

REPORT FROM BRIEFING AND TRAINING OF TEST PERSONS, HOME CARE GIVERS AND NURSES

Deliverable D.T3.4.3

Version 1
05 2021





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1. Introduction

The *briefing and training of test persons, home care givers and nurses* took place on 29th April 2021 via the MS Teams online platform. The meeting was held between PP4, PP9 and the representatives of the Social Care Homw Warsaw. The aim of the meeting was to present the functionality of the AP-NURSE modular monitoring tool and to get familiar with the most important aspects of its operation. It is also one of the deliverables in thematic work package WP T3, D.T3.4.3 Report from briefing and training of test persons, home care givers and nurses.

2. Methodology

The meeting consisted of three consecutive parts; the presentation of the AP-NURSE modular device, deployment of the AP-NURSE devices in Social Care Home Warsaw and the schedule of the testing procedure. In order to have the material available also to caregivers who could not attend the meeting, the first part of the meeting was recorded by the STU team and approved by all attendees.

3. Meeting minutes

Attendants:

Štefan Čerba (STU,PP4), Jakub Lüley (STU,PP4), Branislav Vrbán (STU,PP4), Matej Cenky (STU,PP4), Viktor Tóth (STU,PP4), Magdalena Wiczorek (City of Warsaw, PP9), Bujnik Robert, Białopiotrowicz Urszula, Wolska Halina, Szymczak Elżbieta, Nowakowska Paulina, Dyka Sergiusz, Staszak Monika, Olszyna Anna, Kornatko Monika, Jagiełło Lidia, Starachowska Dorota, Rusin Monika, Baboal Olena, Miłosiewicz-Chojnowska Barbara, Chrupek Anna, Balun Piotr, Perdjan Marzena, Piasecka Emilia, Pechcin Irena, Przygoda Katarzyna, Daniszewska Marzena, Jarek Teresa, Owczarek Ewa, Urbańska Wioletta, Szmurło Dorota, Mielniczuk Danuta, Zwierzyńska Grażyna, Woźniak Bożena, Zielińska Elżbieta, Mazur Elżbieta, Opolska Barbara, Piotrowska Dorota, Krawczyk Magdalena, Zębała Marcin, Kamińska Maria, Kurowska Monika, Sikorska Katarzyna, Wierzbńska Grażyna, Pastuchenko Alena, Petrichenko Ludmila, Józefowicz Janina, Kowalska Bożena, Jaworska Beata (All Social Care Home Warsaw).

Presentation of the AP-NURSE device:

- Štefan Čerba, the communication manager of STU presented the AP-NURSE modular monitoring tool. Magdalena Wiczorek, the leader of WP3 provided translation to Polish language. The presentation consisted of the following thematic parts:
 - Goals and facts influencing the development of AP-NURSE devices
 - Summary of feedback collected from potential users
 - Technical specifications and versions of the AP-NURSE devices
 - Current status of development
 - Simple operation manual of AP-NURSE Home and Care
 - Summary of devices selected for testing



Deployment of AP-NURSE devices during the testing

- Štefan Čerba presented the list of devices selected for testing in Social Care Centre in Petržalka
 - Number of devices
 - Functionality of the devices
 - Deployment methodology

Schedule of the testing in Social Care Home Warsaw

- Štefan Čerba presented the draft schedule of testing
 - Summary of preparatory work by 9th May 2021
 - Installation of devices from 10th May to 12th May 2021
 - Physical testing from 13th May to 16th May 2021
 - Collection of measured data and feedback from caregivers from 17th May 2021
- Branislav Vrban, the project manager of STU started a discussion regarding logistic issues of the testing
 - Entry conditions related to the COVID pandemic were discussed in detail.
 - All STU members are already vaccinated by the 1st dose of the vector vaccine.
 - The Ag or PCR negative test not older than 48 hours is a must.
 - Body temperature measurement will be performed before the entrance to the center.
 - FFP 2 respirator and hand disinfection will be used by STU members.
 - The entry time and a number of STU staff members present in the center during installation were negotiated.
 - The number of STU members working at the center at once will be limited. The minimal number of workers required for installation is 3.
 - The working time available for the STU team is 9 am to 6.00 pm.
 - The communication principles and hierarchy during the testing were developed.
 - The STU team will be led by one manager who is the main contact and organizational point for the director of the center.
 - The director of the center will be continually informed about the work progress by the manager of STU team.

4. Conclusion

The *briefing and training of test persons, home care givers and nurses* has met its objectives and the work on Output O. T3.3 - Pilot testing of AP-Nurse - person suffering from Alzheimer's disease in Social Care Home Warsaw is in a very good way. The representatives of the Social Care Home Warsaw acquired the knowledge required to provide help in the implementation of testing. The materials have been recorded so as the staff that could not attend the briefing could watch it again. The logistic and testing details of the testing have also been discussed and the STU team foresees a smooth testing in Social Care Home Warsaw.

