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4

Module 2
Mhealth for Tracking and
Monitoring for Safety

mHEALTH-AD

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Partners

mHEALTH-AD
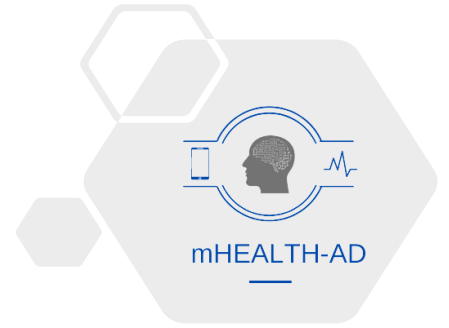
Germany
www.iat.eu

Germany
www.schoen-klinik.de

Germany
www.rub.de

Greece
www.auth.gr

Greece
www.innovationhive.eu

Slovenia
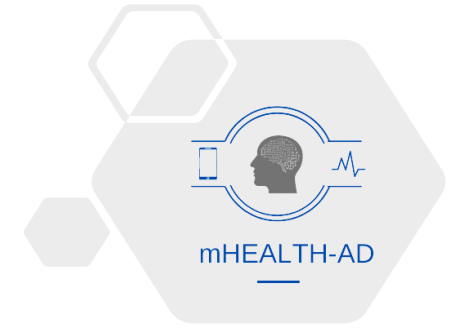www.emonicum.eu
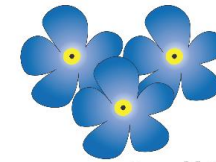
Slovenia
www.spomincica.si

Turkey
hwww.alzheimerdernegi.org.tr/

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Modules

1. mHealth for Monitoring Health Indicators

2. mHealth for Tracking and Monitoring for Safety

3. mHealth for Training Health Condition

4. mHealth for Communication and Planning

TRAINING ACTIVITY 2_mHealth for tracking and feedback

CONTENTS

Module 2

TRAINING ACTIVITY 2_mHealth for tracking and feedback
INTRODUCTION

mHealth for tracking and feedback presents solutions that provide health indicators related information, they also allow a follow up of that information while sending feedback and possible actions to be done subsequently.

Some of the applications help to enhance sleeping, physical activity, emotions, mood, sensorial capacity, etc.

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Module 2

Does anyone of you already have experience with tracking and monitoring systems?

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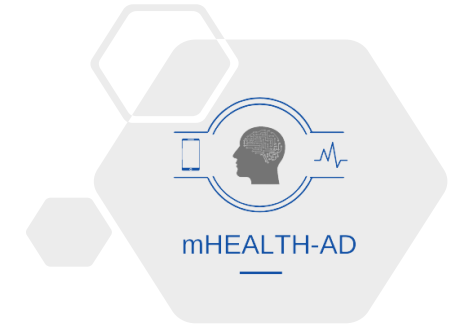
The 6 basic types of systems:

