The Framework Programme for Research & Innovation
Innovation actions (IA)

Project Title:
Autonomous self powered miniaturised intelligent sensor for environmental sensing and asset tracking in smart IoT environments

AMANDA
Grant Agreement No: 825464
[H2020-ICT-2018-2020] Autonomous self powered miniaturised intelligent sensor for environmental sensing and asset tracking in smart IoT environments

Deliverable

D7.11 Dissemination and Coordination with Relevant Activities Reports v3

Deliverable No.		**D7.11**	
Workpackage No.	**WP7**	Workpackage Title and task type	**Dissemination and Exploitation**
Task No.	**T7.2**	Task Title	**Task 7.2 Dissemination & Communication Activities and Material**
Lead beneficiary		**PENTA**	
Dissemination level		**PU**	
Nature of Deliverable		**R**	
Delivery date		**30 September 2022**	
Status		**Final**	
File Name:		**AMANDA_D7.11_Dissemination_and_Coordination_with_Relevant_Activities_Reports_v3-v1.0**	
Project start date, duration		**02 January 2019, 45 Months**	

This project has received funding from the European Union's Horizon 2020 Research and innovation programme under Grant Agreement n°825464

Authors List

Leading Author (Editor)			
Surname	**Initials**	**Beneficiary Name**	**Contact email**
Mihaljević Pulić	AM	PENTA	andrea.mihaljevic@penta.hr

Co-authors				
#	**Surname**	**Initials**	**Beneficiary Name**	**Contact email**
1	Bembnowicz	PB	IMEC	Pawel.Bembnowicz@imec.nl
2	Karanassos	DK	CERTH	dkaranassos@iti.gr
3	Kauer	MK	Lightricity	matthias.kauer@lightricity.co.uk
4	Marti	CM	E-PEAS	cyril.marti@e-peas.com
5	Meli	MM	ZHAW	mema@zhaw.ch
6	Pasero	DP	ILIKA	denis.pasero@ilika.com
7	Poole	PP	MICRODUL	phil.poole@microdul.com
8	Schellenberg	MS	MICRODUL	martin.schellenberg@microdul.com
9	Vujičić	OV	PENTA	oskar.vujicic@penta.hr

Reviewers List

List of Reviewers				
#	**Surname**	**Initials**	**Beneficiary Name**	**Contact email**
1	Marti	CM	E-PEAS	cyril.marti@e-peas.com
2	Pasero	DP	ILIKA	denis.pasero@ilika.com

Document history			
Version	**Date**	**Status**	**Modifications made by**
v0.1	18/04/2022	1st draft	PENTA
v0.2	22/06/2022	Partner contributions	MICRODUL
v0.3	02/07/2022	Partner contributions	ILIKA, ZHAW
v0.4	08/09/2022	Partner contributions	IMEC, CERTH
v0.5	16/09/2022	Partner contributions	E-PEAS
v0.6	27/09/2022	Partner contributions	LIGHTRICITY
v1.0	29/09/2022	Comments from reviewers received	ILIKA, E-PEAS

List of definitions & abbreviations

Abbreviation	Definition
ASSC	Autonomous Smart Sensing Card
AWStats	Advanced Web Statistics
BLE	Bluetooth Low Energy
COVID-19	Coronavirus disease of 2019
DAR	Dissemination Activities Report
DIH	Digital Innovation Hub
EEN	Enterprise Europe Network
ESS	Electronic Smart Systems
FRAM	Ferroelectric Random-Access memory
IoT	Internet of Things
KPI	Key Performance Indicator
KER	Key Exploitable Result
LoRaWAN	Long Range Wide Area Network
PMIC	Power Management Integrated Circuits
PV	Photovoltaic
R&I	Research and Innovation
SC	Scenario
TAD	Tweet Activity Dashboard
UC	Use Case

Executive Summary

The overall objectives of AMANDA's dissemination and communication activities are to promote the project's results, including various project communication materials, publications, and externally organised events, to a range of relevant target audiences. The target audience is members of the academia and industry, as well as the general public. Dissemination activities are continuously updated, both with the list of publications available on the project's website (http://amanda-project.eu/) as well as through this particular Deliverable, subsequently updated on M45 of the project.

The objective of **Deliverable D7.4 - Dissemination and Communication with Relevant Activities Reports v1** was to provide an overview of the AMANDA project's dissemination, communication, and marketing activities during the first 12 months of the AMANDA project. **Deliverable D7.8 - Dissemination and Coordination with Relevant Activities Reports v2** provided a thorough overview of the executed activities from the start of the project until March 2021. It also includes a description and preliminary evaluation of the adjustments of the activities made due to the COVID-19 pandemic. After describing the COVID-19 measures taken by the Consortium, this Deliverable details the various methods of dissemination and communication of the project used throughout the covered period of the project, including website, social media, newsletters, articles and publications, meetings and external events. Furthermore, Deliverable D7.8 provides information about the dissemination and communication activities planned for the rest of the project.

The final **Deliverable D7.11 - Dissemination and Coordination with Relevant Activities Reports v3** aims to describe and analyse all dissemination and communication activities carried out in the AMANDA project lifetime (M1-M45). The impact of dissemination and communication on project goals and the status of KPIs - key indicators of the success of communication and dissemination are also included in this document. This Deliverable reports analytics on visitors' behaviour to the project website and social media channels. Although the emphasis of D7.11 is on presenting the overall dissemination and communication activities of the project, the Consortium also looks ahead and offers insight into the activities planned for the period after the end of the project. Constantly and timely informing key stakeholders and sharing project results for further use will ensure significant impact. The activities undertaken during the project life achieved success in reaching all the goals set in T7.2 and in raising awareness about AMANDA, its goals and progress. The undertaken activities have followed technical progress, and as the key and measurable results of the project become available, they will undoubtedly provide an excellent basis for dissemination and exploitation beyond the project's lifetime.

This Deliverable forms part of **WP7 - Dissemination and Exploitation** and is associated with **Task T7.2 - Dissemination & Communication Activities and Material**.

Table of Contents

List of Figures

List of Tables

1 Introduction

Deliverable D7.4 - Dissemination and Communication with Relevant Activities Reports v1 presented an overview of the AMANDA project's dissemination, communication and marketing activities established during M1-M12. The document is followed by **Deliverable D7.8** - **Dissemination and Coordination with Relevant Activities Reports v2** and shows relevant dissemination and communication activities carried out in the period between M1 and M27 and whether they are in line with the strategy "Phase 2 - Project Commercialisation phase", i.e. whether the project is successful in informing the target market about technological advantages which the AMANDA ASSC provides. In v2 of this document, the following Sections have been added or modified:

- The updated list of KPIs in Section 1, Table 1
- Added Section 2 – Adjustment of the project's dissemination and communication activities due to the COVID-19 pandemic
- Sections 5.2 and 5.3 have been updated, and statistics have been added
- Additional social media channel – 5.3.3 YouTube
- Updated Section 5.4 – Project communication materials
- Updated Section 5.7 – Participation in externally organised events
- Updated Section 5.8 – Scientific papers and other publications
- Added Section 5.9 – Cooperation with other EC funded projects and initiatives
- Updated Section 6 – Advisory Board

Deliverable D7.11 - Dissemination and Coordination with Relevant Activities Reports v3 details and analyses all dissemination and communication activities during the project's lifetime (M1-M45). All activities were carried out according to the Dissemination and Communication Plan to ensure "Phase 3 – Business Strategy phase" and maximize target market and industry awareness regarding the ASSC, thus contributing to the project's sustainability and exploitation. In D7.11, the following Sections have been added or modified:

- The updated list of KPIs in Section 1, Table 1
- Updated Section 2 – Adjustment of the project's dissemination and communication activities due to the COVID-19 pandemic
- Added Section 3 – Assessment against dissemination plan
- Added Section 4 – Dissemination actions beyond the project lifetime
- Sections 5.2 and 5.3 have been updated, and statistics have been added
- Updated Section 5.4 – Project communication materials
- Added Section 5.5 – Webinar
- Added Section 5.6 – Training session
- Updated Section 5.7 – Participation in externally organised events
- Updated Section 5.8 – Scientific papers and other publications
- Updated Section 5.9 – Cooperation with other EC funded projects and initiatives
- Updated Section 6 – Advisory Board

The objective of dissemination and communication activities is to promote the results and benefits of the project and the actions of the AMANDA project partners. The target audience of these activities includes users from the industry, the ESS community, the academic community as well as policy-makers. The dissemination and communication activities during the period from M1 to M45 include:

- Visual identity of the project
- AMANDA public website launched at M1
- Presence in social media (LinkedIn, Twitter, YouTube)
- First AMANDA project's press release, newsletters
- AMANDA posters, leaflets, application note and PowerPoint presentations
- Project videos, new visuals

- Webinars and training sessions
- Presentation of the AMANDA project at different events, trade show exhibitions, conferences, talks and meetings
- Conference and journal publications
- Setting up and maintenance of an internal list of stakeholders
- Liaison with other projects, and initiatives – DIHs, networks and associations
- Dissemination of results on the Horizon Results Platform (HRP)

The objectives in the project's first year have been defined in Deliverable D7.3 - Dissemination and Communication Plan v1 and were accomplished entirely. The Consortium's decision was to remove its presence from Facebook, considering that Facebook is not a social media suitable for scientific and research projects such as AMANDA.

In the project's second, third and fourth years, the Consortium continues with the preparation, publication, and distribution of project communication materials, the maintenance of the project's website and the presence on social networks and publishes the latest news related to AMANDA's progress. Due to the COVID-19 pandemic, digital technologies emerged as the critical enabler, facilitating the continuity of dissemination and communication activities, thus, from the third year of the project implementation, the Consortium focuses on preparing and holding webinars as well as preparing papers for publication in relevant scientific journals.

Several Key Performance Indicators were established to measure the dissemination success and impact of the project. The following Table summarises the KPIs introduced in **Deliverable D7.3 - Dissemination and Communication Plan v1** and subsequently updated in **Deliverable D7.6 - Dissemination and Communication Plan v2 and D7.9 – Dissemination and Communication Plan v3.**

Communication & Dissemination Supports and Channels	KPIs
Leaflet	2 project version + 2 technology specific (results)
Poster	1 initial version + update
Reference PPT presentation	1 initial version + update
Project newsletter	6 (2 per year)
Articles and proceedings	2 publications per year (on average)
Project Deliverables	See the list of Deliverables
Open access repository	1 deposit per year
Project video/demo	1 initial version + update
Project website	1 website, monthly updated
Related websites	5+
LinkedIn	At least 1 monthly update
Twitter	At least 1 weekly update
Presentation & feedback sessions (incl. webinars)	3
Training sessions	3
External events	20+

Table 1 List of KPIs for visibility and knowledge impact

The ambition of dissemination, communication, and networking activities includes exchanging experience and scientific and technological knowledge and establishing cooperative relationships with relevant scientific and industrial partners. All activities from Table 1 were performed according to the set KPIs and timeline.

2 Adjustment of the project's dissemination and communication activities due to the COVID-19 pandemic

It is without a doubt that the COVID-19 pandemic significantly affected all project activities but in particular, dissemination and communication of the project's progress and results. Nevertheless, the research and dissemination activities related to the project continued as much as possible in remote mode. More specifically, during the months from January 2020 until mid-2021, almost all face-to-face activities and events were cancelled. Thus, the Consortium was forced to create new communication mechanisms, namely through online meeting platforms. During 2020 and the first months of 2021, relevant events were cancelled, postponed or held online due to the pandemic. Table 2 below lists all scheduled AMANDA project events and shows the completion status given the constraints caused by the COVID-19 pandemic.

Date	Title of event, type and place/country	Completion status
07-10 January 2020	Consumer Electronic Show, trade show exhibition, Las Vegas/USA	Took place (DAR in Section 5.7.18)
23-26 January 2020	NANS20 (North American Neuromodulation Society Conference), Las Vegas/ USA	Took place (DAR in Section 5.7.19)
30-31 January 2020	The Things 2020, conference and trade show exhibition, Amsterdam/The Netherlands	Took place (DAR in Section 5.7.20)
11-13 February 2020	MD&M West, trade show exhibition, CA/USA	Took place (DAR in Section 5.7.21)
25-27 February 2020	Embedded World Conference, Nuremberg/Germany	It took place with much fewer people present (DAR in Section 5.7.22 and 5.7.23)
03-05 March 2020	IT-TRANS, international conference and exhibition, Karlsruhe/Germany	Postponed to 8-10 March 2022
18-19 March 2020	microTEC Südwest Cluster Conference "CMOS mixed signal array technology and what it can do for you", Germany	Postponed to a virtual event on 18 March 2021
31 March 2020	Sensor Solutions International 2020, conference, Brussels/Belgium	Postponed and held online 19 May 2020 (DAR in Section 5.7.24 and 5.7.25)
31 March-2 April 2020	Medtec Live, trade show exhibition, Nürnberg/Germany	It took place as a virtual event. We could not show the AMANDA presentation as planned.
21-24 April 2020	INTERTRAFFIC, trade exhibition, Amsterdam/The Netherlands	Postponed to 29 March – 1 April 2022
13-14 May 2020	IDTechEx, "Ultra-Low-Power Capacitive Sensors based on Microdul's own semi-custom mixed-signal array technology", webinar, Berlin/Germany	Cancelled without replacement. It is intended to hold a Webinar in Q1 2021.

23-25 June 2020	Sensor & Test, trade show exhibition, Nürnberg/ Germany	It was cancelled without replacement.
24 June 2020	External Advisory Board meeting	Held online on 24 June 2020 (More information in Section 6)
08 August 2020	Machine Failure and Prevention Technology MFPT 20, Savannah/Georgia	Held online 06 August 2020 (DAR in Section 5.7.26)
03-07 September 2020	SIDO 2020, trade show exhibition, Lyon/France	Took place (DAR in Section 5.7.27)
08 September 2020	Future Networks Lab Accelerator Showcase and Demo Day, Pitch event	Held online (DAR in Section 5.7.28)
17-18 September 2020	5th IEEE International Symposium on Smart and Wireless Systems, conference, Dortmund/Germany	Planned for Dortmund, held online (DAR in Section 5.7.29)
22 September 2020	SwissMedTech Day, conference, Bern/Switzerland	Took place (DAR in Section 5.7.30)
22-25 September 2020	InnoTrans, trade show exhibition, Berlin/ Germany	Postponed to 20-23 September 2022
25 September 2020	Interview of the current progress of the AMANDA project in the Athenian/Macedonian News Agency	Published on 25 September 2020 (DAR in Section 5.7.31)
30 September 2020	Interview on AMANDA and the COVID-19 mitigation scenarios on the Greek National TV channel ERT3	Took place (DAR in Section 5.7.32)
01 October 2020	Interview on AMANDA and the COVID-19 mitigation scenarios on the Greek National TV channel ERT1	Took place (DAR in Section 5.7.33)
10-13 November 2020	Electronica, trade show exhibition, online	Held online, but Microdul decided not to take part
10-12 November 2020	Wireless Congress, conference, Munich/Germany	Planned for Munich but held online (DAR in Section 5.7.34)
16-18 November 2020	Compamed, conference, Düsseldorf/Germany	Held online (DAR in Section 5.7.35)
17-19 November 2020	SMART CITY EXPO World Congress, trade show exhibition, Barcelona/Spain	Postponed to 16-18 November 2021
25 November 2020	Energy Harvesting EH2020, conference, online	Held online (DAR in Section 5.7.36 and 5.7.37)
26 November 2020	Innovative Solutions for Smart Urban Mobility, the roundtable discussion, Zagreb/Croatia	Held online (DAR in Section 5.7.38)
22 December 2020	Smart Eco parking, meeting, Croatia	Held online (DAR in Section 5.7.39)

19 January 2021	Presentation of AMANDA project to DIGICAT – Digital Catapult London	Held online (DAR in Section 5.7.40)
03 February 2021	SUNSAFE IoT, meeting, Croatia	Held online (DAR in Section 5.7.41)
16 March 2021	microTEC Clusterkonferenz 2021, conference, Germany	Held online (DAR in Section 5.7.42)
23 March 2021	Ultra-Low-Power Capacitive Sensors, webinar, online	Held online (DAR in Section 5.7.43
4 May 2021	Sensor & Test 2021, trade fair, online	Held online (DAR in Section 5.7.44)
17 May 2021	AMANDA – Autonomous Smart Sensing Card, webinar, online	Held online (DAR in Section 5.7.45)
10 June 2021	APEC (Applied Power Electronics Conference) – Industry Sessions, conference, online	Held online (DAR in Section 5.7.46)
10 August 2021	MD&M West, conference, online	Held online (DAR in Section 5.7.47)
23 August 2021	IEEE Sensors Applications Symposium 2021, conference, online	Held online (DAR in Section 5.7.48)
25 August 2021	IVAM Hightech Summit, conference, online	Held online (DAR in Section 5.7.49)
31 August 2021	Sindex 2021, conference, online	Held online (DAR in Section 5.7.50)
08 September 2021	SwissMedTechDay, conference, Bern/Switzerland	Took place (DAR in Section 5.7.51)
14 September 2021	SwissMedTech Expo, conference, Lucerne/Switzerland	Took place (DAR in Section 5.7.52)
From 27 September 2021	Tutorial Microdul Website	Available on the following link: https://www.microdul.com/en/unternehmen/tutorials.html
07 October 2021	External Advisory Board meeting	Held online on 07 October 2021 (More information in Section 6)
09 November 2021	Sensor Solutions International, trade show exhibition, Brussels/Belgium	Took place (DAR in Section 5.7.53)
16 November 2021	Smart City Expo World Congress 2021, trade show exhibition, Barcelona/Spain	Took place (DAR in Section 5.7.54)
23 November 2021	EFECS - European Forum for Electronic Components and Systems 2021, exhibition, online	Held online (DAR in Section 5.7.55)