ANNEX 1: Screenshots from the meeting



The screenshot shows a presentation slide with a yellow background featuring a map of Europe. In the top left corner, there is a logo for 'Interreg CENTRAL EUROPE' with the European Union flag and 'niCE-life' below it. The main text on the slide reads: 'AP-NURSE - A simple and modular monitoring device for patients suffering from Alzheimer's and Parkinson's disease'. To the right of this text, there is a graphic of a staircase with the text 'TAKING COOPERATION FORWARD' next to it. At the bottom of the slide, there is a location pin icon followed by 'Bratislava, 29 Apr. 2021', a speech bubble icon followed by 'Štefa Čerba - Communication manager - STU', and a person icon followed by 'niCE-life | Slovak University of Technology in Bratislava'.

Interreg 
CENTRAL EUROPE European Union
European Regional
Development Fund
niCE-life

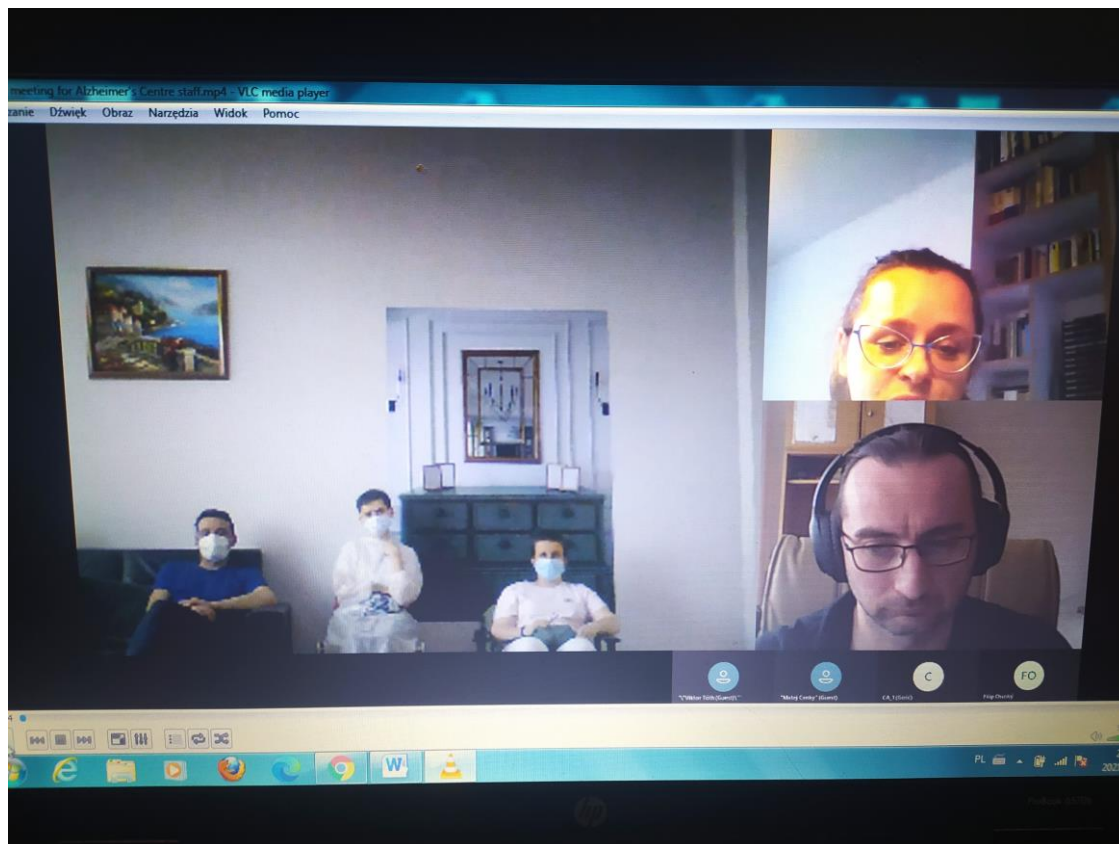
AP-NURSE -
A simple and modular
monitoring device for
patients suffering from
Alzheimer's and Parkinson's
disease

TAKING
COOPERATION
FORWARD

📍 Bratislava, 29 Apr. 2021

💬 Štefa Čerba - Communication manager - STU

👤 niCE-life | Slovak University of Technology in Bratislava



COMPARISON OF AVAILABLE SOLUTIONS

Device name	MO	LIGHT	SND	PO	TOF	PIR	D	GPS	ACC	CO2	CNG	ATP	FP	HUM	SD	PRICE	ATT	H/M
AP-NURSE HOME		X				X	X			X	X	X	X	X		LOW+	NO	H
AP-NURSE CARE		X			X	X	X			X	X	X	X	X	X	LOW	NO	M
SmartMind	X															-	YES	H
SYMON-A															X	-	NO	H
AngelSense			X					X								HIGH	YES	H
GPS SmartSole								X								MEDIUM	YES	H
iTraq		X						X	X							MEDIUM	YES	H
PocketFinder								X								LOW	YES	H
Project Lifesaver	X															MEDIUM	YES	H
Trax								X								MEDIUM	YES	H
Just Checking						X	X									HIGH	NO	H
ONOS				X												-	YES	M
Alzimio				X												-	YES	H
POT	X															-	YES	H
WDMS			X			X			X				X		X	-	YES	H
Souza				X					X							-	YES	H/M
Sang				X					X							-	YES	H/M
iWander			X					X								-	YES	H
DCNN						X	X								X		NO	H