1. Voice-activated services;
2. Movement sensors;
3. Video monitoring;
4. Personal emergency response systems;
5. Medical monitoring;
6. Comprehensive artificial intelligence home systems.
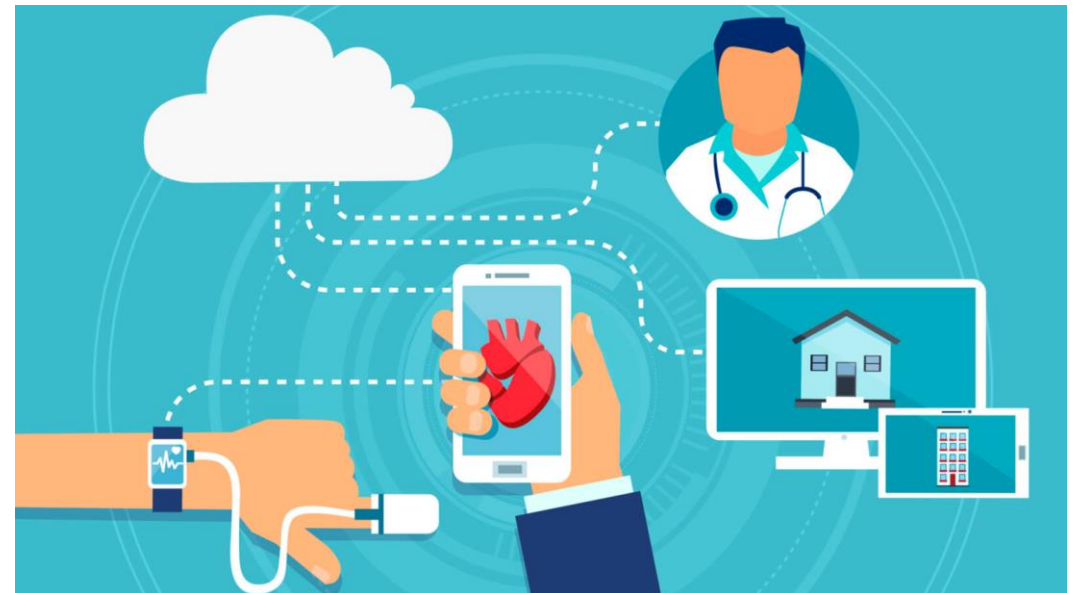
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What is a tracking and monitoring system?

Tracking and monitoring systems collect a range of data like **movement**, **temperature**, **behavioral** and **sleep patterns**, and more, and they learn the daily habits of people through the help of motion sensors and alerts providing caregivers and medical professionals with important insights into a senior's health and daily life and times of need or irregular patterns.

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TRAINING ACTIVITY 2_mHealth for tracking and feedback

What is a tracking and monitoring system?

Tracking and Monitoring System is a real-time system that allows the user to observe someone or something.
It needs to have a device that can specify the location and send the location to the user's device.

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What do elderly tracking & monitoring systems do? ?

Elderly tracking & monitoring systems function either synchronously processing and transmitting real-time information, **or** asynchronously collecting and storing data to be used later.

TRAINING ACTIVITY 2_mHealth for tracking and feedback

What do elderly tracking & monitoring systems do?

The most common risks seniors face while at home:

- Slips and falls
- Medication
- Crime
- Fire
- Mental conditions

TRAINING ACTIVITY 2_mHealth for tracking and feedback
CONCEPT: Tracking And Monitoring Systems for Safety

Tracking and monitoring systems can be used for safety and the most common form of tracking and monitoring system is GPS tracking.

GPS trackers come in many forms and can be so small that people wear them easily throughout the day, allowing caregivers to know exactly where they are.

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What types of systems are available?

Types of tracking technology:

- RFID (Radio Frequency Identification)
- Geofencing
- Internet Tracking
- Radio Tracking
- GPS (Global Positioning System & Satellite Tracking)
- Cell-Phone Triangulation
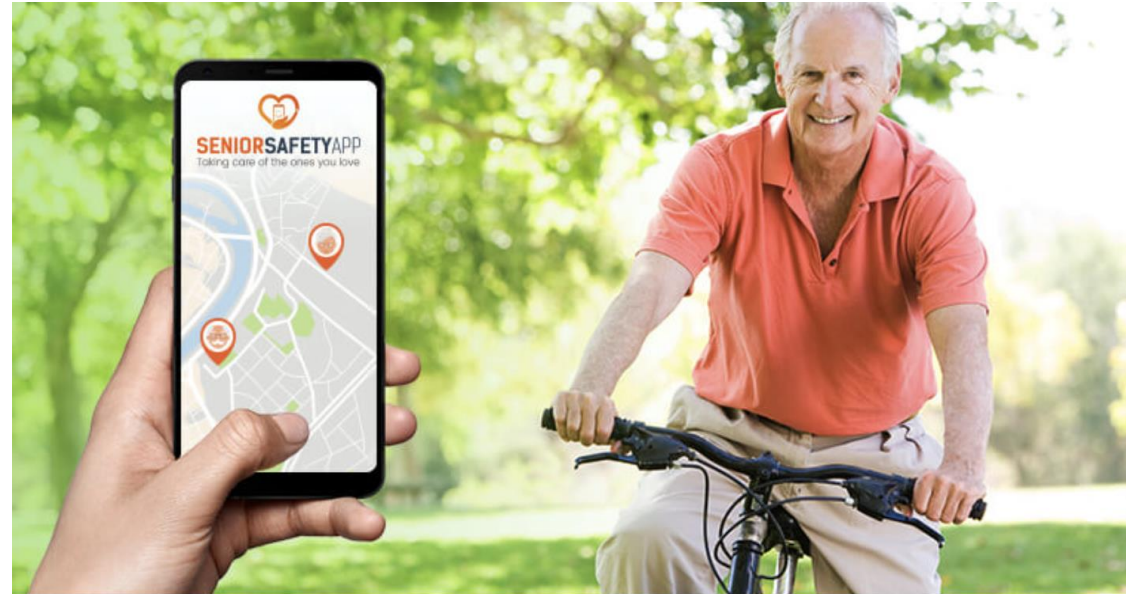
The most widespread forms are small wearable tracking devices that use GPS technology or Home Systems that employ sensors.