07 December 2021	AMANDA – Autonomous Smart Sensing Card, webinar, online	Held online (DAR in Section 5.7.56)
05 January 2022	Consumer Electronic Show, trade show exhibition, Las Vegas/USA	Took place (DAR in Section 5.7.57)
13 January 2022	North American Neuromodulation Society 25th Annual Meeting, Orlando, Florida/USA	Took place (DAR in Section 5.7.58)
25 March 2022	Smart Eco Parking, meeting, Croatia	Held online (DAR in Section 5.7.59)
29 March 2022	Intertraffic Amsterdam 2022, trade show exhibition, Amsterdam/The Netherlands	Took place (DAR in Section 5.7.60)
12 April 2022	MD&M West, conference, Anaheim, California/USA	Took place (DAR in Section 5.7.61)
19 April 2022	AMANDA – Autonomous Smart Sensing Card, webinar, online	Held online (DAR in Section 5.7.62)
03 May 2022	MedtecLive, conference, Nürnberg/Germany	Took place (DAR in Section 5.7.63)
06 May 2022	Let's Grow, conference, Pula/Croatia	Took place (DAR in Section 5.7.64)
10 May 2022	IT-TRANS 2022, trade show exhibition, Karlsruhe/Germany	Took place (DAR in Section 5.7.65)
10 May 2022	Sensor & Test, trade fair, Nürnberg/Germany	Took place (DAR in section 5.7.66)
01 June 2022	SMART ECO PARKING, webinar, online	Held online (DAR in Section 5.7.67)
07 June 2022	MECO&CPSIoT 2022, conference, Budva/Montenegro	Held online (DAR in Section 5.7.68)
14 June 2022	Swiss Medtech-Day 2022, conference, Bern/Switzerland	Took place (DAR in Section 5.7.69)
23 June 2022	Embedded World 2022, conference, Nuremberg/Germany	Took place (DAR in Section 5.7.70)
26-29 June 2022	Sensors Converge, trade show, San Jose/CA, USA	Took place (DAR in Section 5.7.71)
20 September 2022	INNOTRANS 2022, trade show exhibition, Berlin/Germany	Took place (DAR in Section 5.7.72)
21 September 2022	External Advisory Board meeting	Held online on 21 September 2022 (More information in Section 6

Table 2 Scheduled external events of the AMANDA project M13-M45

The COVID-19 pandemic brought many uncertainties, changes and challenges. To tackle the long-term effects of the pandemic, the Consortium adopted a proactive approach. Thus, to

ensure the continuation of good quality communication activities and dissemination plans, the following adjustments were made:

- In June 2020, the first video pack of the project was released, including five video animations presenting the defined use cases and operational scenarios of the AMANDA Autonomous Smart Sensing Card (ASSC). Creating the first video pack aimed to help achieve the project's goals, explain benefits for stakeholders, and impact society in general. A YouTube channel was created to facilitate the publication of videos and achieve a higher level of visibility and reach the target audience. A total of twelve (12) videos are available on the AMANDA project official YouTube channel, six (6) video animations on the AMANDA use cases and operational scenarios, one (1) demo, two (2) interviews, and three (3) webinar recordings:
    - https://www.youtube.com/channel/UCMQ7QphtN_HA7CXg6DwGDhQ/videos
- As many conferences relevant to AMANDA were postponed or forced to adopt the online format, partners are encouraged to focus on the preparation of scientific papers. Furthermore, conference presentations are available on the YouTube channel to increase the reached audience whenever possible. Two papers entitled "Low Power LoRaWAN node based on FRAM Microcontroller" and "Low Light Energy Autonomous LoRaWAN Node" were presented at the 5th International Symposium on Smart and Wireless Systems. The paper "Low Light Energy Autonomous LoRaWAN Node" won the best paper award in the video presentation category, and it's available at the following link:
    - https://youtu.be/_mNBRqS6UCA
- To increase the visibility and promotion of the AMANDA project during the crisis period and to approach the general public, contacts have been established with local, regional and national media. Content on project progress was prepared, emphasising the benefits that the community and individuals receive through the project. An interview, "Pocket Computer as a Tool Against Coronavirus", was published in the Athenian/Macedonian News Agency, the Greek National News Agency, and it's available via:
    - https://www.cnn.gr/tech/story/235781/thessaloniki-ypologistis-tsepis-os-ergaleio-kata-toy-koronoioy-deite-pos
    - https://www.amna.gr/home/article/490921/Ypologistis-tsepis-ginetai-ergaleio-kata-tou-koronoiou

  Furthermore, two interviews were also given on the Greek national television channels ERT1 and ERT3, on the AMANDA project, its current research status, and how it is proposed to mitigate the effects of current and future pandemics. Both interviews are published on the project's official YouTube channel:
    - https://youtu.be/vef2PyVXxy4
    - https://youtu.be/RMDG2g5erN8
- The project continues using social media (LinkedIn, Twitter, and YouTube) to increase the outreach of the project's activities and results. The project is also actively promoted on each partner's official website and social media
- The project website is regularly reviewed and updated. It acts as a «one-stop-shop», so all information is updated weekly to ensure that the website carries the right messages reflecting the current stage of the project's development. Additional information and project communication material, including six (6) newsletters, two (2) leaflets, three (3) posters, one (1) application note and fifteen (15) PowerPoint presentations that visitors may find attractive and valuable, are also published. From the fifteen (15) PowerPoint presentations, four (4) were prepared by CERTH, four (4) by MICRODUL, four (4) by ZHAW, two (2) by PENTA, one (1) by LIGHTRICITY, and one

(1) by ILIKA. All presentations are published on the project website under the dissemination materials section

- To maintain contacts of interested parties and simplify online distribution of dissemination and communication material, an internal stakeholder list was created. This mailing list has been held and updated during the whole project lifetime and is split into several topic-related sub-lists, including a division of stakeholder contacts according to defined use cases, a sub-list of relevant journals and Digital Innovation Hubs
- Three webinars were held in May 2021, December 2021 and April 2022 in order to provide participants with a better understanding of the significant advantages of the AMANDA card over the products on the market and present where the card can be applicable – in the field of smart cities, smart homes and intelligent working environments. The first webinar out of the series of webinars called "AMANDA – Autonomous Smart Sensing Card" aimed to present a general overview of the H2020 funded AMANDA project, emphasising the possibility and benefits of using the unique ASSC to help mitigate the effects of current and future pandemics. The second webinar focused on the successful development of ultra-low-power temperature sensor and thermal comfort monitoring scenario and the photovoltaic energy harvester component for miniature IoT devices. The central part of the third webinar was dedicated to custom AI methods for low-power systems and the application of the AMANDA card for continuous occupancy monitoring in a parking lot. Two days after each webinar, the follow-up e-mail was sent, and all registrants received a link with the recording and a link to download webinar presentations.
- The training sessions were held towards the end of the project to start the phase of introduction to the market and were performed in potential clients' facilities to enable new user's experimentation. However, given the coronavirus pandemic, the Consortium was considering several options for holding training sessions. This activity could be implemented online (webinar, meeting…), at the events, or in person to meet the KPIs set in the Dissemination and Communication plan. More information about the performed training sessions can be found in section 5.6.
- In July 2021, news about the successful completion of the development of the capacitive and temperature sensor developed by MICRODUL was published on the microTEC official website :
    - https://www.microtec-suedwest.de/news-termine/newsuebersicht/item/2456-amanda-erfolgreicher-abschluss-der-sensorentwicklung

  The non-profit association microTEC Südwest e.V. was founded in 2005 and is the competence and cooperation network for intelligent microsystems technology solutions
- In May 2022, an article about AMANDA was published in the New Electronics magazine, the electronic industry's leading magazine and a central hub for design engineers and management. The title of the article is "A sensing solution for smart cities":
    - https://www.newelectronics.co.uk/content/features/a-sensing-solution-for-smart-cities

3 Assessment against dissemination plan

The established strategy of dissemination and exploitation emphasizes the advantages of the different strengths of the partners in certain areas. Research-oriented partners (CERTH, IMEC, ZHAW) put more effort into disseminating project results to the scientific community, while other partners (Microdul, Lightricity, ILIKA, EPEAS, PENTA) conduct dissemination among industry contacts and the general public. Heterogeneity in dissemination plans and priorities emphasized the need to define appropriate evaluation methodologies, enabling planning and verification of the level of success of dissemination activities at the partner or Consortium level. For this purpose, the assessment of dissemination activities is based on the following processes:

- Recording of individual dissemination activities undertaken by AMANDA partners (DAR in Section 5.7.9)
- Aggregation of results and creation of KPIs (led by WP7 leader with input from partners and updated as needed during plenary and WP7 meetings)
- Evaluation of KPIs according to certain success criteria and interpretation
- Reporting to the Consortium and EC

The mentioned processes help the Consortium achieve the desired dissemination and communication objectives. For the stated reason, partners are encouraged to regularly submit DAR reports in order to implement proactive measures in a timely manner in case of significant deviations.

In the following table, the evaluation of the dissemination communication activities undertaken during the project is evaluated in relation to the planned actions, and the evaluation is carried out as follows:

- Green colour – accomplished
- Red colour – off track / not implemented
- Yellow colour – activity partially performed /on track, but needs improvement

Communication & Dissemination Supports and Channels	**KPIs**	**Status**	**Evaluation**
Leaflet	2 project versions + 2 technology-specific (results)	2 project versions and technology-specific leaflets were created and available on the project website	
Application note	1 version	1 Application Note (technical brochure) available on the project website	
Poster	1 initial version + update	3 project posters were prepared and available on the project website and on each partner's premises	
Reference PPT presentation	1 initial version + update	15 project PPT presentations available on the project website	
Project newsletter	6 (2 per year)	6 newsletters were prepared, published on the project website and sent via MailChimp to	

		identified and updated stakeholder list	
Articles and proceedings	2 publications per year (on average)	7 conference publications presented, 3 journal publications submitted	
Project Deliverables	See the list of Deliverables	Public deliverables available on the project website	
Open access repository	1 deposit per year	1 deposit per year	
Project video/demo	1 initial version + update	12 videos are available on the AMANDA official YouTube channel	
Project website	1 website, monthly updated	58 news published on the project website	
Related websites	5+	5+	
LinkedIn	At least 1 monthly update	64 posts	
Twitter	At least 1 weekly update	70 tweets	
Presentation & feedback sessions (incl. webinars)	3	3 webinars were performed, recording available on the AMANDA official YouTube channel	
Training sessions	3	2 training sessions were performed in Berlin at InnoTrans 2022 trade fair exhibition	
External events	20+	70+ external events attended	

Table 3 Assessment of dissemination activities and KPIs against the initial roadmap

4 Dissemination actions beyond the project's lifetime

The obligation of H2020 beneficiaries is to continue to disseminate project results up to four years after the end of the project, as stipulated in articles 28 and 29 of the Model Grant Agreement. AMANDA partners will continue keeping on with the dissemination of project results even beyond the project lifetime to ensure better sustainability and usability of the project results. For this reason, each partner will individually undertake dissemination activities according to their possibilities, resources and profile. The project website will also be active and available for the specified period after the end of the project. Furthermore, partners provide open access to scientific publications and the research data funded by the Framework Programme and will ensure that scientific publications based on the result of the project published after the project ends will also be open access.

Table 4 highlights the main future dissemination and communication activities that the partners plan to undertake in the period after the end of the project:

Dissemination and communication activities	Partner	Remarks
Maintenance of the AMANDA project website (https://amanda-project.eu/)	PENTA	PENTA will maintain the AMANDA website. All partners will provide PENTA with the relevant content to be added to the website (additional news posts in case of external events or key project results)
Availability of downloadable documents	PENTA	All dissemination materials (leaflets, posters, application note, ppt presentations), newsletters, public deliverables, and scientific publications will be available for download at the AMANDA project website
Maintenance of the AMANDA social media channels (LinkedIn, Twitter, YouTube)	PENTA	PENTA will maintain the AMANDA social media channels. All partners will provide PENTA with the relevant content to be added on
Publication of news, articles and relevant information about AMANDA on the official websites of project partners.	All partners	All partners will endeavour to publish basic information and a brief description of the AMANDA project and periodically, as necessary, publish news and results related to the project
Presentation of AMANDA to partners, clients, collaborators, potential customers, etc.	All partners	Project results will be presented at various events relevant to AMANDA. Furthermore, project results will be reported in meetings where

		potential stakeholders show interest in a solution where AMANDA could be applicable. Partners have promotional material such as leaflets, posters, application note, videos and presentations at their disposal
Dissemination at external events (exhibitions, fair trades, conferences, workshops, webinars, etc.	All partners	All partners prepare an annual plan of events where they will perform and present their products, solutions or papers. If some of the mentioned events are relevant, they will use the opportunity to present the AMANDA project and cases of using the Autonomous Smart Sensing Card (ASSC). Partners have promotional material such as leaflets, posters, application note, videos and presentations at their disposal
Dissemination in education and distribution of knowledge to students and academic teachers	ZHAW	The results of the AMANDA project will be used and disseminated scientifically in various ways. The lectures will be enriched with the content of the project. The results can also be the basis for student works (e.g. master's or graduate thesis), as well as a platform for further scientific work
Scientific dissemination to the research community	CERTH, ZHAW, IMEC	Further publication of the AMANDA results in conferences, expert and scientific journals is probable
Cooperation with other EC funded projects and initiatives	All partners	Cooperation with similar projects, Digital Innovation Hubs and initiatives will continue in the post-project period. PENTA will maintain contacts, and upon receipt of new requests for collaboration with projects and initiatives considered suitable

		and of interest for the project, partners will forward them to PENTA

Table 4 Dissemination activities beyond the project lifetime

Targeted and well-thought-out outreach activities and measures are necessary to boost the impact of the AMANDA project during and after its end. In addition, the Consortium published six (6) Key Exploitable Results (KERs) on the Horizon Results Platform, the entry point for policy-makers, investors, entrepreneurs, researchers and experts where to discover the wealth of EU-funded research results and get in contact with their creators. Published results related to the project are searchable by an acronym or by typing the keyword: AMANDA. These are the primary and prioritised results selected by the project partners, with a high potential value to be "exploited".

Result title	Result contributors	Link to the Horizon Results Platform
Ultra-Low Power Capacitive Sensor for AMANDA - Autonomous Smart Sensing Card	Microdul	https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/horizon-results-platform/38458;keyword=AMANDA
Ultra-Low Power Temperature Sensor for AMANDA - Autonomous Smart Sensing Card	Microdul	https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/horizon-results-platform/38490;keyword=AMANDA
Data Fusion Engine for AMANDA – Autonomous Smart Sensing Card	CERTH	https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/horizon-results-platform/45629;keyword=AMANDA
Edge Intelligence for AMANDA – Autonomous Smart Sensing Card	CERTH	https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/horizon-results-platform/45632;keyword=AMANDA
Cybersecurity for AMANDA – Autonomous	CERTH	https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/horizon-results-platform/45642;keyword=AMANDA

Smart Sensing Card		
AMANDA - Autonomous Smart Sensing Card	All partners	https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/horizon-results-platform/45651;keyword=AMANDA

Table 5 Key exploitable results published on the Horizon Results Platform

5 Dissemination and communication activities

5.1 AMANDA logo

The AMANDA logo was created at the very beginning of the project. The main objective of the logo is to achieve a clear visual recognition of the project. The logo is an integral part of every document and material related to the AMANDA project, aiming to set the baseline for a brand identity for further commercial service. The project logo depicts the AMANDA project vision and goals. There are three sections of the logo. The lower part is the hand reflecting the main message of the project, "The world in your hand". A credit card symbol graphically portrays the middle section and symbolises the form factor of the AMANDA card. The upper part of the logo reflects the ASSC-related architectural elements, made up of symbols that depict the sensors and a wireless connection to the world. Other symbols represent ASSC autonomy: PV module and battery.

Figure 1 The AMANDA project logo - symbol

Figure 2 The AMANDA project logo with the main message

5.2 AMANDA website

The AMANDA website is designed for the purpose of publishing all materials (promotions and publications) on a project funded by the European Commission. The website contains seven sections:

- Home – https://amanda-project.eu
- About - https://amanda-project.eu/about
- Consortium - https://amanda-project.eu/consortium
- News & Events - https://amanda-project.eu/news-events
- Documents - https://amanda-project.eu/documents/public-deliverables
- Advisory board - https://amanda-project.eu/advisory-board
- Contact - https://amanda-project.eu/contact

The website is a leading platform for the dissemination and promotion of the project. It contains the most crucial information about the project and is updated regularly as the project progresses. Compliance with GDPR is also ensured.

The website map has been designed to offer a complete overview of the project and easy access to all its activities.