FP - Force pressure sensor
HUM - Humidity sensor
SD - Smart devices that communicate
MO - advanced motion sensor
LIGHT - Light sensor

LOW+ PRICE - Under 100€ over 5 years
LOW PRICE - Under 500€ over 5 years

SND - Sound sensor
PO - Other type of position sensor
PIR - PIR movement sensor
D - Door sensor
GPG - GPG movement sensor
TOF - Time of flight sensor

MEDIUM PRICE - Under 1000€ over 5 years

GPG - GPG movement sensor
ACC - Accelerometer
CO2 - CO2 / flame detector
CNG - Gas detector
ATP - Atmospheric pressure sensor
ATT - Attachable to patient

HIGH PRICE - Over 1000€ over 5 years





TESTING SCHEDULE

Interreg 
CENTRAL EUROPE
niCE-life

- **Schedule of the AP-NURSE testing pilot in Warsaw**

9/5 Su.	10/5 Mo.	11/5 Tu.	12/5 We.	13/5 Th.	14/5 Fr.	15/5 Sa.	16/5 Su.	17/5 Mo.
Preparation	Installation of devices			Physical testing			Feedback	



ANNEX 2: Presentation of the AP-NURSE monitoring tool

AP-NURSE -
A simple and modular
monitoring device for
patients suffering from
Alzheimer's and Parkinson's
disease

TAKING
COOPERATION
FORWARD



Bratislava, 29 Apr. 2021



Štefa Čerba - Communication manager - STU



niCE-life | Slovak University of Technology in Bratislava

WHAT IS AP-NURSE?

- A simple and modular monitoring device
- Used in home environment or/and in centers of social and health care
- Eases the work of caregivers
- Monitoring of the basic interaction of patients with their environment
- Provides fast alert in case of possible danger or hazardous event
- Price allowing real deployment



WHAT IS AP-NURSE?

FACT

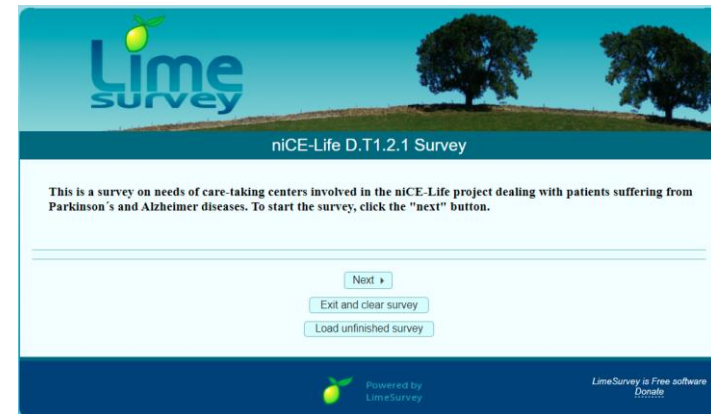
- Basic facts
 - The device is not directly attached to the patients, thus disfunction due to detachment is prevented
 - Utilizes day and night mode of monitoring
 - It uses contactless sensors of the surrounding environment that monitor changes of its parameters
 - Responses to hazardous event signalized either on a bracelet worn by the caregiver / family member or through the information system
 - Two fields of application:
 - Home use
 - Use in care centers



DESIGN BASED ON REAL NEEDS



<http://147.175.126.100:7122/index.php/918778/lang-en>



Answer	Count	Percentage
Petržalka Municipal District of Bratislava - Capital city of Slovakia (A1)	2	10.00%
Brno University of Technology (A2)	0	0.00%
The University Hospital Olomouc (A3)	6	30.00%
Slovak University of Technology in Bratislava (A4)	0	0.00%
LEPIDA SCPA (A5)	0	0.00%
Local Health Authority of Bologna (A6)	0	0.00%
Institute for elderly care and shelter (A7)	0	0.00%
Samaritan Burgenland Department of Home Care (A8)	0	0.00%
Miasto Stożeczne Warszawa (A9)	2	10.00%
National Institute of Public Health (10)	0	0.00%
Other	0	0.00%
No answer	0	0.00%
Not completed or Not displayed	10	50.00%