Module 2

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Module 2

What are your personal needs and expectations from tracking and monitoring systems?
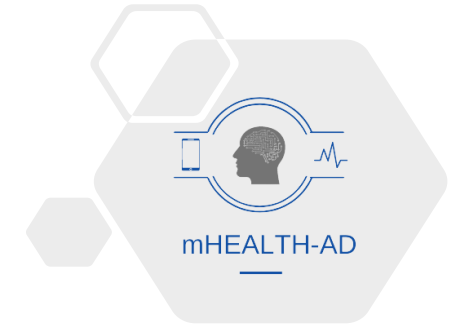
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What are the needs and expectations of PwD and caregivers from tracking and monitoring systems?

Expectations of the devices vary for each person, important issues are:

- Device compatibility
- User-friendly interface and software
- Support
- Affordability
- Use and purpose

- Distress button
- Smart alerts
- Low battery alerts
- Activity tracker
- Inactivity alerts

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TRAINING ACTIVITY 2_mHealth for tracking and feedback

What are the needs and expectations of PwD and caregivers from tracking and monitoring systems?

Expectations of the devices vary for each person, important issues are:

- Data protection
- General technical knowledge
- Updates for the devices
- Insurance
- Battery runtime
- Ethical approval
- Inaccuracy

Important (individual) aspects for the use of a device

Misguided safety
- overly relying on the device
- the wearer feels safer, but might move less as a result
- wearing the device all the time, may prove difficult

Inaccuracy, if the device has reception from too few satellites, the location will be inaccurate. Problems may occur near:
- Walls
- Buildings
- Trees or very dense bush
- Under bridges
- Underground
- Underwater

GPS Position

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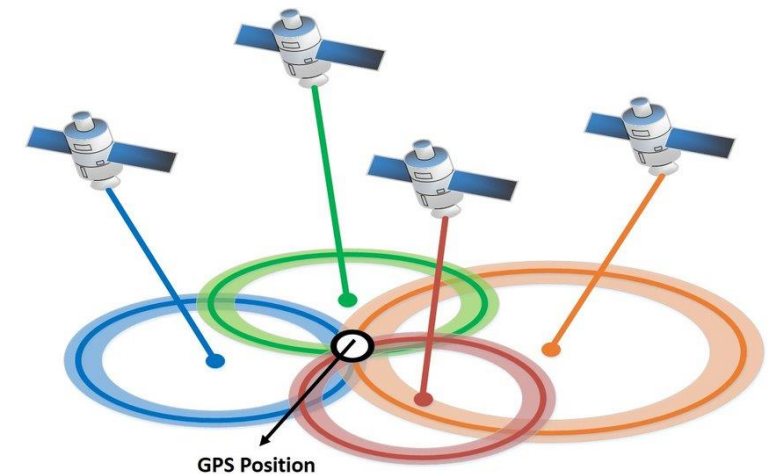
TRAINING ACTIVITY 2_mHealth for tracking and feedback