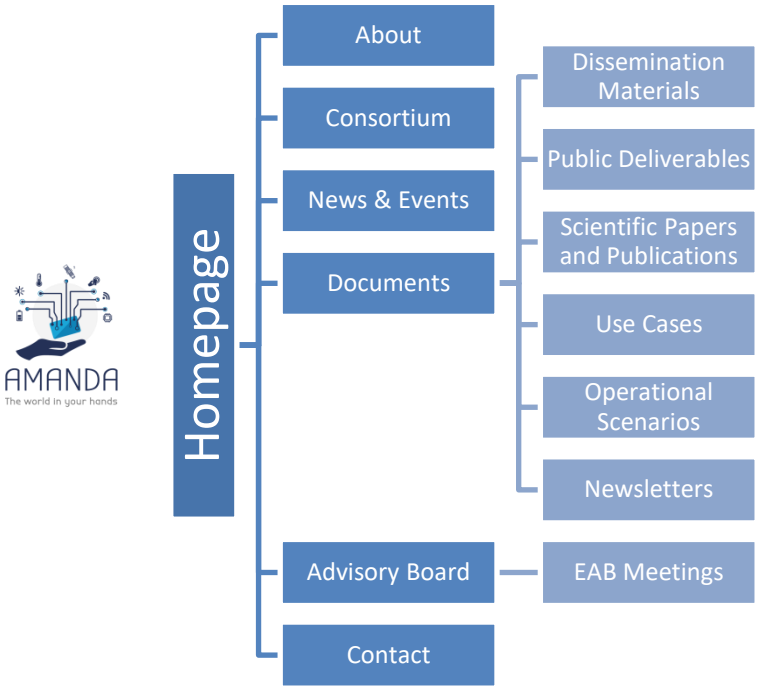


Figure 3 AMANDA project hierarchical website structure

To ensure better quality and user-friendliness of the project website, the design of the website builds upon the following criteria[1]: *visual communication* (use of colours and photos, web pages are easy to browse, information is kept short, and links are included to websites, publications, etc.), *verbal communication* (the website uses simple phrasing, no jargon is used to attract general public), *visibility* (maximum use of free or affordable methods to increase page ranking on search engines), *regular update of contents*.
The content of the website is presented in several separate sections:

- The *"Home"* section shows the most recently posted news on its page, a brief description of the AMANDA project, previews of the project partners, and describes the project goals
- The *"About"* section summarises the AMANDA project
- The *"Consortium"* section presents all partners involved
- The AMANDA project logo, posters, leaflets, application note, presentations, and newsletters have been published in the "*Dissemination materials*" section (https://amanda-project.eu/documents/dissemination-materials). The promotional materials are free to download from the website
- The "*News and Events*" section (https://amanda-project.eu/news-events) has published 54 posts related to partner activities and project-related news and events
- The "*Public deliverables*" section (https://amanda-project.eu/documents/public-deliverables) contains all publicly available documents
- The *Scientific papers and publications* section (https://amanda-project.eu/documents/scientific-papers-and-publications/com-weblinks) includes the project's published scientific papers (conference and journal publications). Defined use cases and operational scenarios are also presented in this section
- Members of the Advisory Board (https://amanda-project.eu/advisory-board) are shown on the website
- The AMANDA project's official contact email is amanda@amanda-project.eu, represented with the link in the *Contact* section (https://amanda-project.eu/contact)

[1] EU Project Websites - Best Practice Guidelines (EC, 2010)

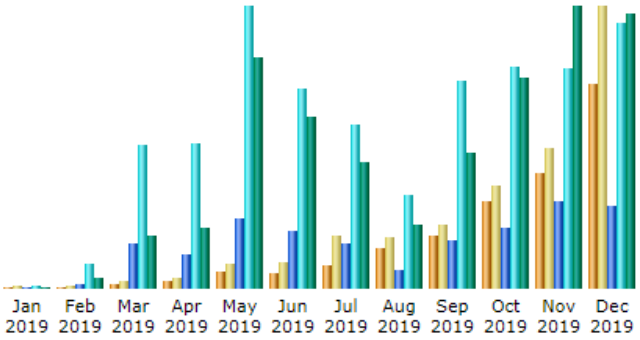
- The project website has direct access to AMANDA social media profiles by clicking over the footer part's icons

Figure 4 The AMANDA Website

All Consortium partners have the right, and were advised to use their official website to regularly inform stakeholders about project progress, plans and publish project results.
To track the number of visits and to analyse trends in the behaviour of visitors to the project's website, the AWStats tracking tool is used. By analysing the AWStats' output, useful attendance information can be obtained, such as unique visitors, repeated visitors, duration of each visit, number of viewed pages per visit, and popular site content. The monitoring is carried out throughout the project implementation. Analysing data on the total number of visitors, compared to 2019, the number of visitors in 2020 has tripled. In 2021, the AMANDA website had 10,558 visits, while in the first seven months of 2022, 4,063 visits were recorded. In the graphs below, the highest columns appear during significant events in:

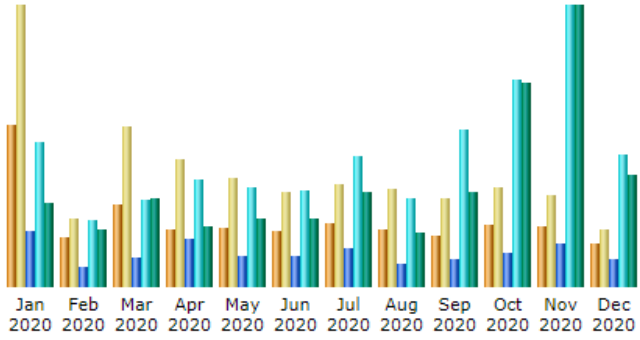
- May 2019 (1st plenary meeting in Zürich, Wireless Tech Talk in Lausanne)
- November 2019 (1st review meeting in Brussels)
- January 2020 (publication of additional dissemination material)
- October 2020 (AMANDA in Exclusive interviews on the Greek National Television, and 4th plenary meeting)
- December 2020 (publication of additional dissemination material)
- May 2021 (1st AMANDA webinar)
- October 2021 (2nd AMANDA External Advisory Board meeting, publication of application note)
- December 2021 (2nd AMANDA webinar, and released news on attending EFECS 2021, SCEWC 2021)
- April 2022 (3rd AMANDA webinar, insights from the 7th Plenary meeting)

The above shows the importance of the news content on the project website to attract more visitors.



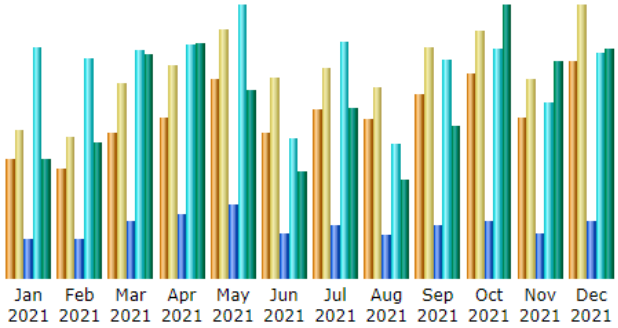
Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jan 2019	1	25	72	117	2.68 MB
Feb 2019	11	15	289	1,528	37.01 MB
Mar 2019	35	69	2,783	8,954	184.44 MB
Apr 2019	60	96	2,156	9,071	210.61 MB
May 2019	150	215	4,367	17,647	811.84 MB
Jun 2019	136	235	3,600	12,496	601.33 MB
Jul 2019	200	472	2,835	10,225	440.69 MB
Aug 2019	360	450	1,142	5,801	223.08 MB
Sep 2019	467	566	2,959	12,983	473.83 MB
Oct 2019	773	909	3,761	13,847	739.50 MB
Nov 2019	1,028	1,252	5,453	13,731	988.30 MB
Dec 2019	1,817	2,505	5,169	16,622	963.24 MB
Total	5,038	6,809	34,586	123,022	5.54 GB

Figure 5 Unique visitors, number of visits, pages, hits, and bandwidth in 2019



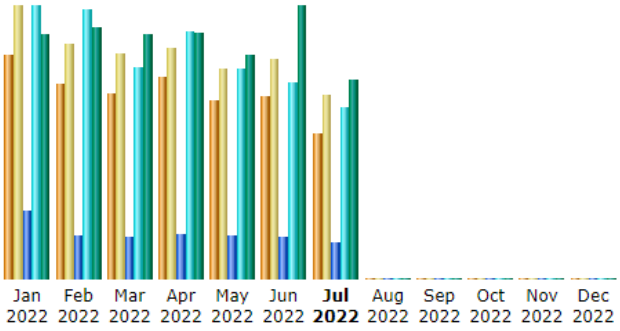
Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jan 2020	2,163	3,762	6,456	16,978	927.66 MB
Feb 2020	654	900	2,283	7,748	620.41 MB
Mar 2020	1,087	2,143	3,421	10,195	977.61 MB
Apr 2020	766	1,694	5,548	12,588	662.97 MB
May 2020	776	1,459	3,568	11,627	747.79 MB
Jun 2020	734	1,264	3,519	11,253	749.53 MB
Jul 2020	844	1,372	4,432	15,442	1.02 GB
Aug 2020	769	1,307	2,581	10,345	590.69 MB
Sep 2020	672	1,183	3,135	18,444	1.01 GB
Oct 2020	831	1,326	3,917	24,370	2.19 GB
Nov 2020	798	1,233	5,080	33,130	3.02 GB
Dec 2020	571	754	3,206	15,474	1.20 GB
Total	10,665	18,397	47,146	187,594	13.60 GB

Figure 6 Unique visitors, number of visits, pages, hits, and bandwidth in 2020



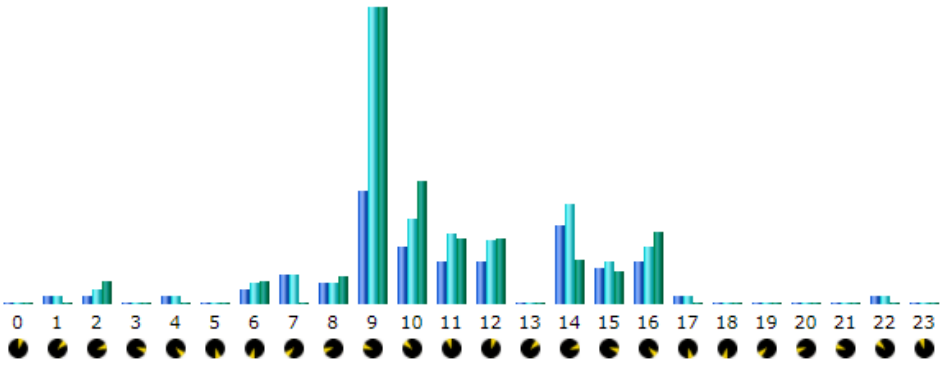
Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jan 2021	500	625	2,255	12,763	497.04 MB
Feb 2021	466	596	2,186	12,207	563.11 MB
Mar 2021	615	820	3,108	12,631	932.00 MB
Apr 2021	683	900	3,518	12,966	978.52 MB
May 2021	844	1,052	4,030	15,058	782.34 MB
Jun 2021	618	851	2,496	7,708	444.11 MB
Jul 2021	714	884	2,983	13,077	708.11 MB
Aug 2021	674	811	2,371	7,413	413.43 MB
Sep 2021	777	979	2,941	12,076	631.30 MB
Oct 2021	868	1,044	3,098	12,653	1.11 GB
Nov 2021	679	844	2,488	9,755	904.44 MB
Dec 2021	919	1,152	3,135	12,435	958.18 MB
Total	8,357	10,558	34,609	140,742	8.74 GB

Figure 7 Unique visitors, number of visits, pages, hits, and bandwidth in 2021



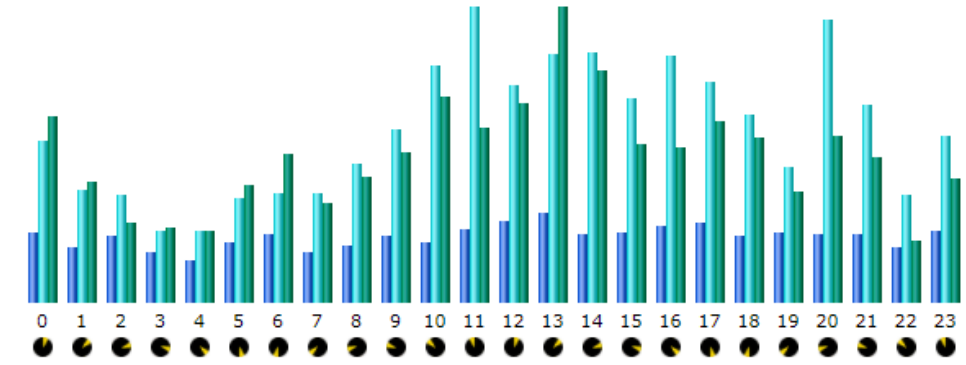
Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jan 2022	577	702	3,063	12,184	1010.92 MB
Feb 2022	500	605	1,947	12,012	1.02 GB
Mar 2022	478	580	1,880	9,438	1016.47 MB
Apr 2022	520	595	2,024	11,040	1019.22 MB
May 2022	460	542	1,918	9,393	923.51 MB
Jun 2022	470	567	1,832	8,796	1.10 GB
Jul 2022	376	472	1,656	7,682	827.56 MB
Aug 2022	0	0	0	0	0
Sep 2022	0	0	0	0	0
Oct 2022	0	0	0	0	0
Nov 2022	0	0	0	0	0
Dec 2022	0	0	0	0	0
Total	3,381	4,063	14,320	70,545	6.81 GB

Figure 8 Unique visitors, number of visits, pages, hits, and bandwidth in 2022



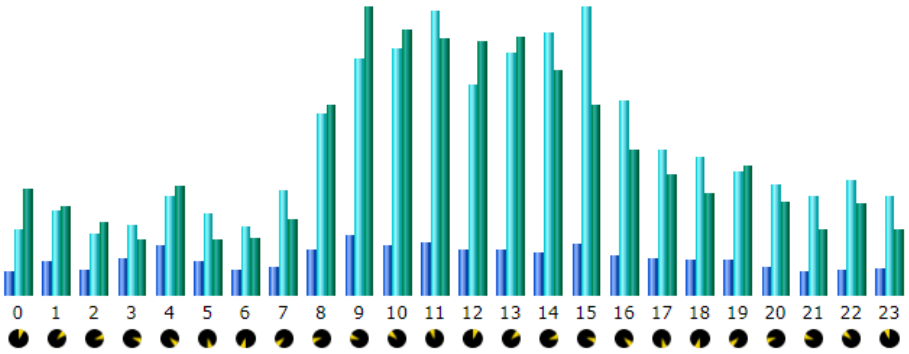
Hours	Pages	Hits	Bandwidth	Hours	Pages	Hits	Bandwidth
00	0	0	0	12	6	9	232.18 KB
01	1	1	327 Bytes	13	0	0	0
02	1	2	77.07 KB	14	11	14	155.84 KB
03	0	0	0	15	5	6	112.05 KB
04	1	1	327 Bytes	16	6	8	253.92 KB
05	0	0	0	17	1	1	327 Bytes
06	2	3	77.39 KB	18	0	0	0
07	4	4	1.86 KB	19	0	0	0
08	3	3	99.50 KB	20	0	0	0
09	16	42	1.03 MB	21	0	0	0
10	8	12	440.90 KB	22	1	1	327 Bytes
11	6	10	232.18 KB	23	0	0	0

Figure 9 Viewed pages, number of hits and bandwidth, grouped per hour in 2019



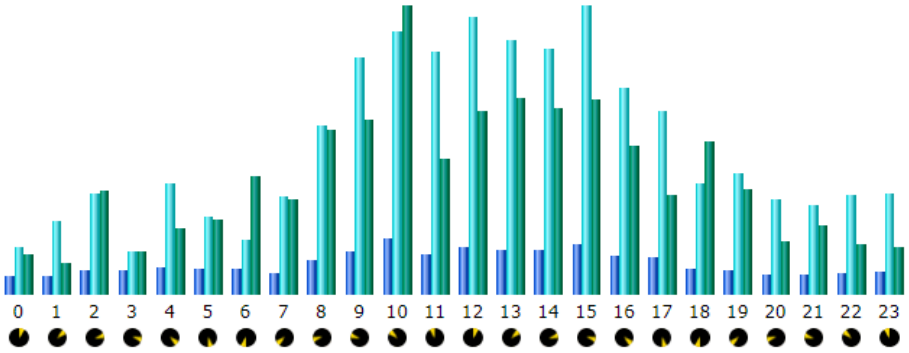
Hours	Pages	Hits	Bandwidth	Hours	Pages	Hits	Bandwidth
00	282	661	48.74 MB	12	330	886	52.14 MB
01	224	462	31.62 MB	13	365	1,015	77.13 MB
02	269	438	20.88 MB	14	279	1,024	60.57 MB
03	205	292	19.65 MB	15	286	831	41.20 MB
04	173	291	18.81 MB	16	313	1,005	40.36 MB
05	247	425	30.74 MB	17	325	900	47.50 MB
06	277	445	38.96 MB	18	271	769	43.23 MB
07	206	447	25.77 MB	19	282	555	29.12 MB
08	234	569	32.89 MB	20	281	1,158	43.36 MB
09	272	704	39.11 MB	21	277	805	38.03 MB
10	245	971	53.67 MB	22	224	440	16.07 MB
11	296	1,206	45.85 MB	23	293	679	32.30 MB