DESIGN BASED ON REAL NEEDS

Visit of the Social Care Centre in Bratislava



TAKING COOPERATION FORWARD



COMPARISON OF AVAILABLE SOLUTIONS

Device name	MO	LIGHT	SND	PO	TOF	PIR	D	GPS	ACC	CO2	CNG	ATP	FP	HUM	SD	PRICE	ATT	H/M
AP-NURSE HOME		X				X	X			X	X	X	X	X		LOW+	NO	H
AP-NURSE CARE		X			X	X	X			X	X	X	X	X	X	LOW	NO	M
SmartMind	X															-	YES	H
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GPS SmartSole								X								MEDIUM	YES	H
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POT	X															-	YES	H
WDMS			X			X			X				X		X	-	YES	H
Souza				X					X							-	YES	H/M
Sang				X					X							-	YES	H/M
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DCNN						X	X								X		NO	H

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HIGH PRICE – Over 1000€ over 5 years



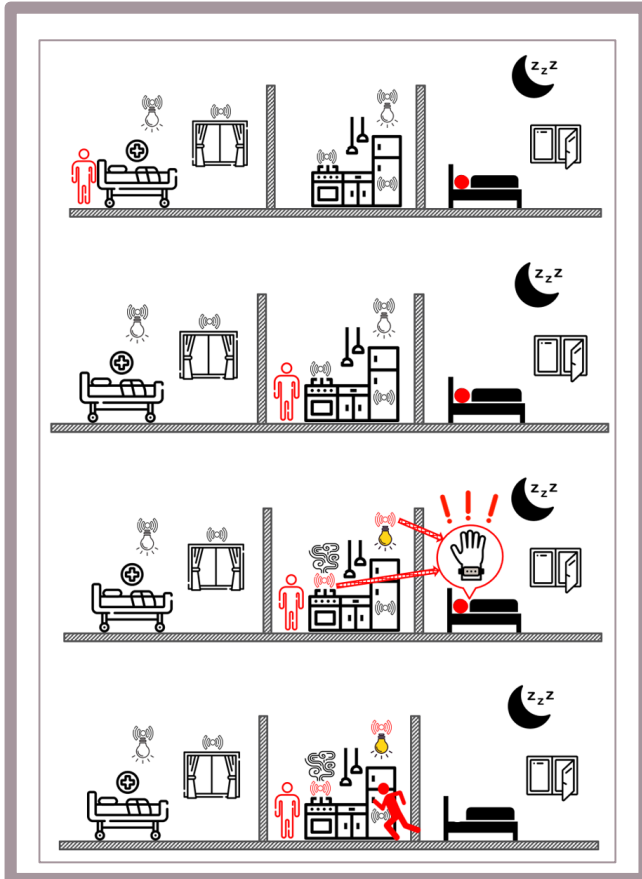
AP NURSE HOME & CARE



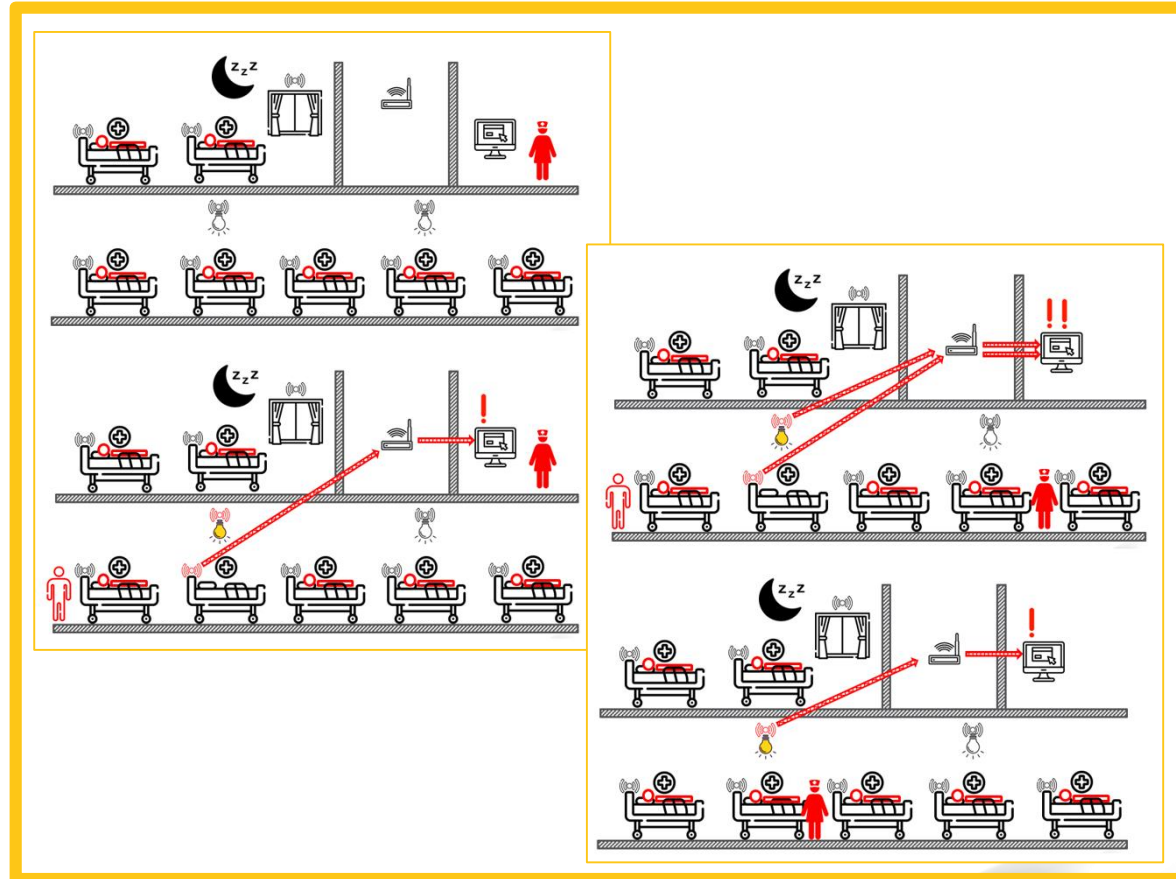
	AP-NURSE HOME	AP-NURSE CARE
Home use	✓	✗
Use in centers	✗	✓
Simple design	✓	✗
Low price	✓	⚖️
Bracelet notifications	✓	✗
Notification through IS	⚖️	✓
Multi-patient platform	✗	✓