Important (individual) aspects for the use of a device

False sense of security

- venture out into new areas or engage in activities that they wouldn't do without a GPS tracking device
- Family members may check less on the PwD

Ethical consideration

- Personal freedom and dignity
- Balance between independence and safety
- Invasion of privacy
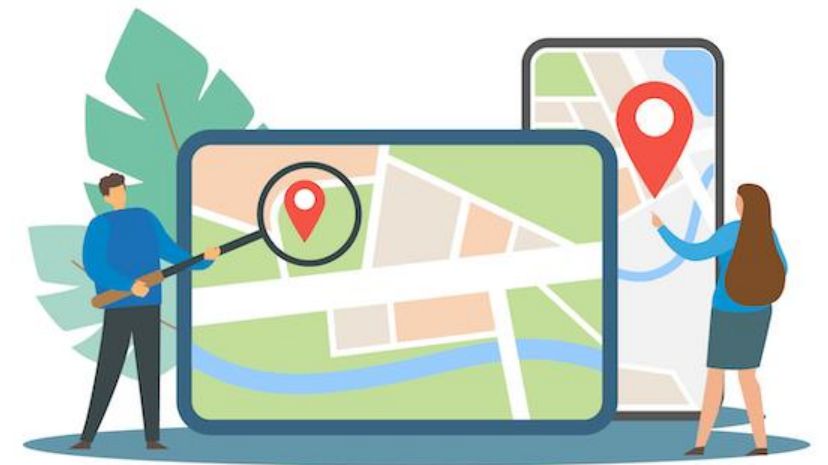
TRAINING ACTIVITY 2_mHealth for tracking and feedback
Selection Criteria for Tracking and Monitoring Systems
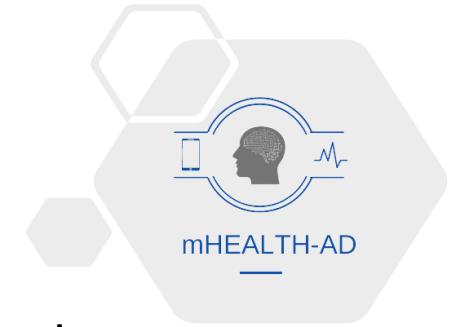
What type of device do I prefer?

Something discreet like a necklace, watch or bracelet or a conventional GPS tracker

How much am I willing to pay?

Some systems have monthly fees that must be paid in addition to the purchase price

What additional features do I want?

Fitness devices (providing health metrics and other measure
SOS button, two-way calling, fall detection, audio monitoring

What GPS capabilities do I expect?

By default, the larger the coverage area
(nationwide, worldwide), the more expensive the systems

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TRAINING ACTIVITY 2_mHealth for tracking and feedback
Selection Criteria for Tracking and Monitoring Systems

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Name	Costs	SIM card needed?	Where to buy?	Description	Battery runtime	GPS tracking range	Additional material

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TRAINING ACTIVITY 2_mHealth for tracking and feedback
Selection Criteria for Tracking and Monitoring Systems

To note even more information about the individual devices you receive this layout.
These can help in the later process to select the device that suits you best.
Of course you can take them home with you after the training.

Name:	Picture
Price:	
Where to buy:	

Description

GPS tracking range: | **Battery runtime:**

Additional material:

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Selection Criteria for Tracking and Monitoring Systems

Name: Tsmart Twatch Smart Adult Alzheimer GPS Tracking Watch

Web Sayfası:

https://www.turkcell.com.tr/pasaj/cep-telefonu/giyilebilir-teknolojiler/akilli-saatler/tsmart-twatch-akilli-yetiskin-alzheimer-gps-takip-saati?&color=1003552

Price: 1.449 TL

Where to buy: Can be purchased online.

Picture

Description
Stay on track with the tsmart smart adult watch with GPS and Phone Feature, specially produced for your loved ones and the elderly.

