time, even if your device is asleep
- No network connection required.
- 99 cents

Prompts and Reminders: Voice Recorders and Memo Reminders

- Support for people
  - To remember the steps to a task
  - To remember activities to do

Picture Scheduler

- With the Picture Scheduler, you can attach a picture to a note, which is particularly helpful for those who need visual supports to perform daily tasks.

Prompts and Reminders: Signs, Notices, and Other Environmental Aids

- Visual devices act as memory prompts
  - Signs or labels
  - Simple reminders or steps of an activity
  - Placed in strategic locations
  - On notice boards or white boards

ONE Secure Form of Currency

- Device may be more fraud-proof than plastic credit and debit cards.
- Looks and functions like existing plastic cards.
- Simply take a photo of your gift, credit, and debit cards and load their numbers into the app.
- For security, the device is encrypted and will only function when in proximity to your synced smartphone.

TrueLink

Learn

eak with a **True Link Fraud evention Advisor** for a free sessment of your vulnerability d learn how to prevent financial oloitation.

GET STARTED

Monitor

True Link Financial Protection is your family's first line of defense in preventing financial exploitation; stay informed about unusual activity across all your accounts.

READ MORE

Prevent

The **True Link Card** is a customizable debit card that safeguards seniors against scam and predatory telemarketers without compromising their independence.

READ MORE

What to consider for Home Safety

- Lighting
- HVAC control
- Stairs
- Floor surface
- Pathways
- Activities/areas that require reaching, bending, lifting, grasping, vision, and/or hearing
- Door handles/Cabinet Hardware
- Lever or automatic faucets

Safety Devices

- Lighting
- Activity monitors
- Alarm and pager units
- Fall detectors
- Floor detectors and water temperature monitors
- Gas, carbon monoxide, smoke and extreme temperature detectors

Safety: Lighting

Easy to use or automatic lighting in the home.

- Touch lamps
- Light sensor night lights
- Motion activated lights
- Voice activated lighting

Safety: Activity Monitors

Used to detect activity and inactivity.

- Sensors detect movement at preset times (i.e., every 4 hours).
- Activity monitoring systems
  - Sensors/cameras
  - Monitor daily activities
  - Local or remote monitoring
  - Family/friend or subscription

Activity Tracker

- Adhesive sensors can be attached to car keys, refrigerator, or even the shower door sending wireless signals to the hub activity logs.
  - Users and caregivers are notified via text, email, and a phone call if something seems inappropriate.

Safety: Fall Detectors

- Pressure sensors or mats on the bed, chair or floor
  - Indicate movement out of bed or chair
  - Movement toward a door or stairway
  - Signal to a portable receiver/pager
- Fall detectors worn by the senior
  - Triggers an alert if an impact is detected and/or the person remains in a lying position

Safety: Flood Detectors and Water Temperature Monitors

- Detectors
  - simple plug that releases excess water
  - wireless sensors alert when water level is reached; or if water is accumulating on the floor
- Temperature monitors
  - visual or audible warnings
  - when water is too hot

"This is Mike's house in the mountains. The temperature in the basement is now below 35 degrees. Send someone immediately to fix the problem."

Appliance Timers

- Eliminate the need to remember to turn appliances on or off.
  - Heat-resistant glass disks
  - Range power alarms or shut-off
  - Microwave with voice prompts

Automatic Stove Shut Off Safety Options

- Cookstop – computer controlled motion sensor technology to monitor a presence in the kitchen http://www.cookstop.com/home.html
- iGaurd Stove – complex motion sensing/monitoring technology with web based monitoring http://iguardfire.com/
- Home Senser - works by sensing both the state of the stove controls and if a person is attending the stove while it is turned on http://www.homesensers.com/index.html
- Stove Reminder – Senses when stove is on and provides audio and visual reminders http://www.alzstore.com/stove-reminder-p/0105.htm

Safety: Gas, Carbon Monoxide, Smoke and Extreme Temperature Detectors

- Detect gas, carbon monoxide, smoke and extremes of temperature
  - Visual and audible alarms
  - Temperature monitor
    - rapid rise in temperature
    - excessively high or low temperatures.
- Telecare devices will also alert emergency services if a sensor has been triggered.