HOME

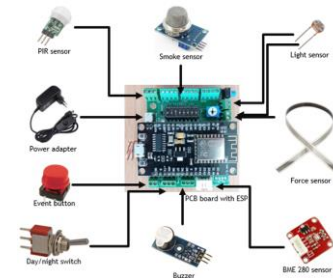
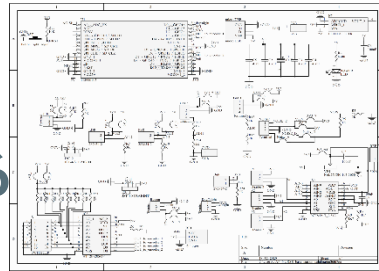


CARE



HARDWARE SOLUTIONS

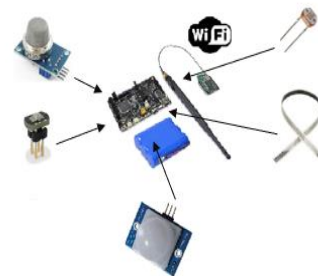
In-house design
based on ESP8266



M5STACK



WASPMOTE



TAKING COOPERATION FORWARD



AP-NURSE VERSIONS



- AP1 - “Under the bed”
- AP2 - “Doors”
- AP4 - “Common areas”
- AP6 - “Kitchen”
- AP7 - “In the room”
- AP8 - “Fall detection device”

AP-NURSE version	Sensor configuration						
	Mov.	Bar.	Force	Gas	Temp.	Light	Fall
AP1-H							
AP2-H							
AP4-H							
AP6-H							
AP7-H							

AP-NURSE version	Sensor configuration						
	Mov.	Bar.	Force	Gas	Temp.	Light	Fall
AP1-M							
AP2-M							
AP4-M							
AP6-M							

AP-NURSE version	Sensor configuration						
	Mov.	Bar.	Force	Gas	Temp.	Light	Fall
AP1-W							
AP8-W							





AP-NURSE version	Sensor configuration						
	Mov.	Bar.	Force	Gas	Temp.	Light	Fall
AP1-H							
AP2-H							
AP4-H							
AP6-H							
AP7-H							



AP-NURSE version	Sensor configuration						
	Mov.	Bar.	Force	Gas	Temp.	Light	Fall
AP1-M							
AP2-M							
AP4-M							
AP6-M							





AP-NURSE version	Sensor configuration						
	Mov.	Bar.	Force	Gas	Temp.	Light	Fall
AP1-H							
AP2-H							
AP4-H							
AP6-H							
AP7-H							



AP-NURSE version	Sensor configuration						
	Mov.	Bar.	Force	Gas	Temp.	Light	Fall
AP1-M							
AP2-M							
AP4-M							
AP6-M							





AP-NURSE version	Sensor configuration						
	Mov.	Bar.	Force	Gas	Temp.	Light	Fall
AP1-H							
AP2-H							
AP4-H							
AP6-H							
AP7-H							



AP-NURSE version	Sensor configuration						
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AP2-M							
AP4-M							
AP6-M							





AP-NURSE version	Sensor configuration						
	Mov.	Bar.	Force	Gas	Temp.	Light	Fall
AP1-H							
AP2-H							
AP4-H							
AP6-H							
AP7-H							



AP-NURSE version	Sensor configuration						
	Mov.	Bar.	Force	Gas	Temp.	Light	Fall
AP1-M							
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AP4-M							
AP6-M							





AP-NURSE version	Sensor configuration						
	Mov.	Bar.	Force	Gas	Temp.	Light	Fall
AP1-H							
AP2-H							
AP4-H							
AP6-H							
AP7-H							