It will be your biggest helper with its superior features.

Suitable for Adults / Elderly / Alzheimer's patients.

Fall alert feature
Heart rate monitor feature
Medication Reminder feature
Photo phone book feature
Inactivity reminder feature
Sleep tracking

Case description:
Features:
It is a waterproof device.
1.54" Color Touch Screen
Large Color IPS Touchscreen and large text
Conversation as a Phone
It works with Nano Sim Card from any operator.
With the GPS feature, one can instantly see the most accurate location of the loved one.
When the Electronic Fence area goes out of the area specified, a warning message will appear, it can be traced where the loved one has been during the day,
Large capacity battery: 3-4 Days of Use with 2 Hours of Charge,
Step counter
Alarm
2 Years Technical Service Warranty
IOS and Android Compatible.

Additional material:
USB charging cable

Name: GPS-Track WatchPro

Price:
469,00€ + contract for SIM

Where to buy:
Online

Description
- watch with built-in GPS tracker for positioning, combined with a leather strap with patent closure
- works with SIM card and is usable without a smartphone
- tracking the WatchPro is possible via mobile devices with iOS or Android with free app „weglaufstop", can also watch the position on a laptop or PC
- SOS function
- movement sensor
- geo fence function

Case description:

Battery run time:

50h:Report Intervall 10 min
50h: Report Intervall 60 min
16h: Report Intervall 2 min
4h: Report Intervall: 5 Sec

Additional material:

GPS track watch, case color: silver	Leather strap with patent clasp
2 bracelet lengths available: S & L	Magnetic key to open the bracelet
Screwdriver to open the SIM card cover	Charging cable Micro-USB to USB
German quick start guide	User manuals
Access data to free portal	Access data for the free app "Weglaufstop"

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TRAINING ACTIVITY 2_mHealth for tracking and feedback
Selection Criteria for Tracking and Monitoring Systems

Methods for tracking & monitoring elderly remotely :
- Through Technology
- Delivery Services
- Help From Friends and Family

In case of employment of technology, the following options can be considered for the elderly usage:
- Phone Apps
- GPS Trackers
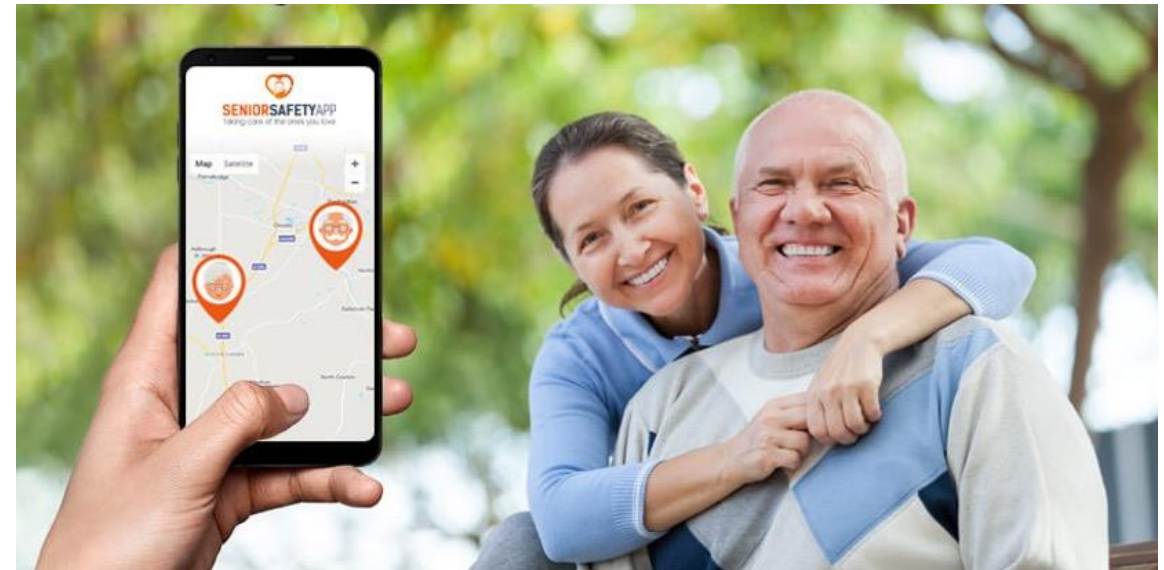- Cameras
- Virtual Assistants
- Patches