Figure 10 Viewed pages, number of hits and bandwidth, grouped per hour in 2020



Hours	Pages	Hits	Bandwidth	Hours	Pages	Hits	Bandwidth
00	875	2,499	282.85 MB	12	1,775	8,211	678.04 MB
01	1,275	3,260	236.68 MB	13	1,792	9,450	687.21 MB
02	980	2,396	195.42 MB	14	1,676	10,233	597.91 MB
03	1,418	2,699	147.20 MB	15	1,940	11,225	507.37 MB
04	1,873	3,855	290.66 MB	16	1,503	7,603	386.53 MB
05	1,286	3,134	148.40 MB	17	1,402	5,670	321.84 MB
06	977	2,630	151.31 MB	18	1,354	5,383	271.52 MB
07	1,079	4,098	201.11 MB	19	1,334	4,843	341.65 MB
08	1,757	7,075	506.90 MB	20	1,112	4,329	247.41 MB
09	2,342	9,254	766.70 MB	21	905	3,847	171.18 MB
10	1,919	9,610	708.21 MB	22	993	4,430	243.31 MB
11	2,023	11,155	684.73 MB	23	1,019	3,853	173.18 MB

Figure 11 Viewed pages, number of hits and bandwidth, grouped per hour in 2021



Hours	Pages	Hits	Bandwidth	Hours	Pages	Hits	Bandwidth
00	344	935	96.17 MB	12	917	5,473	453.83 MB
01	341	1,428	79.24 MB	13	863	5,006	487.91 MB
02	446	1,982	255.38 MB	14	881	4,839	461.70 MB
03	450	837	103.99 MB	15	961	5,667	481.64 MB
04	530	2,187	161.50 MB	16	737	4,074	368.33 MB
05	492	1,534	184.17 MB	17	714	3,611	243.09 MB
06	478	1,065	293.30 MB	18	489	2,175	377.97 MB
07	391	1,908	234.54 MB	19	458	2,367	260.44 MB
08	657	3,318	408.84 MB	20	360	1,873	128.07 MB
09	824	4,668	436.71 MB	21	362	1,756	169.62 MB
10	1,071	5,186	715.19 MB	22	378	1,925	121.34 MB
11	756	4,778	336.24 MB	23	420	1,953	116.95 MB

Figure 12 Viewed pages, number of hits and bandwidth, grouped per hour in 2022

Locales

Locales		Pages	Hits	Bandwidth
United States	us	13,366	29,038	1.71 GB
China	cn	4,397	7,240	196.73 MB
Croatia	hr	3,809	14,894	1.34 GB
Great Britain	gb	1,679	11,720	732.24 MB
Greece	gr	1,237	12,360	636.76 MB
Switzerland	ch	1,075	10,748	525.01 MB
Germany	de	893	5,563	267.98 MB
Seychelles	sc	736	737	24.51 MB
Russian Federation	ru	676	2,651	233.63 MB
Romania	ro	635	1,085	45.16 MB
India	in	602	3,775	155.84 MB
France	fr	554	3,637	162.91 MB
Italy	it	452	3,812	191.13 MB
Sweden	se	447	1,734	47.65 MB
Netherlands	nl	415	2,792	181.41 MB
Israel	il	356	971	365.53 MB
Canada	ca	319	1,391	69.84 MB
Austria	at	269	1,678	839.98 MB
Ukraine	ua	198	626	90.21 MB
European country	eu	151	1,375	72.48 MB
Belgium	be	149	2,396	90.58 MB
Poland	pl	148	888	38.29 MB
Indonesia	id	117	829	52.43 MB
Spain	es	114	1,397	57.13 MB
Turkey	tr	106	1,210	43.90 MB
Australia	au	77	1,396	16.72 MB
Ireland	ie	77	656	15.68 MB
Estonia	ee	77	186	9.20 MB
Hong Kong	hk	75	257	10.62 MB
Chile	cl	75	399	39.28 MB
Taiwan	tw	72	586	25.77 MB
South Korea	kr	71	612	40.82 MB
Portugal	pt	58	792	58.84 MB
Hungary	hu	56	689	26.61 MB
Czech Republic	cz	53	329	39.50 MB
Vietnam	vn	50	254	16.44 MB
Brazil	br	48	573	26.82 MB
Republic of Serbia	rs	46	617	29.51 MB
Honduras	hn	44	44	572.71 KB
South Africa	za	44	190	2.95 MB
Bulgaria	bg	41	196	6.10 MB

Figure 13 Viewed pages, number of hits and bandwidth, grouped by countries

5.3 Social media channels

To expand the project's target audience, mainly to involve the general public and sector experts, AMANDA integrates social media tools strategically in communication activities. LinkedIn, Twitter and YouTube have been selected as the most appropriate social networks to promote the project achievements, news and outcomes. All partners are encouraged to promote the AMANDA project among their network and social media channels, encouraging contacts to join and invite further participants to activate dynamic content sharing, disseminate the project's progress among the scientific community and professional stakeholders, and attract knowledge and generate awareness. All AMANDA social media accounts comply with the H2020 Programme Guidance Social media guide for EU funded R&I projects[2]. AMANDA social media profiles are monitored and analysed using the dashboard of selected social networks.

Channel	Account Name
LinkedIn	Amanda Project
Twitter	@AmandaProject2
YouTube	AMANDA project

Table 6 AMANDA social media channels

[2]H2020 Programme Guidance Social media guide for EU funded R&I projects Version 1.1 07 January 2020, EC, [Online] https://ec.europa.eu/research/participants/data/ref/h2020/other/grants_manual/amga/soc-med-guide_en.pdf

5.3.1 LinkedIn

LinkedIn is a social network specifically designed for career and business professionals to connect. Over 65 million professionals use LinkedIn to cultivate their careers and businesses.

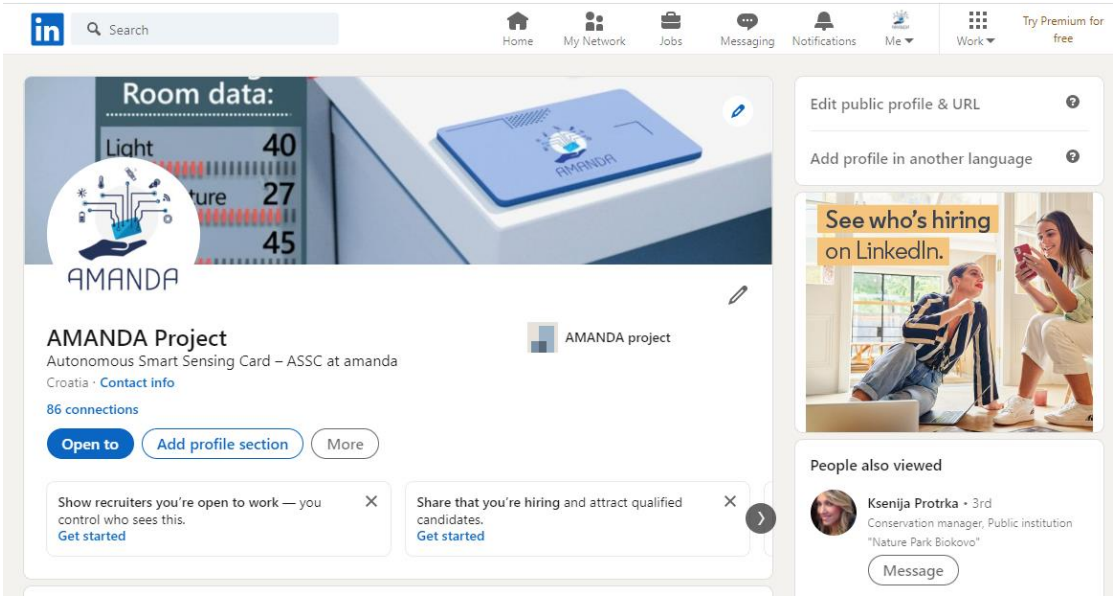


Figure 14 AMANDA LinkedIn profile

The AMANDA profile has been created for discussion and networks with specific audiences. AMANDA has achieved 89 connections, 95 followers, 64 posts, and 18,242 post views. AMANDA's LinkedIn activities are a publication of posts on the latest project developments, news, and links to relevant content. The audience who follow the AMANDA profile comes mostly from partners on the project and audience from various external events.

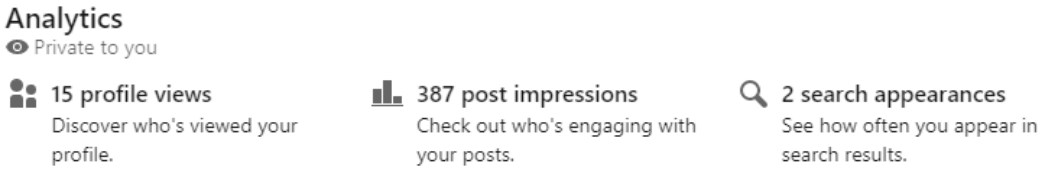


Figure 15 LinkedIn dashboard presenting data for the past 90 days

5.3.2 Twitter

Twitter is an online news and social networking site where people communicate in short messages. Twitter can support the development of communities with specific interests. AMANDA is represented by both "following" relevant accounts and being "followed" and by the publication of short posts on the latest project developments, news, and links to relevant content. The official AMANDA Twitter account has 48 followers, 17,584 Impressions, 70 tweets, and 4,780 profile visits. The official hashtag of the project is #amandaproject.

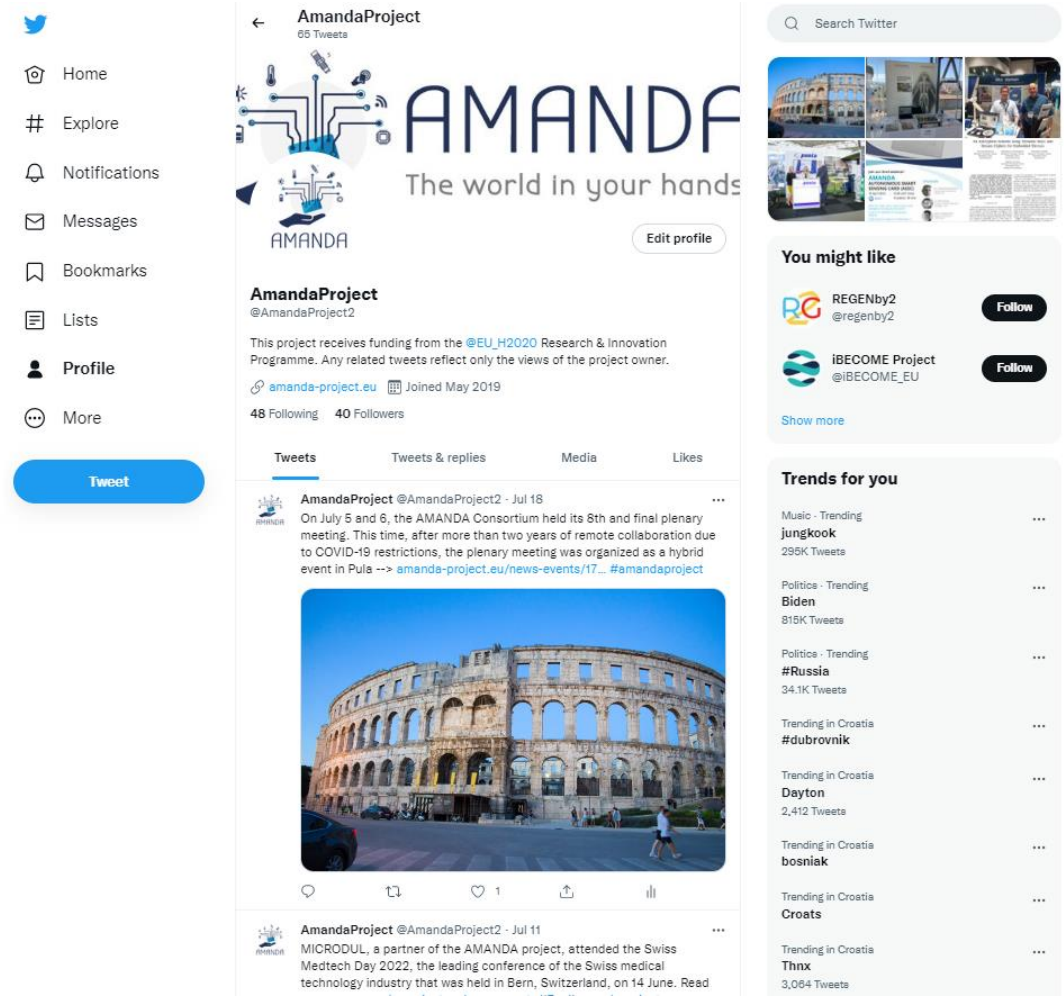


Figure 16 AMANDA Twitter Account

Twitter Analytics is used to optimise AMANDA project Twitter campaigns to get better results. Key dashboards that are used to assess a Twitter profile's performance include monthly Twitter report card and Tweet Activity Dashboard (TAD).

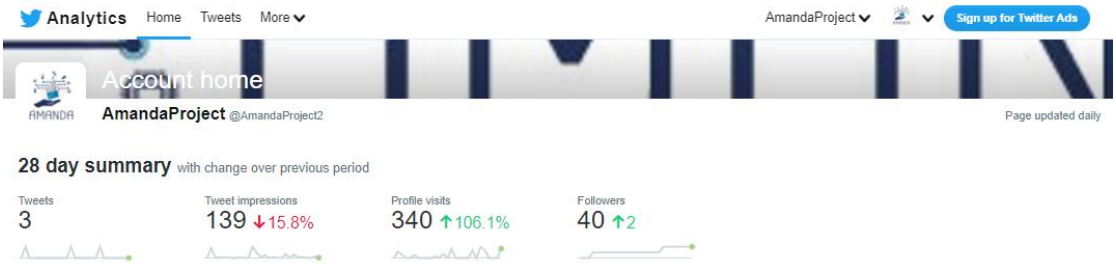


Figure 17 Account home - monthly Twitter report card

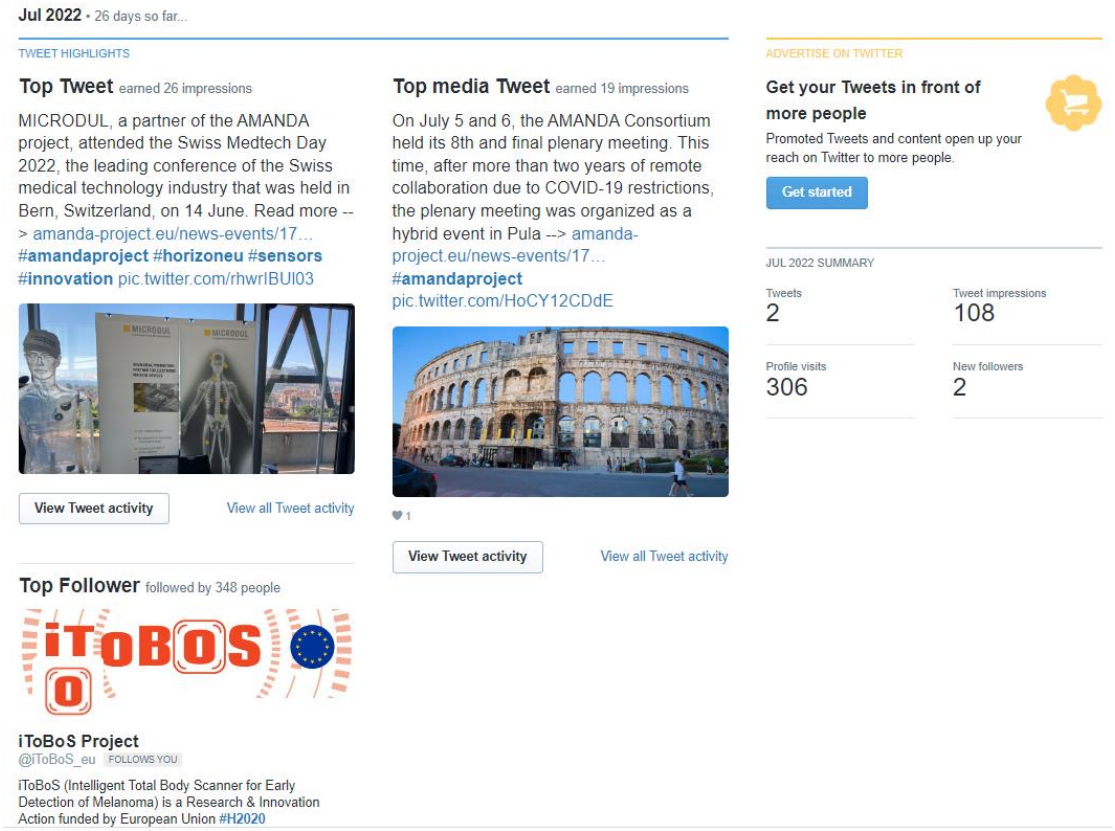


Figure 18 Tweet Activity Dashboard (TAD)

5.3.3 YouTube

The official YouTube channel was launched in M16 to facilitate the publication of audio-video content that will follow during the project, achieve a higher level of visibility, and reach a broad audience. A total of twelve (12) videos are available on the AMANDA project's official YouTube channel, and they convey information about the project quickly, clearly, and in an impressive way.