AP-NURSE version	Sensor configuration						
	Mov.	Bar.	Force	Gas	Temp.	Light	Fall
AP1-W							
AP8-W							



STATUS OF THE DEVELOPMENT



- Collection of data from caregivers
- Selection of the hardware platform
- Design of the device
- Development of prototypes
- Laboratory testing
- Testing in real environment



NEXT STEP

TESTING IN REAL ENVIRONMENT

The next step is to perform testing in centers of social and health care:

- Bratislava - Petržalka, Mlynárovičova - 04/2021
- Varšava - 05/2021





Log out

Devices

Collections

Notifications

Status

Scenarios

TC-14

Active State	Title	Active days	Description	Severity	Update scenar
	TC-14	P U S S P S N 00:00 - 23:59	abnormal condition on movement	High	

TC-22

Active State	Title	Active days	Description	Severity	Update scenar
	TC-22 Motion alert	P U S S P S N 00:00 - 23:59	kitchen motion alert - night	High	

TC-23

Active State	Title	Active days	Description	Severity	Update scenar
	TC-23 Light alert	P U S S P S N 00:00 - 23:59	Light in the kitchen area	Medium	

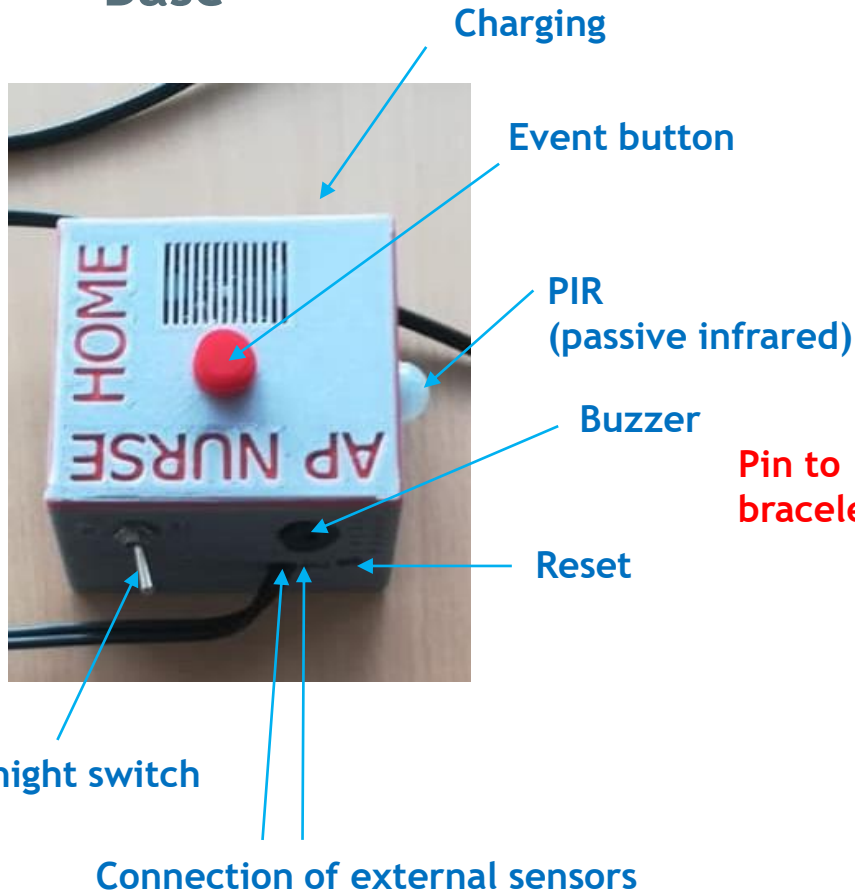
TC-10

Active State	Title	Active days	Description	Severity	Update scenar
	TC-10 Entering bathroom	P U S S P S N 00:00 - 23:59	door movement - possible bathroom entering	Medium	