Safety and Security

- Locator technologies – to locate a person who may be lost
- Movement sensor technologies – to alert when someone gets up or leaves

Safety: Security

- Home security
  - Key-safe
  - Automatic door opener
- Window/door sensors or alarms
  - Remote control option

Automated Activity Tracking & Analysis Systems (AATAS)

- Core concept is behavioral monitoring especially as it relates to important activities of daily living
- Provide objective timely information
- Comprised of three subsystems
  - Sensors In home and a unit to collect and transmit data
  - A web interface that provides processing of the data and turns it into a user friendly format
  - The remote caregiver's interface

Safety: Movement Monitoring

- Alerts for movement
  - Devices trigger a sensor (door, bed, chair, floor)
  - Audible alarm
  - Remote monitor

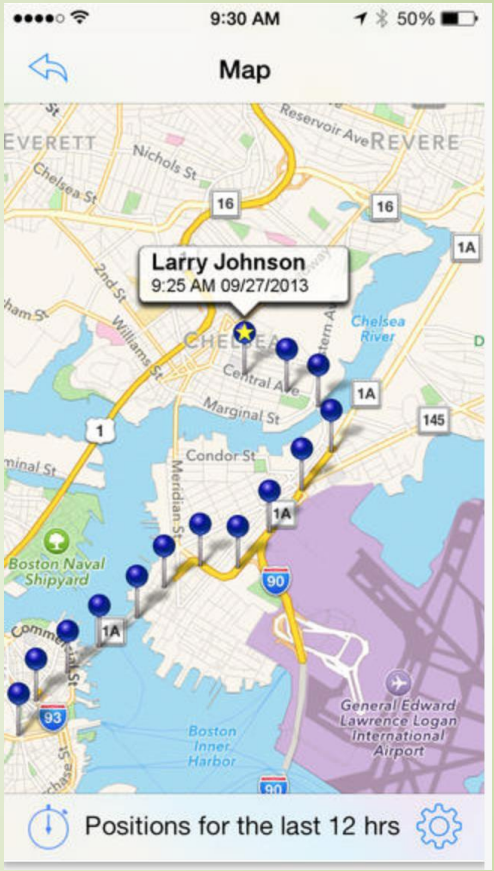
Safety: Location Monitor

To locate a person who may be lost

- Simple –identification information on the person
- GPS technology
  - For route information
  - Routine directions
  - Locating a missing individual

- GPS locating technology

Pocket Finder



Cell Phone App

Auto Tracking Device

- A small “key” plugs into the 16-pin diagnostic port hidden on your car’s dashboard, syncing info to a smartphone app.
  - Monitors the health and location of your vehicle at all times and sends alerts if something is malfunctioning.

GPS Tracking Insole

- A shoe insole with a built-in GPS tracking chip that works with a variety of smartphones, computers and tablets.
- Anyone wearing the shoe can be instantly located on a map using the online tracking portal.
- Sole is discreet, waterproof, and as comfortable as a regular insole.
- Battery lasts up to five days and easily recharges.

Sleep Hygiene Tracker

- Movement sensors monitor sleeping patterns and the corresponding app informs users how much deep and light sleep the individual is receiving.
- Another feature is the enlightened alarm clock that will gently awaken the individual during lightest sleep period using vibrations, once the device learns the users sleep patterns.

Home Automation

- In the past, was a niche market with a few different technologies
- During the last few years it has started booming under the new label of “the internet of things” (IoT)
- The primary technology is Wi-Fi enabled devices
- The boom is just beginning…

Connectivity Protocols

- X-10
- Insteon
- Universal Powerline Bus (UPB)
- Z-Wave
- Zigbee
- Wi-Fi
- Bluetooth Low Energy (BLE)

Some Considerations

- Type of building
- Security
- Remote Access
- Privacy
- An eye to the future

Security

- Wireless networks can be hacked on-site or possibly remotely
- Wired networks can also be compromised on-site and possibly remotely
- If controlling security-related devices, such as locks on doors, it's important to understand the risks of whatever technology and devices you choose
- As an example, there's a smart toilet (popular in Japan) that has no security features at all, so anyone with the app can repeatedly flush any similar smart toilet within range of the app--wasting a lot of expensive water.