TRAINING ACTIVITY 2_mHealth for tracking and feedback
Selection Criteria for Tracking and Monitoring Systems

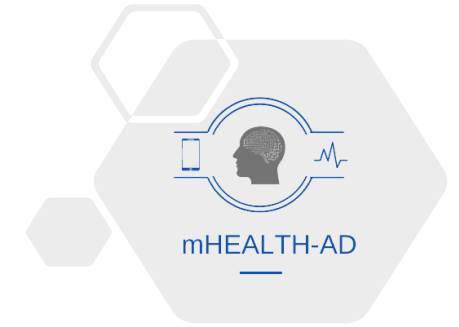**In order to be able to use the technological solutions, the family needs:**
- Dementia-friendly cell phones
- Apps designed just for seniors with dementia.

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How GPS tracking keeps people with dementia safe?
Wandering

- Common behavior in people with dementia/alzheimer
- The term suggested that the walking is without a purpose, but in fact there is often a reason for this kind of behavior.
  - Relieves stress and boredom
  - Exercise
- Problems:
  - Find their way back home, because of bad memory and orientation
  - Gets lots in familiar places
  - Distressing for caregiver
  - Dangerous

TRAINING ACTIVITY 2_mHealth for tracking and feedback

How GPS tracking keeps people with dementia safe?
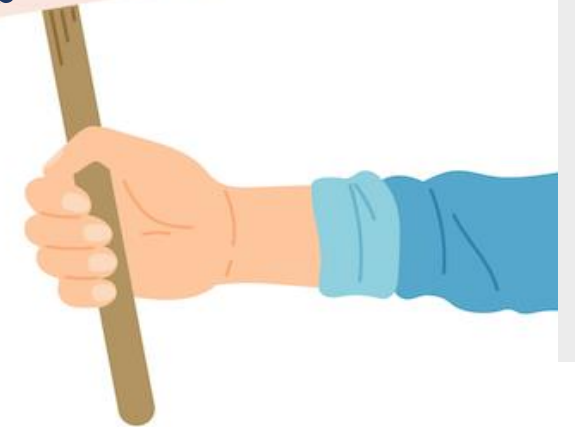
Making wandering more safe

- Using location and tracking devices or GPS trackers
- Other useful features
  - Falling detector
  - SOS button
  - two-way communication

No device or system can guarantee that a person with dementia/alzheimer will not get lost or will be found!

TRAINING ACTIVITY 2_mHealth for tracking and feedback

Wearable GPS trackers for dementia patients

Watches
Many are also available with a safety bracelet, the watch can be removed only with a special key

Tags
Can be worn as a necklace or be stowed in a pocket (jacket pocket, handbag, etc.)

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TRAINING ACTIVITY 2_mHealth for tracking and feedback

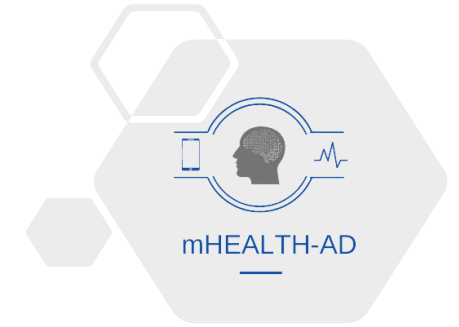## Wearable GPS trackers for dementia patients

Shoesole
Shorter service life, due to the load caused by the body weight

Mini tracking system
carried in a bag, pocket or be clipped on a top or belt

TRAINING ACTIVITY 2_mHealth for tracking and feedback
Improvement of Self-Management and Empowerment

Communication

In the process of finding the right device, opinions of family members and the person with dementia should be taken into account. Only if there is consensus will the device be accepted by all and, in the best case, used frequently.