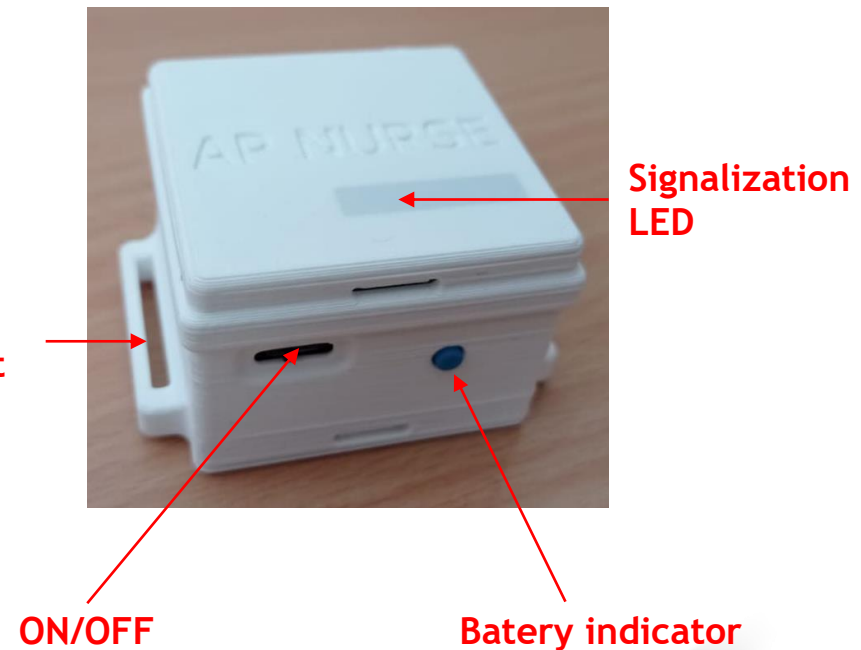


AP-NURSE HOME - OVERVIEW

Base

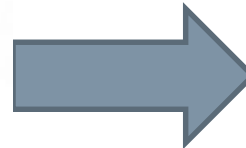
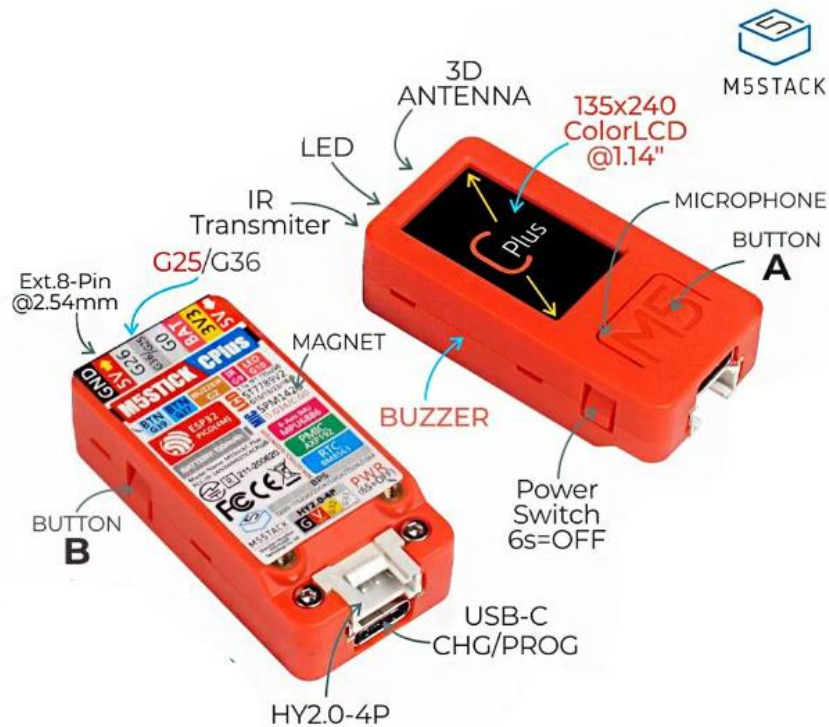


Wearable



AP-NURSE CARE - OVERVIEW

Base



- **Connection of the AP-NURSE Care base to WiFi network**
 1. Turn on the AP-NURSE Care base by pressing the power switch button on the left side of the device
 2. If the device is not connected to any WiFi network, a warning message appears on the display and a new AP (access point) is created by the device
 3. Connect to the created AP
 4. Go to 192.168.4.1 IP address, select which WiFi network is to be used for this device and enter the password.
 5. The device will restart automatically, and it will connect to the selected network if correct password was entered
 6. The device is ready for communication

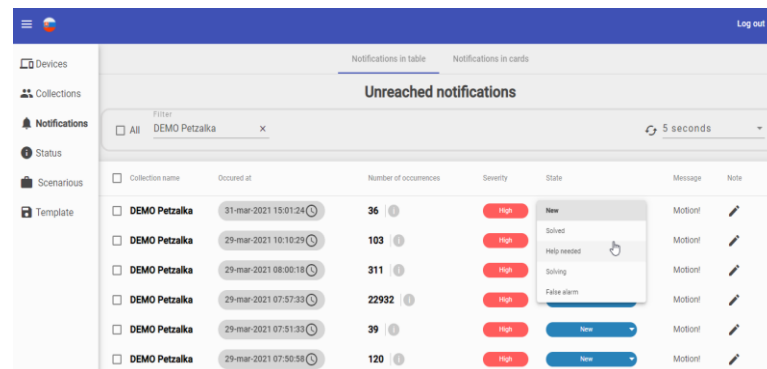


- **Connect AP-NURSE Care with the information system**
 1. AP-NURSE Care automatically connects to the information system
 2. Connection to the information system could be verified through the information system
 - a. The bookmark „Devices“ shows the list of connected devices
 3. If the connection was successful, a confirmation message can be seen on the display of the AP-NURSE Care base