Remote Access and Privacy

- Remote access to the home automation network can be convenient, for example, turning on the sprinkler system while on vacation
- Wi-Fi networks are typically easier to setup for remote access, but some wired networks can be setup to support remote access as well
- As more devices join "the internet of things", more personal information is shared with companies outside of the individual's control
- This is typically a balance of privacy and convenience, and each person must decide for themselves where that balance lies

Communication Technology

- Intercoms
- Telephones

Communication: Intercoms

- Wired units in a permanent location
- Wireless units used anywhere throughout the home
- May include video monitor

Communication: Telephones

Landline or Mobile phone

- Large buttons or text
- Pre-programmed with phone numbers and contact information
- May use photos with names
- Connected to sensor system(s)

Keeping in Touch

- Skype/Facetime

Kubi

Double Robotics

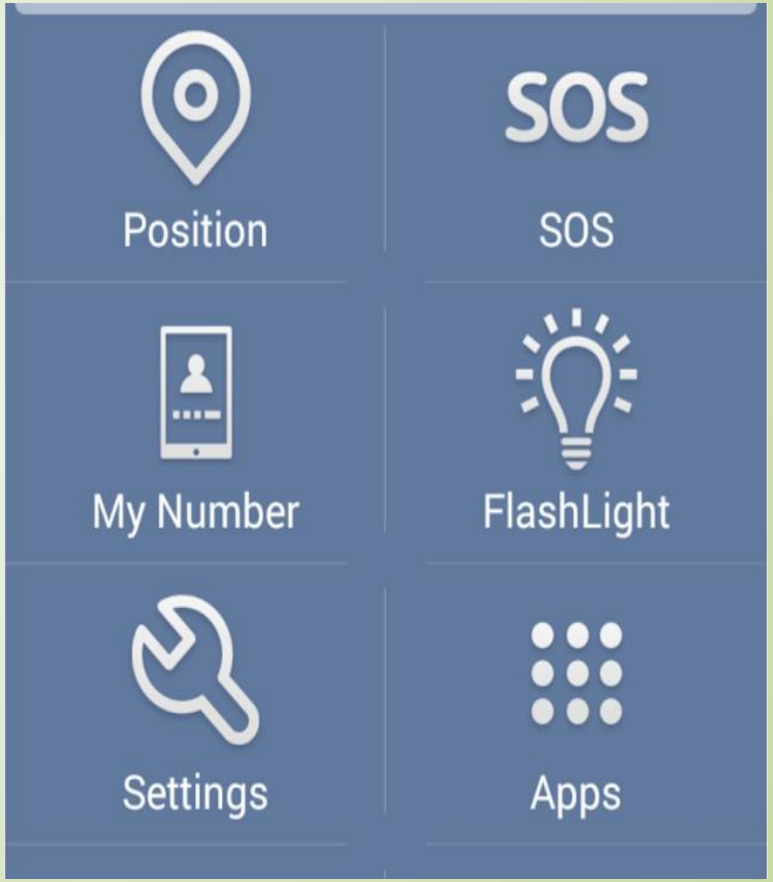
Vgo

Smartphones, Tablets and Other Devices

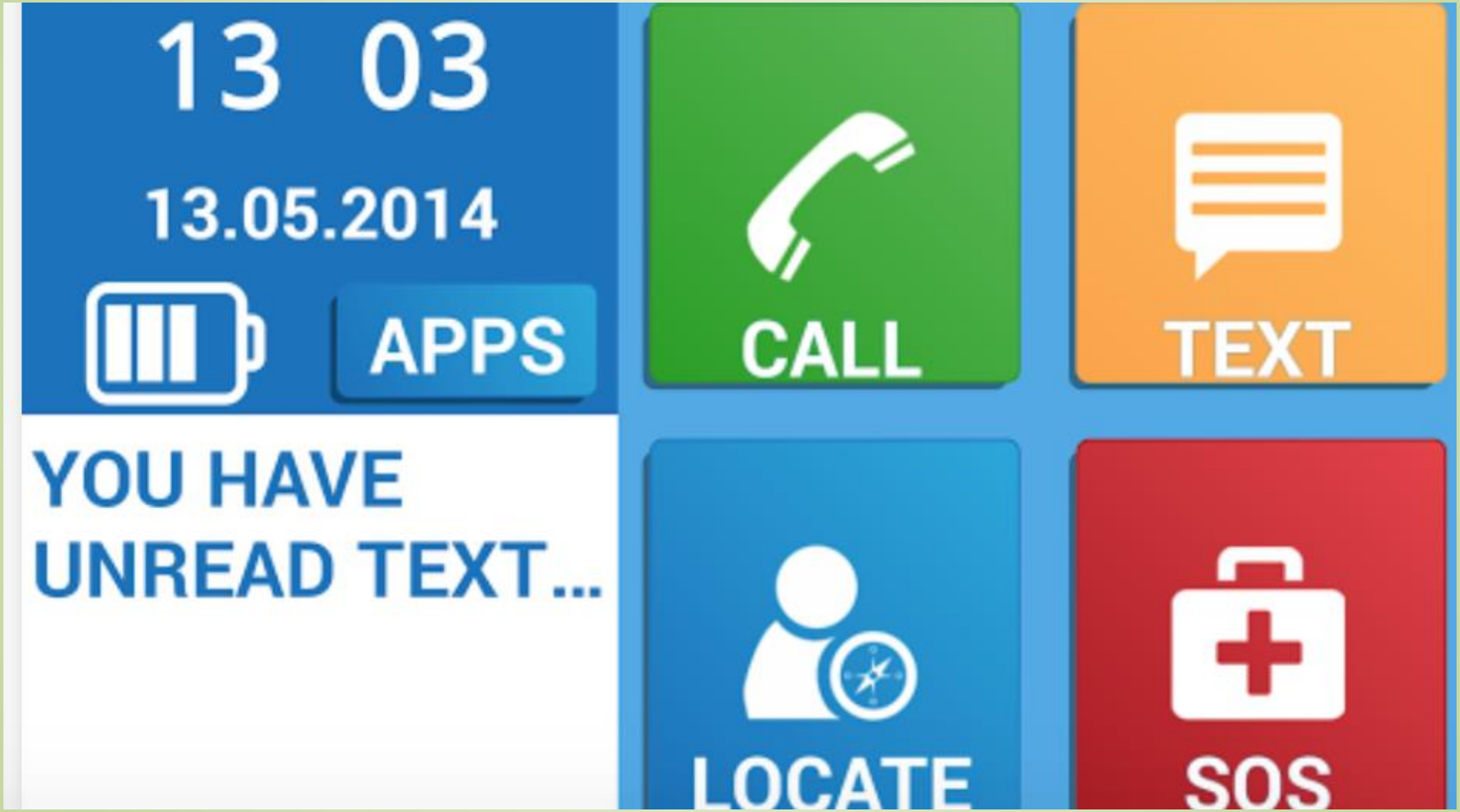
- Mobile phones and handheld devices such as tablets offer touch screen accessibility to allow individuals to easily input, save, and retrieve notes, telephone numbers, to-do lists, dates and daily reminders.
- They also provide task-prompting support using digital pictures and custom recorded audio messages with step-by-step instructions.
- These devices feature applications that have many of the same functions as specific AT solutions.

Easy Access For Mobile Devices

- Apps for Senior Friendly Start-up Screens:
  - Necta Launcher
  - Wiser
  - Seniors Phone
  - Fontrillo
  - Big Launcher
  - Silverline



Simple Senior Phone App



Remember, assistive technology is useful only when it…

1. Matches the person's specific needs,
2. Does the job for which it is intended,
3. Is compatible with the environments in which it will used,
4. Is **perceived** as beneficial, and
5. Is affordable (obtainable) to the person who needs it.

AT & Telecare

- Must be perceived as beneficial
- User must not turn on/off or unplug items
- Will not work if it causes confusion or distress (i.e. alarms, recorded messages, etc)
- Insufficient response to an alert
- Technology can be an important tool to support independent functioning but is not a solution in and of itself

- Enter the words *assistive technology AND aging in place and/or seniors* into any search engine, such as Google or Bing.
- The search generates a number of websites to begin the research process.

- There are many choices
  - Check for customer reviews
  - Check Consumer Reports especially for mainstream items
- Check for specific local or community monitoring services
  - All services may not be available in your area.

MonTECH

I do not have any relevant financial or non-financial information to disclose as pertains to this presentation.

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