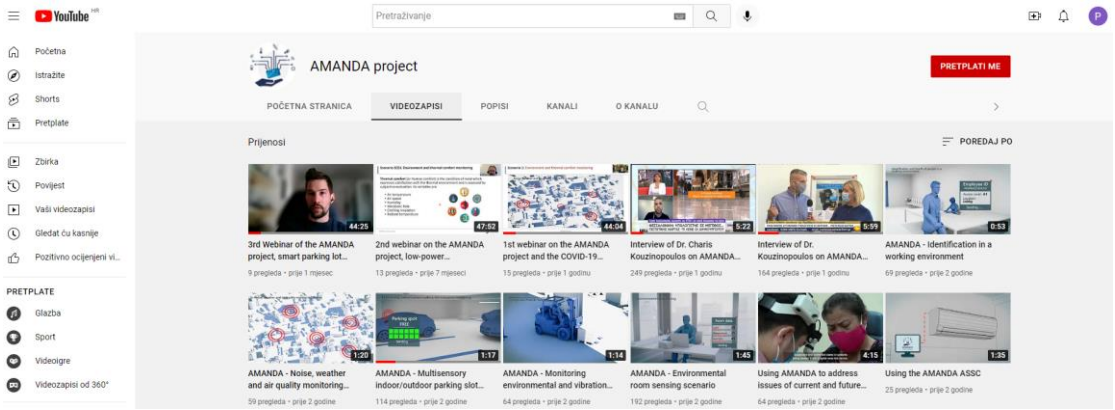


Figure 19 AMANDA YouTube channel

The performance of the AMANDA project's YouTube videos is tracked using YouTube Studio Analytics. Tracking YouTube analytics is an integral part of any YouTube marketing strategy. For the AMANDA project, two main analytics sections are being used: watch time reports and interaction reports. The Watch time report compiles data from the project's YouTube channel, the individual videos on the project channel, and any engagement from YouTube's mobile

apps. A YouTube video earns one view when is watched for 30 seconds or longer. The Audience retention report tracks viewer engagement over time. AMANDA project channel counts 983 views so far and has eight subscribers. The average view duration of videos is 1:23. The highest number of video reviews was recorded in June 2020, when six videos were published showing possible AMANDA card applications, and at the end of September 2020, when two interviews were published with Dr Charis Kouzinopoulos on AMANDA and the COVID-19 mitigation scenarios.

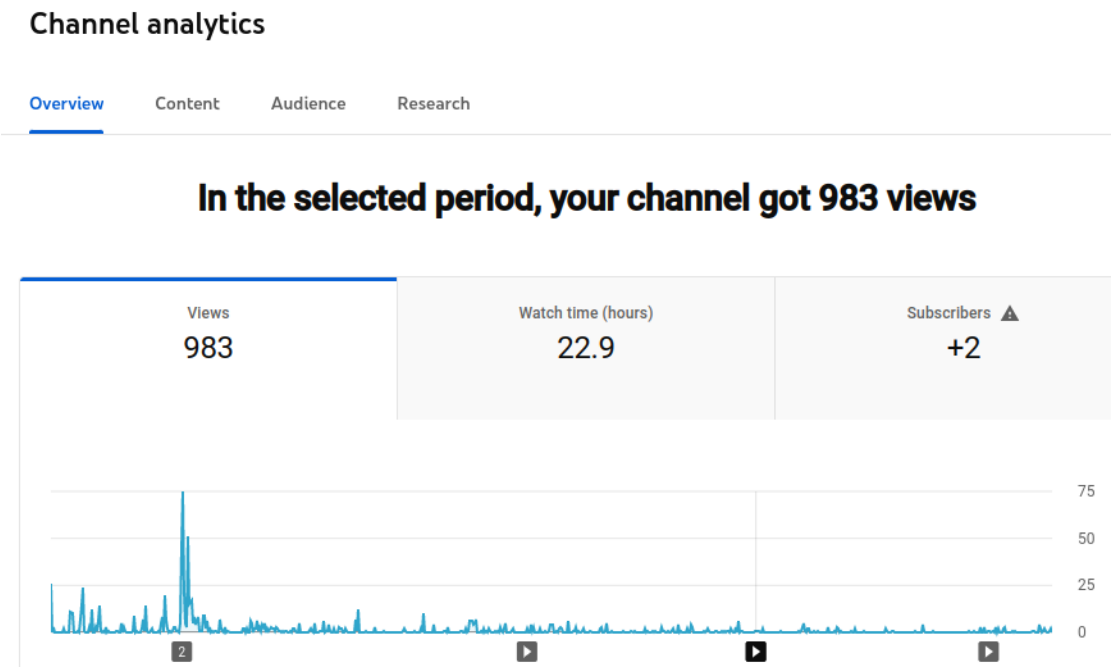


Figure 20 YouTube watch time report - channel‘s performance overview

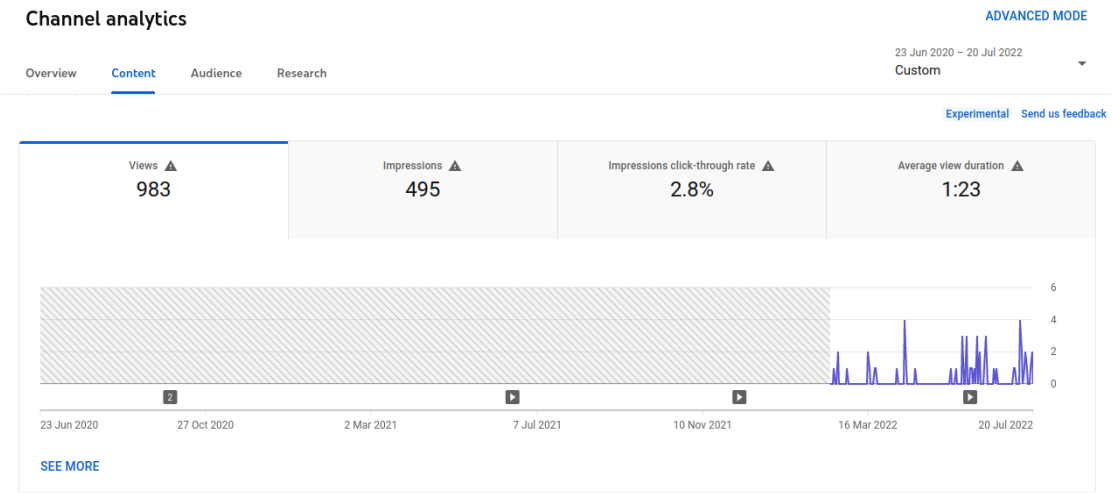
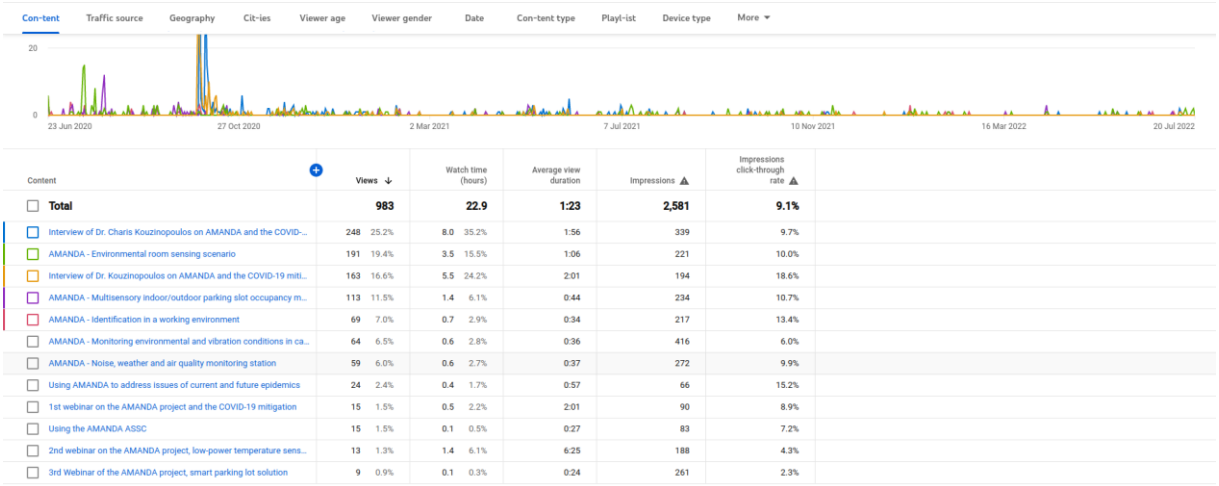


Figure 21 YouTube watch time report - total impressions



Content	Views	Watch time (hours)	Average view duration	Impressions	Impressions click-through rate
Total	983	22.9	1:23	2,581	9.1%
Interview of Dr. Charis Kouzinopoulos on AMANDA and the COVID-...	248 25.2%	8.0 35.2%	1:56	339	9.7%
AMANDA - Environmental room sensing scenario	191 19.4%	3.5 15.5%	1:06	221	10.0%
Interview of Dr. Kouzinopoulos on AMANDA and the COVID-19 miti...	163 16.6%	5.5 24.2%	2:01	194	18.6%
AMANDA - Multisensory indoor/outdoor parking slot occupancy m...	113 11.5%	1.4 6.1%	0:44	234	10.7%
AMANDA - Identification in a working environment	69 7.0%	0.7 2.9%	0:34	217	13.4%
AMANDA - Monitoring environmental and vibration conditions in ca...	64 6.5%	0.6 2.8%	0:36	416	6.0%
AMANDA - Noise, weather and air quality monitoring station	59 6.0%	0.6 2.7%	0:37	272	9.9%
Using AMANDA to address issues of current and future epidemics	24 2.4%	0.4 1.7%	0:57	66	15.2%
1st webinar on the AMANDA project and the COVID-19 mitigation	15 1.5%	0.5 2.2%	2:01	90	8.9%
Using the AMANDA ASSC	15 1.5%	0.1 0.5%	0:27	83	7.2%
2nd webinar on the AMANDA project, low-power temperature sens...	13 1.3%	1.4 6.1%	6:25	188	4.3%
3rd Webinar of the AMANDA project, smart parking lot solution	9 0.9%	0.1 0.3%	0:24	261	2.3%

Figure 22 YouTube watch time report per each video

5.4 Project communication materials

Published promotion and communication materials for the AMANDA project that have been created for use at different events (online or face-to-face) include the following:

- Poster (3)
- Press release (1)
- Leaflet (2)
- Newsletter (6)
- Project presentation (15)
- Video (12)
- Application Note (1)

The listed materials have been published on social media and are available on the project website at the following link:

- https://amanda-project.eu/documents/dissemination-materials

The first poster aimed to attract visitors' attention and briefly introduce the project objectives. The project's slogan, "The world in your hands", is in the upper part. The second part is a stylised photograph of a hand with an ASSC. On the image, symbolically are illustrated the card's autonomy and multisensory characteristics. The third part contains the project logo with a short description of the card's concept, impact and implementation. Fourth, the bottom part presents the project partners and their logo. The partners use the poster for each of the activities in which they engage. The poster is an integral part of the visual presentation. Two copies of the poster were delivered to each partner for use at external events and presentations on their business premises.

Figure 23 AMANDA poster and first press release

The second and third AMANDA posters were published in M24, providing a clear and more specific message. Posters are prepared to communicate with each other, presenting the defined operational scenarios of deploying the autonomous multisensory card and the used technology, card layout, and components. The content of the posters is clear and easily understandable for interested parties. The posters are available in an online format, published on the project website, but are also distributed to partners in duplicate.

Figure 24 AMANDA second and third poster

In M17, the first AMANDA leaflet was issued, providing the target audience with an attractive and written project overview. This trifold flyer on the first leaf shows the logo and name of the card - *Autonomous Smart Sensing Card (ASSC)*, as well as the members of the Consortium. By opening the first leaf, the reader sees an illustration of an autonomous multisensory card

and quickly understands the basic features and components it includes. The potential usability of the card is demonstrated in the interior of the leaflet. The back of the leaflet shows project goals, locations of the Consortium members, and the necessary contact information in case of additional inquiries from interested parties. The AMANDA leaflet is available in electronic version, published on the project website, and a printed version is distributed in 50 copies per partner.

Figure 25 AMANDA first leaflet

The second AMANDA leaflet was launched in M45 and provided an overview of the AMANDA project journey. The format of the leaflet remained the same as in the previous version – it is a trifold flyer with dimensions 15 x 15 cm, available in electronic version and printed version on demand, distributed by partners. The electronic version (.pdf) is uploaded on the project website and on social media – Twitter and LinkedIn. The consortium partners are also welcome to publish the electronic version of the leaflet on their organisations' websites. The main changes in this leaflet relate to the final list of use cases and scenarios and the components of the ASSC. In addition, a special page is dedicated to the AMANDA unique value proposition. This leaflet details the features and specific characteristics of the AMANDA card and provides clear communication about the innovation brought by AMANDA.

Figure 26 AMANDA second leaflet

The project has produced six (6) newsletters that provided up-to-date information on AMANDA's status and achievements. The first newsletter was released in M4 to raise awareness concerning AMANDA, introduce the Consortium members, and elaborate on project objectives. The second newsletter, issued in M18, presents six use cases and nineteen operational scenarios for the three versions of the ASSC – indoor, outdoor and wearable. The newsletter explains the architecture of the card and details all current dissemination activities. The second newsletter was delivered to 44 e-mail addresses, and 22 times was opened.

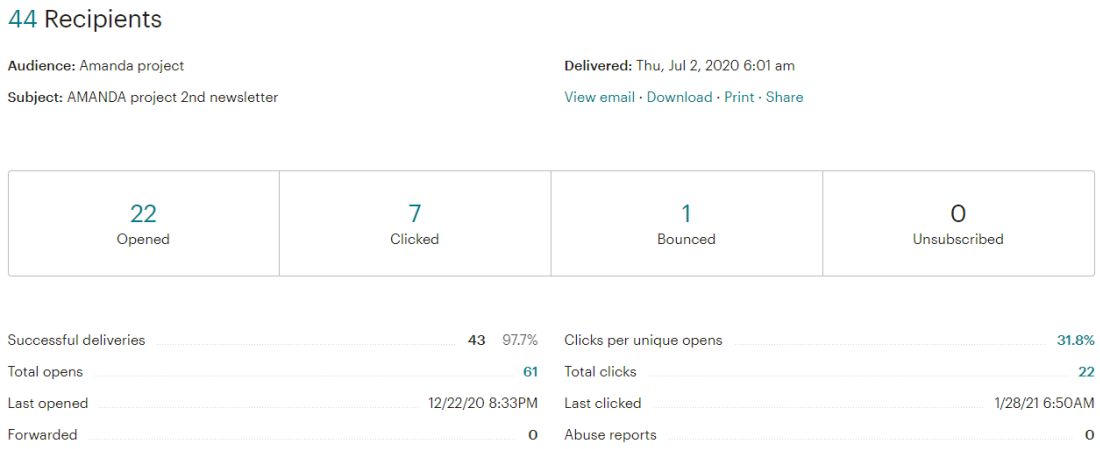


Figure 27 The 2nd AMANDA newsletter analytics - MailChimp campaign

The third newsletter was released in M24, including information about the project's latest achievements and elaborating on the impacts of the COVID-19 pandemic on the AMANDA activities. The third edition also presented a revised list of use cases and operational scenarios. Using the MailChimp campaign, this edition of the newsletter was sent to 94 recipients and was opened 26 times.

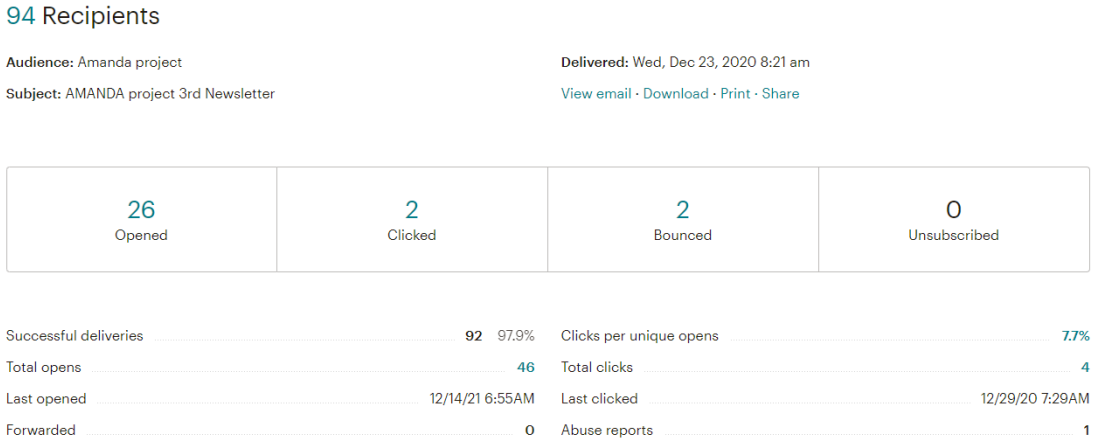


Figure 28 The 3rd AMANDA newsletter analytics - MailChimp campaign

In M31, the fourth AMANDA newsletter was released, and like previous editions, this newsletter was filled with highlights from recent activities of the AMANDA project (successful completion of the sensor development, architecture of the ASSC) as well as information about the upcoming activities and external events. 169 recipients received the fourth newsletter, but 45 of them actually opened it.