- **Test of notifications**
 1. If the device is connected to the information system, try to simulate an event that could lead to response of the sensors
 2. Notifications through the information system
 - a. The information system triggers a push notification:
 1. In section „Notifications“,
 2. In the selected collection under „Status“.
 3. To solve the current alert, select the status field and fill it with appropriate answer

- a. Alert disappears

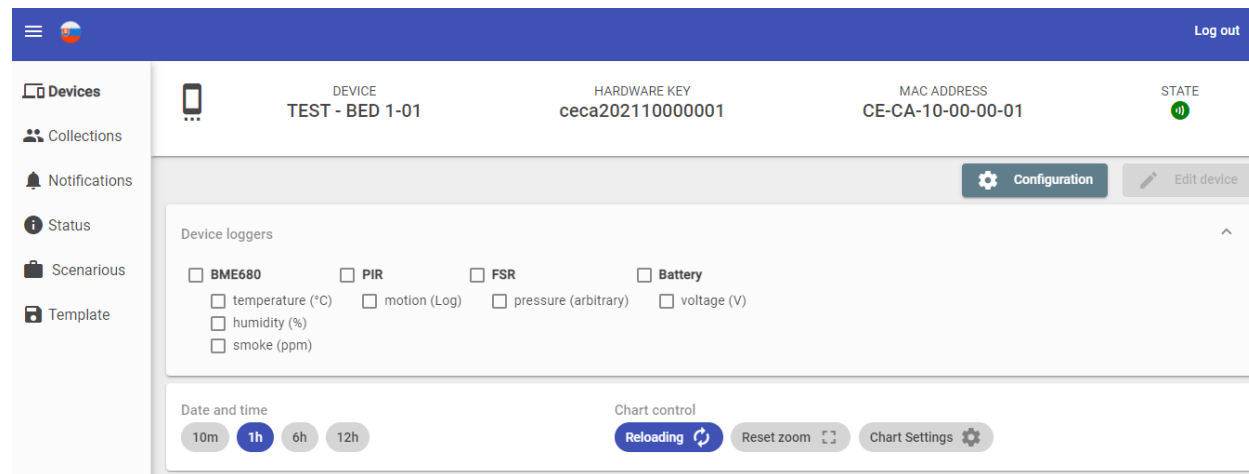


The screenshot shows a web application interface for 'Unreached notifications'. The left sidebar contains navigation links: Devices, Collections, Notifications, Status, Scenarios, and Template. The main area displays a table of notifications for the collection 'DEMO Petzalka'. The table has columns for Collection name, Occurred at, Number of occurrences, Severity, State, Message, and Note. A dropdown menu is open for the 'State' column, showing options: New, Solved, Help needed, Solving, False alarm, and a 'New' button. The table data is as follows:

Collection name	Occurred at	Number of occurrences	Severity	State	Message	Note
DEMO Petzalka	31-mar-2021 15:01:24	36	High	New	Motion	
DEMO Petzalka	29-mar-2021 10:10:29	103	High	Solved	Motion	
DEMO Petzalka	29-mar-2021 08:00:18	311	High	Help needed	Motion	
DEMO Petzalka	29-mar-2021 07:57:33	22932	High	Solving	Motion	
DEMO Petzalka	29-mar-2021 07:51:33	39	High	False alarm	Motion	
DEMO Petzalka	29-mar-2021 07:50:58	120	High	New	Motion	

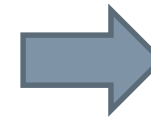


- Checking the battery level of AP-NURSE Care
 1. The battery level of each connected device can be checked in the information system
 - a. The level of battery is indicated in units of voltage (V - Volt)
 - b. Voltage below 3,5 V is considered as low battery



- Turning off the device
 1. The AP-NURSE Care base can be turned off by pressing and holding the button on the left side of the device
 1. Hold the button for 6s
 2. Users of the AP-NURSE Care devices do not have rights to turn of the information system

Turn off
button



- **Troubleshooting**

1. I want to connect AP-NURSE Care to a new WiFi network
 - a. The only way how to change the WiFi network is to get the AP-NURSE Care base out of the reach of the network to which it is connected
2. I cannot see the device in the information system
 - a. Try to search in the „Devices“ section instead of the collection
 - b. Check if the device is assigned to the desired collection
3. Alerts are not produced properly
 - a. Check the notification scenario
 1. Make sure the device has appropriate WiFi connection
 2. Check if the device is placed correctly in the monitored area
 3. Look for the physical damages or any loosened parts on the base



TESTING SCHEDULE

- Schedule of the AP-NURSE testing pilot in Warsaw

9/5 Su.	10/5 Mo.	11/5 Tu.	12/5 We.	13/5 Th.	14/5 Fr.	15/5 Sa.	16/5 Su.	17/5 Mo.
Preparation	Instalation of devices			Physical testing			Feedback	



THANK YOU FOR YOUR ATTENTION



AP-NURSE
Slovenská technická univerzita v Bratislave



www.stuba.sk



facebook.com/nice.life.interreg



<https://twitter.com/niCElifeCE>



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