Wearing during the day

Integrating a new system into your life can be difficult at first. It can help to integrate the system in combination with a routine such as brushing your teeth.

The device is taken off in the evening and placed next to the toothbrush, and then put on in the morning as part of the brushing routine.

TRACKING AND MONITORING SYSTEMS AVAILABLE IN THE MARKET

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Name: GPS Tracker PowerBox 10A

Price:
549,00€ + SIM card

Where to buy:
Online

Description
- small black box, strong magnets on the bottom, which allows you to attach the box to metal objects
- automatically sends its position every 2 minutes if in motion
- position of GPS tracking system is possible via mobile devices (iOS or Android) with free app or PC/laptop
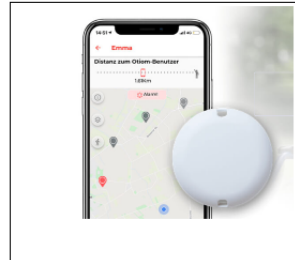
Case description:
solution for people who absolutely do not accept GPS solution on their arm/foot or clothes, but always use their rollator

Batter run time:
Up to 4 weeks with 4h of daily movement

Additional material:
1 x GPS-Track Mini1A G2   1 x GPS-Track Box M incl. neodymium magnets
1 x foam (box)   1 x GPS-Track external battery
1 x GPS-Track charger   Access data for the free portal
Access data for the free app „weglaufstop"

Name: Otiom

Link

Price:
449,00€

Where to buy:
Online

Description
- small, simple and sturdy tag
- Otiom-app on your smartphone, you will be notified as soon as the person with the tag leaves home. You can also be notified when they leave a zone that you have defined – without the individual being continuously monitored.
- no constant localization, only when a certain range is left
- prepaid E-SIM installed, the apps in the Appstore are free

Case description:

Battery run time:
Up to 1 Month: in range oft the home base
Up to 1 Week: out of range of the home base for about an hour per day
Up to 1 Day: in an alert situation

Additional material:
1 x Otiom tag with built-in E-SIM and battery   1 x neck strap with strangulation protection

1 x key ring (diameter 20mm)   1 x Otiom home base with built-in battery
1 x Otiom inductive charging pad   1 x Otiom belt clip
1 x Otiom USB charging cable   1 x 230V USB power adapter
Sales package   Quick start guide

Name: SmartSole

Link

Price:
279,00 € + service contract

Where to buy:
Online (germany)
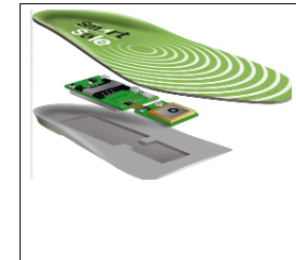
Description
The "SmartSole" enables doctors and family members to detect and automatically warn if the patient is in danger of getting lost and always displays the current location on any PC or smartphone. The included monitoring software can be used on PC as well as on Android and iOS smartphones and tablets and offers a convenient configuration of the security parameters. For example, a geofence (virtual fence) can be created in which the patient "may" move. If the predetermined area is left, an alarm is automatically sent to the stored mobile phone numbers via SMS. The link in it directly shows the current whereabouts of the patient, so he can be located quickly.

Case description:
A person that don't likes to wear a new additional device on their body may accept this "invisible" tracking device

Battery runtime:
Up to 5 days (6-8 hours movement per day)
- life span: guaranteed 6 months, can last up to 2 years

Additional material:
- needs sim card, which is included. Service contract: active 29€ per month, standby 5€ p.m

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Task: Self-reflection

Please reflect on today at home and ask yourself the following questions:

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TRAINING ACTIVITY 2_mHealth for tracking and feedback

Best methods for tracking & monitoring elderly remotely

What do you hope to achieve with the usage of a tracking and monitoring system?