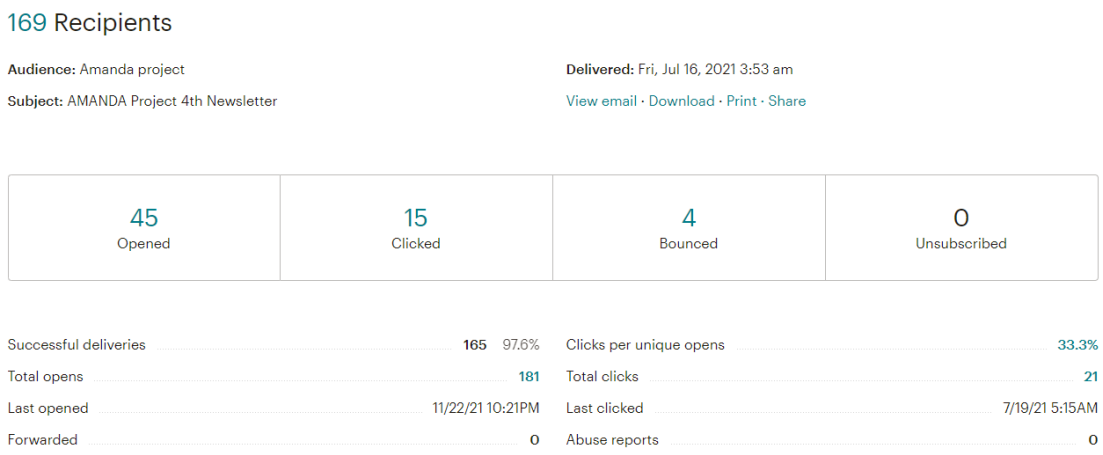


Figure 29 The 4th AMANDA newsletter analytics - MailChimp campaign

The fifth newsletter was released in M38, and in this issue were shared the main highlights of the technical work progress and information on the participation of the AMANDA project at relevant events, especially trade fairs that today look different and are becoming hybrid, hosted live at the trade fair venues and virtual. This edition was also sent by creating the MailChimp campaign to 174 e-mail addresses.

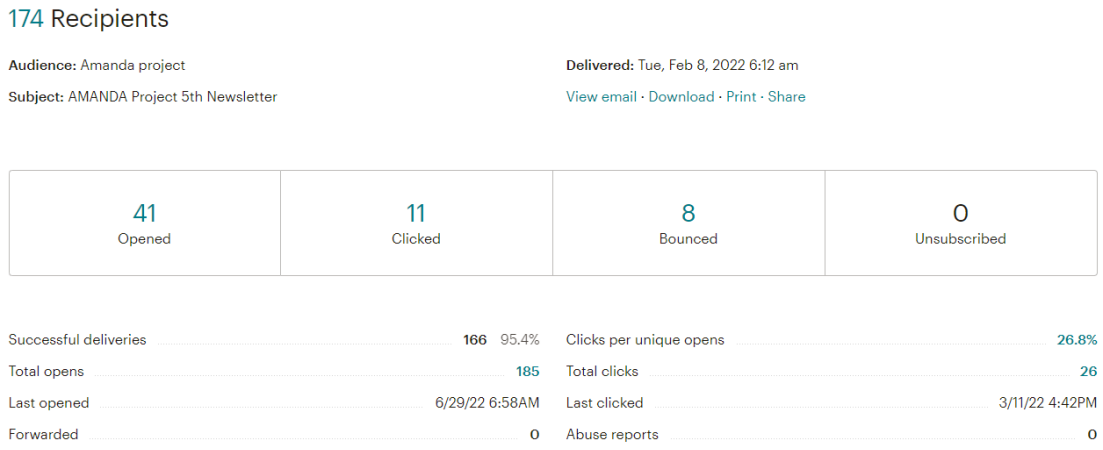


Figure 30 The 5th AMANDA newsletter analytics - MailChimp campaign

At the very end of the project (M45), the last, sixth newsletter was published and, like the previous editions, was delivered to all stakeholders via the MailChimp platform. The final newsletter was published on the project website and social networks. In this issue, the aim was to share the main objectives and accomplishments of the AMANDA project, the final use case and scenarios list, and inform our stakeholders and the general public of partners' participation at relevant events, primarily fair trade exhibitions.

Engagement with stakeholders is crucial to the success and sustainability of the project. Therefore, the Consortium is keeping an internal list of stakeholders, and it was maintained during the whole project lifetime. Newsletters were sent to addresses of potentially interested parties and were published on the project website and social media. Subscription to project newsletters is also open to the general public, using the form at the AMANDA project website.

Figure 31 Excerpts from the 5th AMANDA newsletter

With the intention to define and design a template for a partner's internal promotion of the AMANDA project, a PowerPoint presentation was prepared and published on the project website. Therefore, 13 slides were produced describing the main project objectives, the architecture of the ASSC, defined use cases and operational scenarios. To disseminate the results of the progress of the AMANDA project, the partners prepared additional presentations (14) which were published on the project website under the section Dissemination material.

Figure 32 AMANDA PowerPoint presentation slides screenshots

The first video package, consisting of 5 two-minute videos, was published in M17 to start an awareness and interest in AMANDA, explaining its benefits for stakeholders and its impact on society. A manuscript has been developed by focusing on use cases and operational scenarios, demonstrating the card's technology and components. In M17, an additional video was prepared and published as an announcement of health-related use case concerning current and future epidemics. In M22, two exclusive interviews of Dr Charis Kouzinopoulos on the Greek national television channels ERT1 and ERT3, were published, presenting the project's current research status and how it is proposed to mitigate the effects of current and future pandemics. After performing three AMANDA webinars in M29, M36 and M40, the recording was immediately published on the YouTube channel:

- https://www.youtube.com/channel/UCMQ7QphtN_HA7CXg6DwGDhQ/videos

All videos are also shared on the project's LinkedIn and Twitter profiles.

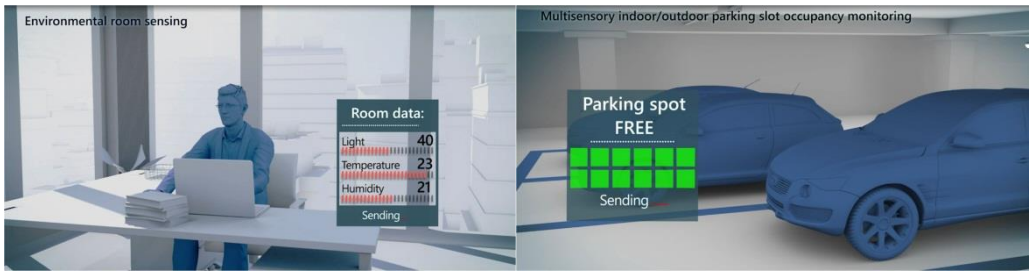


Figure 33 Screen captures from AMANDA project videos

Among the other project communication materials, the application note (AN1) was released in M34 and is available on the project website in the "Dissemination materials" section:

- https://amanda-project.eu/documents/dissemination-materials/send/5-dissemination-materials/40-amanda-application-note-an1

Accordingly, this technical brochure was also published on the LinkedIn and Twitter social networks. The application note was prepared in the online format; however, partners who use it at different events while promoting AMANDA have also prepared a print version. The application note describes the architecture and components integrated into the Autonomous Smart Sensing Card (ASSC) developed in the AMANDA project by H2020 partners. Furthermore, it explains the technology, performance and abilities of the AMANDA card and contains the following subsections: project concept, use cases and incorporated scenarios, conceptual architecture, wireless communication levels, mechanical specifications, component developers, AI, data fusion, cybersecurity, wireless communications and localisation.

Figure 34 AMANDA application note (AN1)

5.5 Webinars

To tackle the long-term effects of the COVID-19 pandemic, the Consortium adopted a proactive approach, created new or additional dissemination and communication mechanisms, and showed that AMANDA is resilient and, despite the circumstances and restrictions, it can be very productive. A series of 3 webinars called "AMANDA - Autonomous Smart Sensing Card" was held. The aim of the 1st AMANDA webinar that was held in May 2021 was to present a general overview of the AMANDA project, emphasising the possibility and benefits of using the unique ASSC to help mitigate the effects of current and future pandemics. 49 people registered to attend the first webinar, and 33 people actually attended, showing the business and scientific community's great interest in EU research and innovation. The invitation was sent to 156 e-mail addresses via the MailChimp campaign, but also CERTH disseminated webinar invitations to 440 members of academia in Greece and 500 researchers and research associates at the Information Technologies Institute and the Institute of Applied Biosciences at the Centre for Research and Technology Hellas.

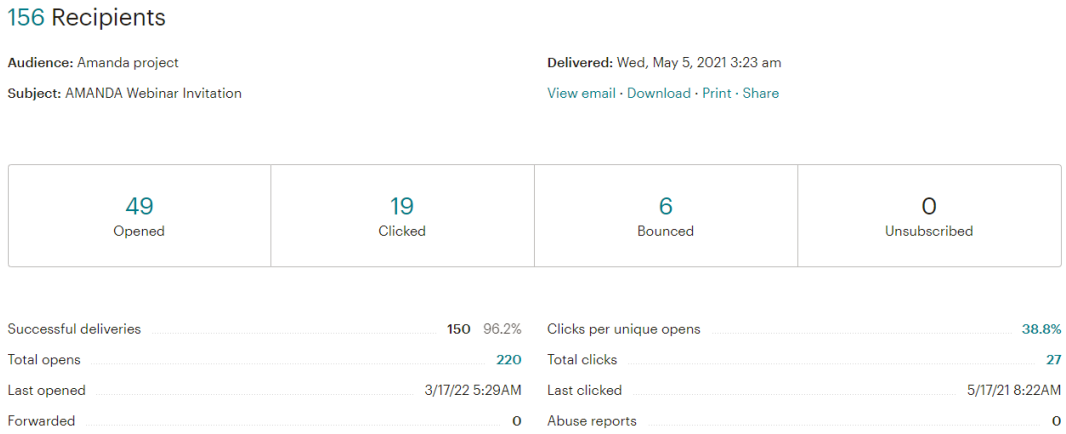


Figure 35 The 1st AMANDA webinar invitation analytics - MailChimp campaign

The second AMANDA webinar was held in December 2021 and was focused on the successful development of ultra-low-power temperature sensor and thermal comfort monitoring scenario but also emphasized the high efficiency of Photovoltaic energy harvester component for miniature IoT devices. 23 registrations were received for the second webinar, and 22 persons attended. A webinar invitation campaign was prepared and sent via MailChimp to 173 contact e-mails. Invitations to the webinar were sent twice during November and December 2021 and were also published on social media to increase visibility and attract additional stakeholders.

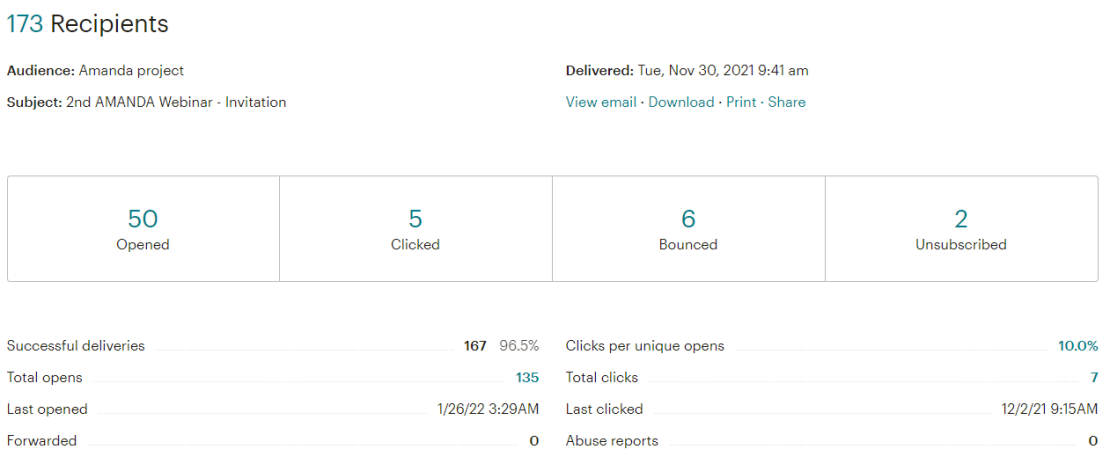


Figure 36 The 2nd AMANDA webinar invitation analytics - MailChimp campaign

The third episode of the “AMANDA - Autonomous Smart Sensing Card” webinar series was held in April 2022, focusing on applying the Autonomous Smart Sensing Card to detect vehicles and continuous occupancy monitoring in the parking area and presenting custom AI methods for low-power systems. A total of 24 registrations were received, while 23 registrants attended the webinar. Webinar invitations for the third webinar were sent twice to 197 recipients via MailChimp during March and April 2022 but also were announced on LinkedIn and Twitter. For all who were interested but unable to attend a series of three AMANDA webinars, the recording is available at the ZOOM platform and in the News section of the AMANDA project website and YouTube channel.

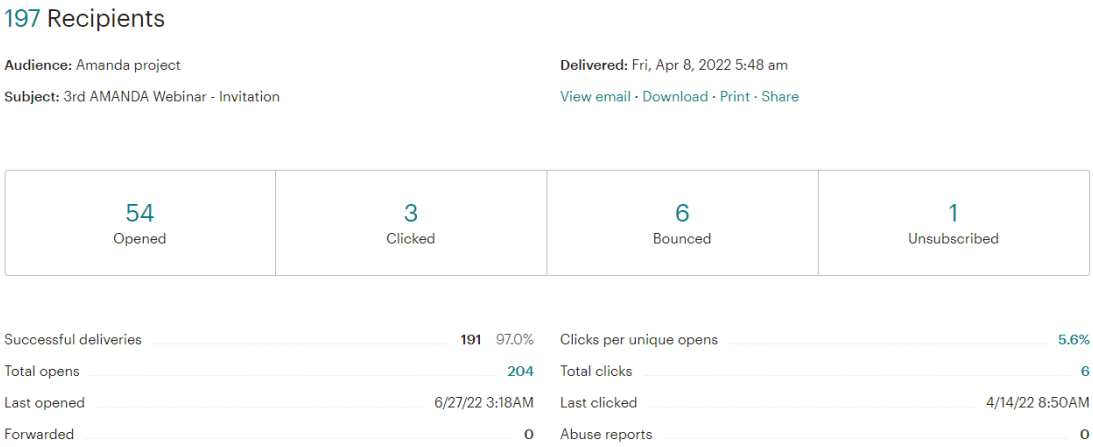


Figure 37 The 3rd AMANDA webinar invitation analytics - MailChimp campaign

5.6 Training sessions

The training sessions were held at the project's end to start the market introduction phase. According to the Grant Agreement, training sessions should be performed in potential clients' facilities to enable new user experimentation. However, given that the coronavirus pandemic is still ongoing, the Consortium considered several options for holding training sessions: training sessions as a webinar, training sessions at events and training sessions in person, in the facilities of chosen stakeholders. During the participation at the InnoTrans fair in Berlin (Germany), Penta arranged a meeting with companies NOVATRONIC doo and New Line Technologies (DELTA Group) with the aim of presenting the AMANDA project in more detail, the innovations resulting from the activities and showing which are the three final use cases and scenarios of the AMANDA card and which of these cases would be attractive to the mentioned companies considering on the scope of their business and activity.

Figure 38 Training session at InnoTrans 2022 - NOVATRONIC doo

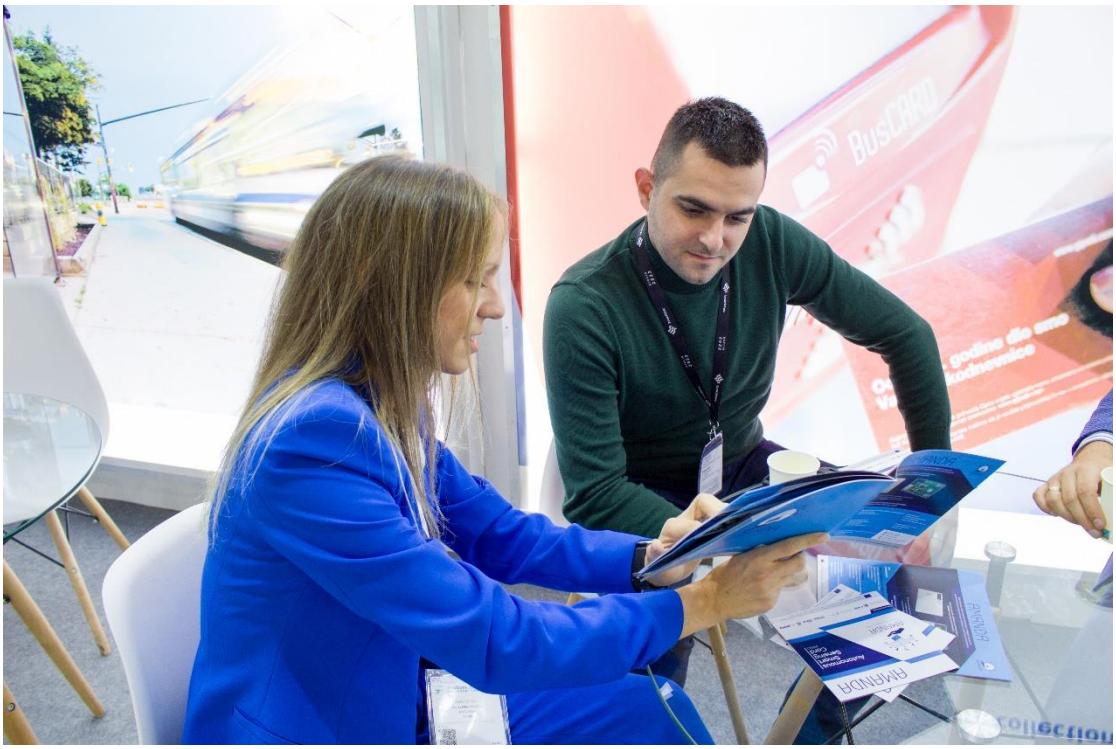


Figure 39 Training session at InnoTrans 2022 - NOVATRONIC doo

Figure 40 Training session at InnoTrans 2022 - New Line Technologies - DELTA Group

5.7 Participation in externally organised events

In the period of M1-M27, the partners have communicated about their activities, aiming to promote the AMANDA project. The main objective is to present the AMANDA project and to enlighten the audience with the project objectives. Specific information on AMANDA partners' participation in a number of externally organised events is given at the end of this Section (where applicable).

Type of activity	Number of events
Conferences	11
Cooperation with other EU projects and initiatives	4
Interviews	3
Posters	2
Presentations to potential custom-ers	10
Trade show exhibitions	13
Website updates	4
Scientific papers	5
Pitch events	1
Tech talks	3
Round tables	1

Table 7 Number of events per type of activity-attended

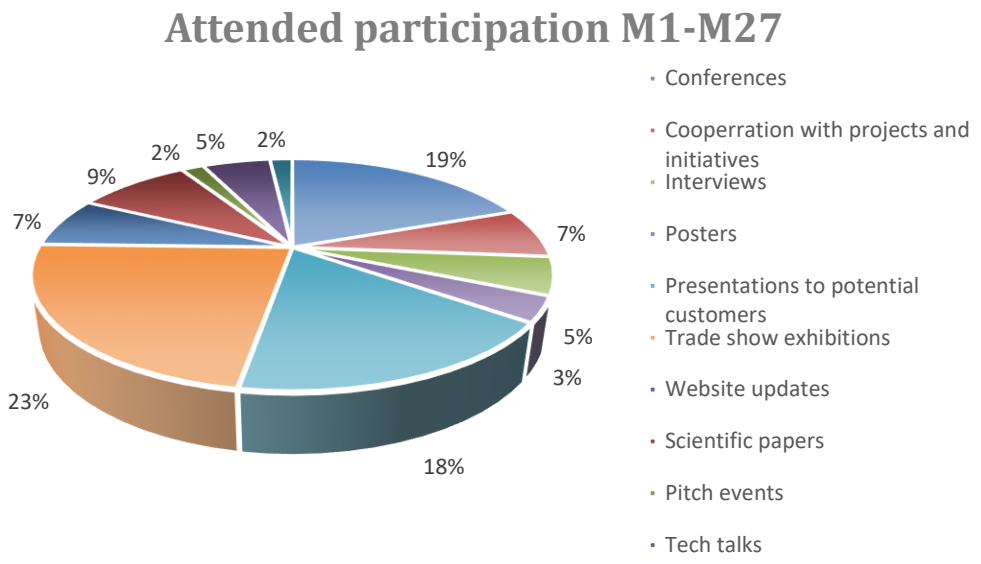


Figure 41 Attended participation M1-M27

In M28-M45, the partners continued with a whole range of activities. Table 8 below shows the activity types and the number of events partners attended.

Type of activity	Number of events
Trade show exhibitions	17
Webinars	4
Conferences	12
Cooperation with projects and initiatives	1

Table 8 Number of events per type of activity-foreseen

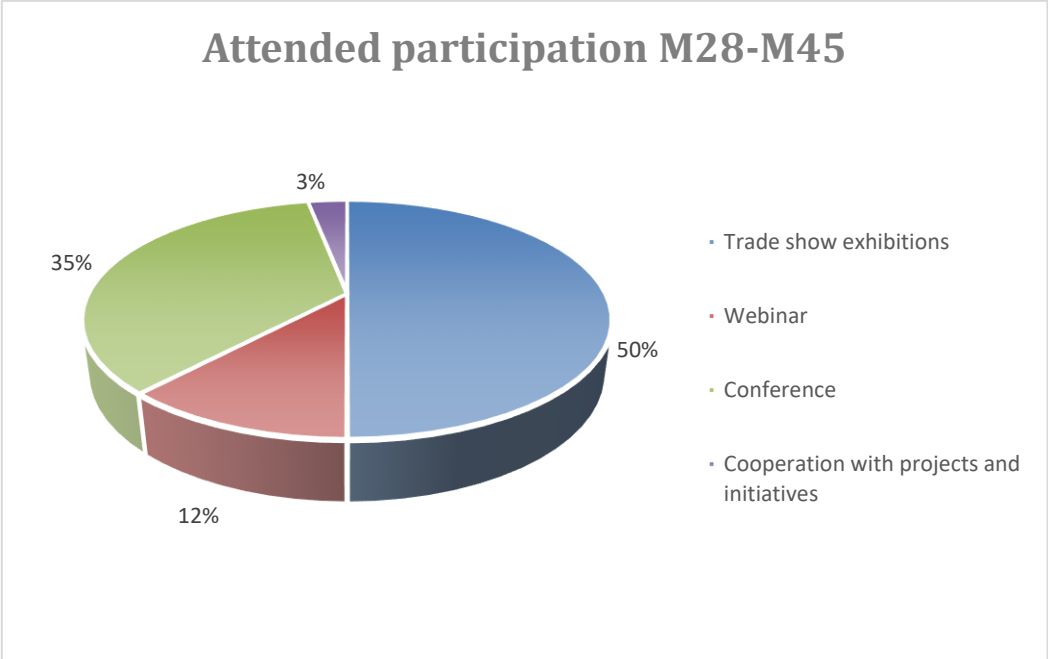


Figure 42 Attended participation M28-M45

5.7.1 CERTH participation

5.7.1.1 Attended participation M1-M12

Type of activity	Title	Content of activity	Date	Place/Country
Conference	2019 IEEE International Conference of Consumer Electronics (ICCE)	AMANDA: An Autonomous Self-Powered Miniaturized Smart Sensing Embedded System	10 September 2019	Berlin/Germany

Table 9 Dissemination activities by CERTH M1-M12

Type of audience	Size of audience
Scientific community/ Students	~150 per academic year
Industry	~10
End-users	~100

Table 10 Estimated number of people reached by CERTH M1-M12

5.7.1.2 Attended participation M13-M27

Type of activity	Title	Content of activity	Date	Place/Country
DIH presentation	Digital Catapult London	Presentation of AMANDA project to DIGICAT – Digital Catapult London	19 January 2021	Online
Interview	Interview of the current progress of the AMANDA project in the Athenian / Macedonian News Agency	Pocket Computer as a tool against Coronavirus	25 September 2020	Thessaloniki/Greece
Interview	Interview on AMANDA and the COVID-19 mitigation scenarios on the Greek National TV channel ERT3	AMANDA project and the COVID-19 mitigation scenarios	30 September 2020	Thessaloniki/Greece
Interview	Interview on AMANDA and the COVID-19 mitigation scenarios on the Greek National TV channel ERT1	AMANDA project and the COVID-19 mitigation scenarios	01 October 2020	Thessaloniki/Greece

Table 11 Dissemination activities by CERTH M13-M27

Type of audience	Size of audience
Industry (DIH presentation)	4
General public (communication campaign – interviews)	N/D

Table 12 Estimated number of people reached by CERTH M13-M27

5.7.1.3 Foreseen participation for the period M13-M27

Type of activity	Planned journal/Conference	Content of activity	Estimated date	Place/Country
Conference publication	IEEE International Conference on Artificial Intelligence Circuits and Systems	A low-power fire monitoring and detection system on embedded systems using a multilayer perceptron	Submitted on M25	Online
Conference publication	IEEE International Conference on Omni-layer Intelligent systems	A low-power and low-rate indoor crowd counting system	To be submitted on M27	Barcelona/ Spain (Online)

Table 13 Foreseen dissemination activities by CERTH M13-M27

5.7.1.4 Foreseen participation for the period M28-M42

Type of activity	Planned journal/Conference	Content of activity	Estimated date	Place/Country
Journal publication	Special Issue of "Embedded Intelligence in IoT Systems" MDPI journal	ParkIoT: An embedded solution for parking	M28	Online
Journal publication	TBD	Size unconstrained system integration	M32	Online
Journal publication	TBD	Edge intelligence algorithms on an embedded system with an emphasis on low-energy consumption	M32	Online
Journal publication	TBD	Data fusion algorithms on an embedded system with an emphasis	M36	Online

		on low-energy consumption		
Journal publication	TBD	Cyber security on an embedded system with an emphasis on low-energy consumption	M36	Online

Table 14 Foreseen dissemination activities by CERTH M28-M42

5.7.1.5 Attended participation M28-M45

Type of activity	Title	Content of activity	Date	Place/Country
Conference publication	IEEE Sensors Applications Symposium 2021 (SAS 2021)	A low-power fire monitoring and detection system on embedded systems using a Multilayer perceptron	23-25 August 2021	Online
Conference publication	10th International Conference on Cyber-Physical Systems and IoT(CPS&IoT 2022)	An Encryption Scheme using Dynamic Keys and Stream Ciphers for Embedded Devices	07-10 June 2022	Budva/Montenegro

Table 15 Dissemination activities by CERTH M28-M45

Type of audience	Size of audience
Academic	Unknown (attended online)
Academic	Unknown (attended online)

Table 16 Estimated number of people reached by CERTH M28-M45

5.7.2 IMEC participation

IMEC is a research institute with a significant business network which develops technology for quick adaptation in the industry. That made it possible to use a business model in which the dissemination strategy focuses only on potential customers. The focus of dissemination is on building intimate business relationships with individual companies. That is why in Table 17, most of the activities are individually adjusted towards preselected companies rather than widely announced during public events.


Figure 43 Dissemination of AMANDA to IMEC visitors

5.7.2.1 Attended participation M1-M12

Type of activity	Title	Date	Place/Country
Posters	Project poster at the entrance to the IMEC building	01 September 2019 – 01 January 2022	HTC 31 Eindhoven /Netherlands
Presentation to a potential customer	Pitch to Japanese gas sensor manufacturer	April 2019	Confidential
Presentation to a potential customer	Pitch to Belgium based Window production manufacturer	February 2019	Confidential
Presentation to a potential customer	Discussion with technological campus management	June 2019	Confidential
Presentation to a potential customer	Pitch to the Dutch research institute	March 2019	Confidential
Presentation to a potential customer	Pitch to Japanese car component manufacturer	September 2019	Confidential
Presentation to a potential customer	Pitches to two Chinese component manufacturers	October 2019	Confidential
Presentation to a potential customer	Pitch to United States sensor manufacturer	September 2019	Confidential
Presentation to a potential customer	Pitch to United States utility company	November 2019	Confidential
Presentation to a potential customer	Pitch to the French utility company	August 2019	Confidential

Table 17 Dissemination activities by IMEC M1-M12

Type of audience	Size of audience
Visitors of IMEC	~500
Potential customers	20

Table 18 Estimated number of people reached by IMEC M1-M12

5.7.2.2 Attended participation M13-M27

Type of activity	Title	Date	Place/Country
DIH presentation	Presentation of AMANDA project to DIGICAT – Digital Catapult London	19 January 2021	Online
Presentation to a potential customer	Advanced Gas sensing solutions	February 2021	Online/China

Table 19 Dissemination activities by IMEC M13-M27

Type of audience	Size of audience
Industry	4
Potential customers	6

Table 20 Estimated number of people reached by IMEC M13-M27

5.7.2.3 Foreseen participation for the period M13-M27

Type of activity	Title	Date	Place/Country
Sensors and Actuators B: Chemical	Undefined yet	Undefined yet	NP
Eurosensors conference	Undefined yet	Undefined yet	Undefined yet
Presentations to potential customers	NP	NP	NP

Table 21 Foreseen dissemination activities by IMEC M13-M27

5.7.2.4 Foreseen participation for the period M28-M42

Type of activity	Title	Date	Place/Country
Short course	Non-CMOS based sensors for IoT	13-19 June 2021	Kyoto/Japan (Online)

Table 22 Foreseen dissemination activities by IMEC M28-M42

5.7.3 Lightricity participation

Lightricity has taken part in various tradeshows and exhibition events in 2019, all based in European countries, where the company has promoted the AMANDA project alongside its technology. The targeted audience mainly was industrials and stakeholders (see Table 24 and

Table 26) that could understand the benefits of the AMANDA platform while providing useful feedback for the different use cases that are still under development. These interactions have been key to ensure that the AMANDA system specifications are in line with the industry's expectations. Events noted in Table 23 and Table 25 were also an opportunity to monitor any competitor's activity. No AMANDA demonstrators were available to show at this stage, however, the objectives of the AMANDA project were clearly explained and adapted to the type of audience. The latest AMANDA dissemination material (flyers, posters) will be shared in the upcoming events described in Table 28. Lightricity has also updated its company website to provide a description of the AMANDA project and Consortium, and directly linked the webpage to the AMANDA official site.

5.7.3.1 Attended participation M1-M12

Type of activity	Title	Date	Place/Country
Trade show exhibition/Conference	SIDO2019	April 2019	Lyon/France
Trade show exhibition/Conference	IDTechEx2019	April 2019	Berlin/Germany
Trade show exhibition/Conference	ISWC	October 2019	Barcelona/Spain
Website update	Lightricity website page on AMANDA with link to AMANDA project website	Mid-2019	UK
Preparation of publication	Joint IEEE publication with CERTH, EPEAS and Ilika	September 2019-now	-

Table 23 Dissemination activities by Lightricity M1-M12

Type of audience	Size of audience
Scientific community (mostly academic)	~100
Industry (potential customers)	~300
Others (mixed audience)	~200

Table 24 Estimated number of people reached by Lightricity M1-M12

5.7.3.2 Attended participation M13-M27

Type of activity	Title	Date	Place/Country
Presentation/Conference	Sensors Solution International	19 May 2020	Brussels/Belgium (Online)
Pitch event	Digital Catapult's Future Networks Lab Accelerator	08 September 2020	Online

	Showcase and Demo Day		
Trade show exhibition/Conference	Energy Harvesting 2020	25 November 2020	Birmingham/UK (Online)
Preparation of publication	Joint IEEE publication with CERTH, EPEAS and Ilika	January 2020-now	Online

Table 25 Dissemination activities by Lightricity M13-M27

Type of audience	Size of audience
Scientific community (mostly academic)	~100
Industry (potential customers)	~200
Others (mixed audience)	~300

Table 26 Estimated number of people reached by Lightricity M13-M27

5.7.3.3 Foreseen participation for the period M13-M27

Type of activity	Title	Date	Place/Country
Trade show exhibition/Conference	Embedded World	February 2020	Nuremberg/Germany
Trade show exhibition	Rail Live!	March 2020	Madrid/Spain
Presentation/Conference	SSI	March-April 2020	Brussels/Belgium
Trade show exhibition /Conference	Sido2020	May 2020	Lyon/France
Trade show exhibition /Conference	IDTechEx2020	May 2020	Berlin/Germany
Trade show exhibition /Conference	ISWC	October 2020	Barcelona/Spain
Trade show exhibition /Conference	Electronica	November 2020	Munich/Germany

Table 27 Foreseen dissemination activities by Lightricity M13-M27

5.7.3.4 Foreseen participation for the period M28-M42

Type of activity	Title	Date	Place/Country
Trade show exhibition/Conference	Embedded World	March 2021	Nuremberg/Germany (Online)
Trade show exhibition	Rail Live!	June 2021	Madrid/Spain

Presentation/Conference	SSI	June 2021	Brussels/Belgium
Trade show exhibition /Conference	Sido2021	September 2021	Lyon/France
Trade show exhibition /Conference	IDTechEx2021	tbd	Berlin/Germany
Trade show exhibition /Conference	ISWC	October 2021	Barcelona/Spain

Table 28 Foreseen dissemination activities by Lightricity M28-M42

5.7.3.5 Attended participation M28-M45

Type of activity	Title	Date	Place/Country
Trade show exhibition /Conference	Sensor Solutions International	9-10 November 2021	Brussels/Belgium
Trade show exhibition /Conference	Consumer Electronic Show	5-8 January 2022	Las Vegas/USA

Table 29 Dissemination activities by Lightricity M28-M45

Type of audience	Size of audience
Scientific community (mostly academic)	~250
Industry (potential customers)	~400
Others (mixed audience)	~600

Table 30 Estimated number of people reached by Lightricity M28-M45

5.7.4 EPEAS participation

EPEAS dissemination activities are focused on the PMIC as well as on the image sensor and related to global requirements of IoT devices energy harvesting requirements. In its activities, EPEAS planned to:

- Exhibit and explain EPEAS products at tradeshows
- Add an online web page section for AMANDA
- Present the AMANDA project at events with flyer
- Introduce the project to a customer when relevant
- Promote the partners based on customer requirements

When attending tradeshows, along with its living demonstrations, EPEAS shows some customer's product (*with their agreement*) and an AMANDA flyer (*see below*). EPEAS demonstrators are some sensors (T°/humidity, lux meter and accelerometer) with a radio communication (SigFox, LoRa, Beacon BLE) supplied by energy harvesting. The aim is to show people EPEAS products working and integrated into IoT-like devices.

Figure 44 EPEAS on the AMANDA web site

5.7.4.1 Attended participation M1-M12

EPEAS has attended events noted in Table 31 and Table 32. A presentation on the AMANDA project was available at the EPEAS booth.