TRAINING ACTIVITY 2_mHealth for tracking and feedback
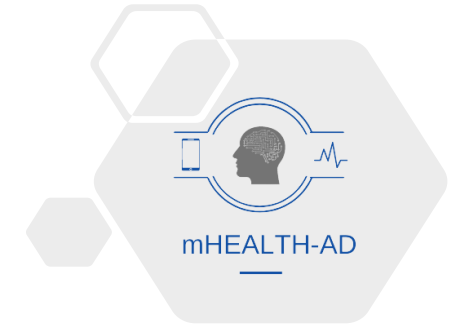## Best methods for tracking & monitoring elderly remotely

Which device did you personally like the best?
What is the reason?

Best methods for tracking & monitoring elderly remotely

In your opinion, what should you pay particular attention to when you're buying a tracking/monitoring system?

Module 2

TRAINING ACTIVITY 2_mHealth for tracking and feedback

Complementary Videos

How does GPS work?

Click here for the video.

General tips for the safety of persons with dementia.

Click here for the video.
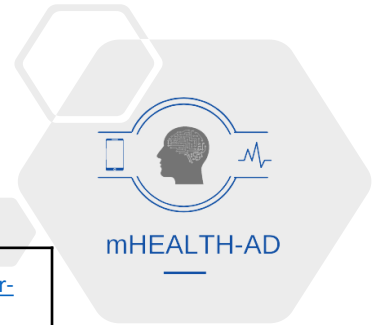
GPS Trackers explained.

Click here for the video.

Top 10 GPS Trackers for elderly.

Click here for the video.

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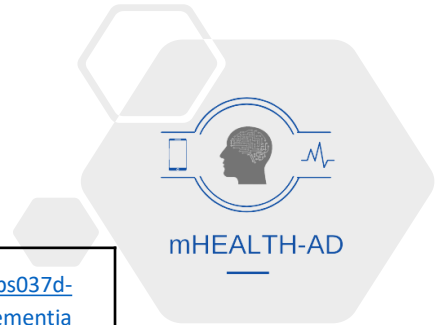
Sources

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	https://www.freepik.com/free-vector/grandparent-worry-problem-retire-anxiety-old-clipart-vector-illustration_27274883.htm		https://www.researchgate.net/figure/Trilateration-based-GPS-position-with-no-errors-in-satellites-signals_fig2_282359540

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	https://trackimo.com/gps-elderly-locator/		https://www.seniorsafetyapp.com/how-to-choose-a-senior-tracking-device-for-your-loved-ones-5-steps
	https//www.pngwing.com/en/free-png-bxrzv		https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.inquirer.com%2Fbusiness%2Fretail%2Fsmart-carts-no-contact-20210130.html&psig=AOvVaw1Y7nzjPQF4d4j86jO9oo1F&ust=1681475223929000&source=images&cd=vfe&ved=0CBMQjhxqFwoTCPjsm73tpv4CFQAAAAAdAAAAABAEs
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	https://stock.adobe.com/it/search/images?filters%5Bcontent_type%3Aphoto%5D=1&filters%5Bcontent_type%3Aillustration%5D=1&filters%5Bcontent_type%3Azip_vector%5D=1&filters%5Bcontent_type%3Avideo%5D=0&filters%5Bcontent_type%3Atemplate%5D=0&filters%5Bcontent_type%3A3d%5D=0&filters%5Bcontent_type%3Aaudio%5D=0&filters%5Binclude_stock_enterprise%5D=0&filters%5Bis_editorial%5D=0&filters%5Bfree_collection%5D=0&filters%5Bcontent_type%3Aimage%5D=1&k=elderly+fall+injury&order=relevance&price%5B%24%5D=1&safe_search=1&search_page=2&get_facets=0&search_type=pagination&asset_id=177272410		https://www.vectorstock.com/royalty-free-vector/online-virtual-assistant-services-concept-vector-22431921
			https://www.seniorsafetyapp.com/worry-less-with-the-help-of-gps-elderly-monitoring-system/