Figure 45 EPEAS attended participation

Type of activity	Title	Date	Place/Country
SigFox eco-system and exhibition	SigFox Connect 2019	20-21 November 2019	Singapore/APAC

Table 31 Dissemination activities by EPEAS M1-M12

5.7.4.2 Attended participation M13-M27

Type of activity	Title	Date	Place/Country
Trade show exhibition	Consumer Electronic Show (CES)	7-10 January 2020	Las Vegas/USA
LoRa eco-system and exhibition	The Things 2020	30-31 January 2020	Amsterdam/EMEA
Trade show exhibition	Embedded World 2020	25-27 February 2020	Nuremberg/EMEA

Trade show exhibition	SIDO 2020	03-07 September 2020	Lyon/EMEA

Table 32 Dissemination activities by EPEAS M13-M27

Type of audience	Size of audience
SigFox Connect 2019 - Industry	2000 participants
Consumer Electronic Show (CES) – Industry, general public, customers	180000 attendees expected, and more than 4500 exhibitors
The Things 2020 "LoRaWAN"- LoRa eco-system, industry, customers	2000 visitors and all majors actors of the LoRa eco-system
Embedded World – Embedded electronic specialists	938 exhibitors and 150000 visitors
SIDO 2020 – Industry and customers	150 exhibitors

Table 33 Estimated number of people reached by EPEAS M13-M27

5.7.4.3 Foreseen participation for the period M13-M27

EPEAS has planned to participate at the following trade shows during 2020:

Figure 46 EPEAS foreseen participation

Type of activity	Title	Date	Place/Country
Trade show exhibition	CES	7-10 January 2020	Las Vegas/USA
LoRa eco-system and exhibition	Thinks Networks	30-31 January 2020	Amsterdam/EMEA
Trade show exhibition	Embedded World	25-27 February 2020	Nuremberg/EMEA
Trade show exhibition	Hannover Messe	20-24 April 2020	Hannover/EMEA

Trade show exhibition	SIDO	12-13 May 2020	Lyon/EMEA
Trade show exhibition	Electronica	10-13 November 2020	Munich/EMEA

Table 34 Foreseen dissemination activities by EPEAS M13-M27

5.7.4.4 Foreseen participation for the period M28-M42

Type of activity	Title	Date	Place/Country
Trade show exhibition	Embedded World	1-5 March 2021	Nuremberg/EMEA (Online)
Trade show exhibition	SIDO	22-23 September 2021	Lyon/EMEA
Trade show exhibition	SIDO	09-10 November 2021	Paris/EMEA

Table 35 Foreseen dissemination activities by EPEAS M28-M42

5.7.4.5 Attended participation M28-M45

Type of activity	Title	Date	Place/Country
Trade show exhibition	CES	5-8 January 22	Las Vegas/USA
Trade show exhibition	IoT World Congress	10-12 May 22	Barcelona/EMEA
Trade show exhibition	Embedded World	21-24 June 22	Nuremberg/EMEA
Trade show exhibition	Sensors Converge	27-29 June 22	San Diego/USA
Trade show exhibition	Sido Lyon	14-15 September 22	Lyon/EMEA

Table 36 Dissemination activities by EPEAS M28-M45

Type of audience	Size of audience
Consumer Electronic Show (CES) – Industry, general public, customers	>300
IoT World Congress – Industry, customers	>100
Sensors Converge – industry, customers	>200
Embedded World – Embedded electronic specialists	>600
SIDO 2020 – Industry and customers	>300

Table 37 Estimated number of people reached by EPEAS M28-M45

5.7.5 ZHAW participation

ZHAW is involved in teaching, research and dissemination of technologies. Some of the insights derived from this project will flow in teaching activities, helping to enhance courses and

providing appropriate examples at different levels. Furthermore, demonstrators derived directly or indirectly from the project will be used for open doors activities geared at promoting technologies and bringing them nearer to the masses. Dissemination will also be done by attending conferences, contributing in specialised journals and popular science journals.

5.7.5.1 Attended participation M1-M12

Type of activity	Title	Date	Place/Country
Keynote at IoT Techtalk (Amanda presented as example)	IoT Everywhere? Harvesting energy to power future IoT nodes	28 May 2019	Lausanne/Switzerland
Conference paper ICCE Berlin 2019	AMANDA: An Autonomous Self-Powered Miniaturized Smart Sensing Embedded System	September 2019	Berlin/Germany

Table 38 Dissemination activities by ZHAW M1-M12

Type of audience	Size of audience
Students (Internet of Things class)	Approximately 20 per semester
Scientific Community (Conferences)	In the order of hundreds

Table 39 Estimated number of people reached by ZHAW M1-M12

5.7.5.2 Attended participation M13-M27

Type of activity	Title	Date	Place/Country
Conference presentation at Embedded World 2020	“Powering Sigfox nodes with harvested energy”	25-27 February 2020	Nuremberg/Germany
Conference presentations at 5th IEEE International Symposium on Smart and Wireless Systems	Oral presentation: “Low Power LoRaWAN node based on FRAM Microcontroller”. Video presentation: “Low Light Energy Autonomous LoRaWAN Node”	17-18 September 2020	Online
Conference presentation at Wireless Congress 2020	“The Amanda Project”	10 November 2020	Online

Table 40 Dissemination activities by ZHAW M13-M27

Type of audience	Size of audience

Embedded World 2020: scientific community, industry	30
5th IEEE International Symposium on Smart and Wireless Systems: scientific community	50 attendees (oral presentation), 70 views (video presentation)
Wireless Congress 2020: scientific community, industry	20

Table 41 Estimated number of people reached by ZHAW M13-M27

5.7.5.3 Foreseen participation for the period M13-M27

Type of activity	Title	Date	Place/Country
Conference paper in preparation	In preparation (about EH and indoor positioning)	Early 2020	Winterthur/ Switzerland Cancelled (COVID-19)
Teaching IoT (AMANDA as example in course)	IoT class	February – May 2020	Winterthur, Zürich/Switzerland On-line teaching
Open doors activity for public - AMANDA poster	Nacht der Technik	July 2020	Winterthur/Switzerland Cancelled (COVID-19)

Table 42 Foreseen dissemination activities by ZHAW M13-M27

5.7.5.4 Foreseen participation for the period M28-M42

Type of activity	Title	Date	Place/Country
Conference or journal paper	Low power indoor localisation	tbd	tbd
Journal paper	Related to Co_2 and IoT	Q4 2022	Journal paper in preparation
Conference or journal paper	Related to High performance computing and EH	tbd	tbd
Journal paper	Related to Low light (around 5 lux) energy harvesting, user interface and short-range wireless	Q4 2022	Journal paper in preparation
Journal paper	Related to Low light energy harvesting and long-range wireless	Q4 2022	Journal paper in preparation
Conference presentations	Related to Low light energy harvesting,	November 2022	Munich, Germany

Wireless Congress	TEG energy harvesting		

Table 43 Foreseen dissemination activities by ZHAW M28-M42

5.7.5.5 Attended participation M28-M45

Type of activity	Title	Date	Place/Country
Teaching IoT (solar EH as example in course)	IoT class	February – May 2022	Winterthur, Switzerland
Open doors for public	Nacht der Technik Presentation of student's projects	8 July 2022	Winterthur, Switzerland
Conference and Fair Presentation of paper	Using New Memory technologies to Reduce the Energy Requirements of LPWAN Nodes	23 June 2022	Nuremberg, Germany

Table 44 Dissemination activities by ZHAW M28-M45

Type of audience	Size of audience
Embedded World conference in Nuremberg, June 2022 Industry and academia	30
Nacht der Technik (open doors activity). General public visiting and seeing student's work, including 2 projects related to Amanda techniques	>200
Students in IoT class	32

Table 45 Estimated number of people reached by ZHAW M28-M45

In 2022, two student's bachelor projects were also realized. Students developed a sensor node for plants or a small garden. Measures important parameters and transmits the data to a gateway for display. Bluetooth Low Energy (long Range) is used. The sensor is energy autonomous (powered by a small solar cell). Good range indoor and outdoor. Small solar cells, hybrid low-leakage storage, BLE long rang mode (coded PHY). RH&T, soil moisture (Microdul), illuminance sensors, booster and power management. Works in the dark for days thanks to storage. Raspberry Pi as gateway and web server to receive, store database, and distribute parameters.

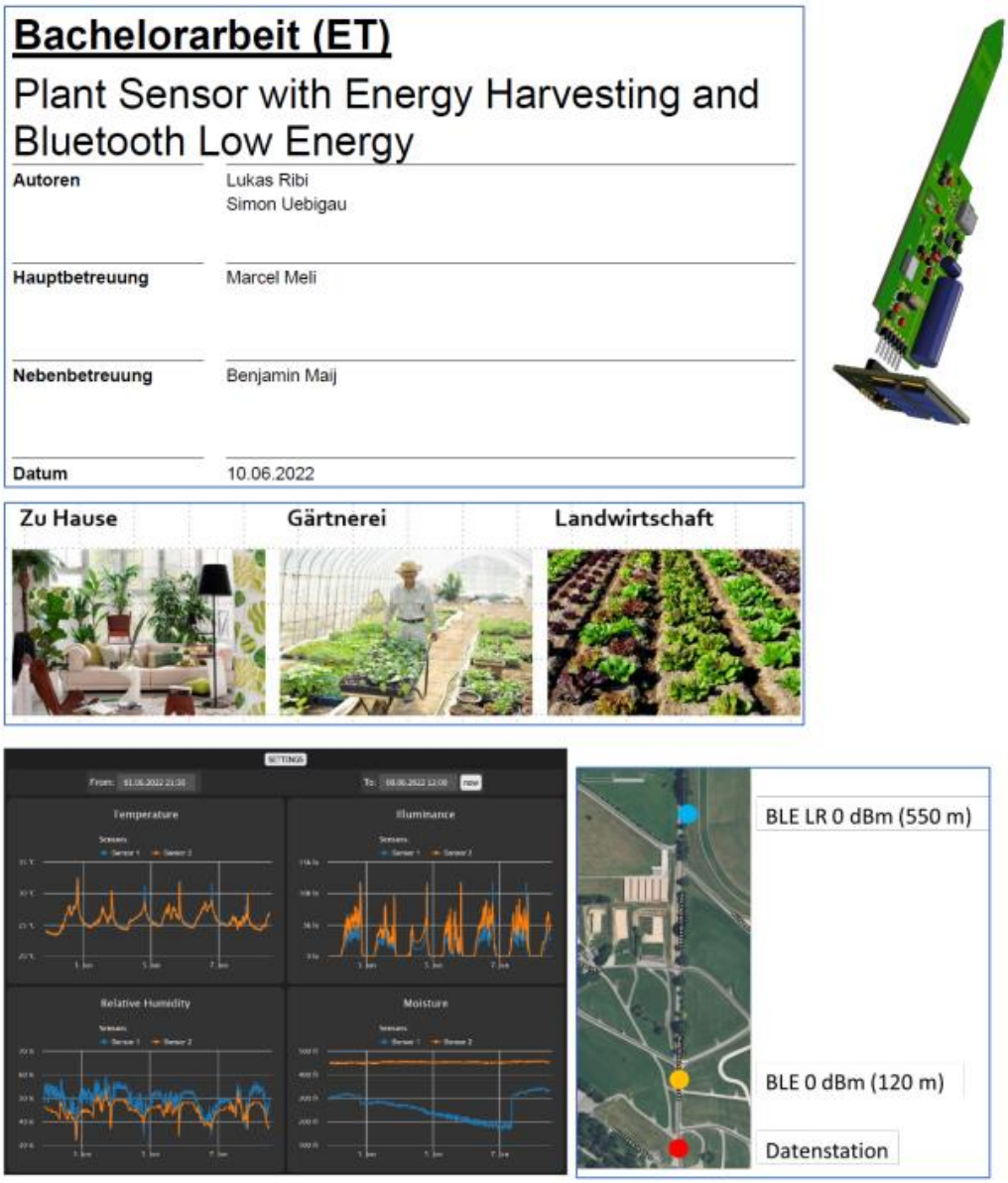


Figure 47 Student's bachelor project (ZHAW)

Furthermore, the students developed a Low-power sensor node to detect door handle use. The information can be used to determine when the door handle should be cleaned. This helps targeted cleaning in cases of pandemics such as COVID-19. The node was built to fit in a given door handle often used in Switzerland. It can be adapted for other handle types. Many other uses are foreseen. Data is transmitted wirelessly using BLE (plastic door handles). Tested range of >30 meters in school rooms. Battery powered. Capacitive, accelerometer, temperature sensing. Link to Amanda: Low power techniques, BLE radio, sensors from Microdul, small module.

Bachelorarbeit Elektrotechnik

Low Power Door Handle Activity Detector

Autoren	Muenes Canoski Livio Derungs
Hauptbetreuung	Prof. Dr. Marcel Meli
Nebenbetreuung	Benjamin Maij
ZHAW Partner	ZHAW-InES

Figure 48 Student's bachelor project (ZHAW)

5.7.6 ILIKA participation

Ilika has primarily participated in the dissemination of AMANDA by way of public speaking at the events shown below. Ilika has designed variations of the PowerPoint slide below to promote AMANDA (sometimes with more technical content when necessary):

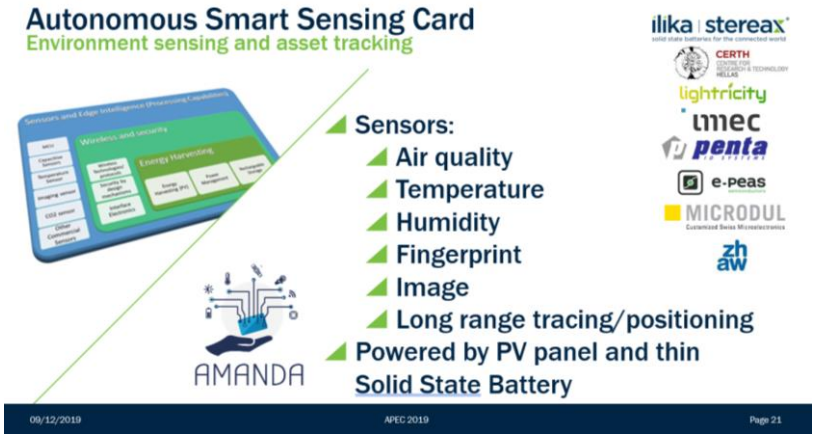


Figure 49 Mentioned AMANDA on the Ilika website

Ilika uses of AMANDA's printed collaterals at trade shows, for example leaflets at Sensors Converge, 26-29 June 22, San Jose, USA. Ilika has also mentioned AMANDA on their website: https://www.ilika.com/latest-news/autonomous-sensor-deployment-project

5.7.6.1 Attended participation M1-M12

Type of activity	Title	Date	Place/Country
Conference	HiTEN	8 July 2019	Oxford/UK

Conference	APEC	17 March 2019	Anaheim/TX

Table 46 Dissemination activities by Ilika M1-M12

Type of audience	Size of audience
Scientific audience	50+
Industry	50+

Table 47 Estimated number of people reached by Ilika M1-M12

5.7.6.2 Attended participation M13-M27

Type of activity	Title	Date	Place/Country
Conference	Sensor Solutions International 2020 19 May 2020	19 May 2020	Online
Conference	Machine Failure and Prevention Technology MFPT 20	06 August 2020	Online
Conference	Energy Harvesting EH2020	25 November 2020	Online

Table 48 Dissemination activities by Ilika M13-M27

Type of audience	Size of audience
Scientific audience	100+
Industry	100+

Table 49 Estimated number of people reached by Ilika M13-M27

5.7.6.3 Foreseen participation for the period M13-M27

Type of activity	Title	Date	Place/Country
Conference	EnerHarv	June 2020 (tbc)	USA (tbc)
Conference	Sensors Expo	22 January 2020	San Diego/USA

Table 50 Foreseen dissemination activities by Ilika M13-M27

5.7.6.4 Foreseen participation for the period M28-M42

Type of activity	Title	Date	Place/Country
Trade show exhibition	Sensors Expo	28-30 June 2021	San Jose/USA
Conference	APEC, Applied Power Electronics Conference	9-12 June 2021	Online

Table 51 Foreseen dissemination activities by Ilika M28-M42

5.7.6.5 Attended participation M28-M45

Type of activity	Title	Date	Place/Country
Conference	APEC, Applied Power Electronics Conference	9-12 June 2021	Online
Conference	North American Neuromodulation Society 25th Annual Meeting	13 January 2022	In-person, Orlando, Florida/USA
Trade show exhibition	Sensors Converge	26-29 June 2022	In-person, San Jose, USA

Table 52 Dissemination activities by Ilika M28-M45

Type of audience	Size of audience
Scientific audience	200+
Industry	200+

Table 53 Estimated number of people reached by Ilika M28-M45

5.7.7 Microdul participation

Microdul dissemination activities concentrate on the MS8892 capacitive sensor and MS1089 temperature sensor. Traditionally these activities include:

- Exhibiting at trade shows
- Cold acquisition by Microdul and by its representatives in Germany and Italy
- Information on Web-Site, Datasheets, Application Notes and Flyers
- Posts and direct contact on social media such as Linked-In. Greater than 60 direct contacts were aaproached. An overview document including MS8892 and MS1089 was sent (status July 2022).
- Presentations at events
- Promotion via memberships with Swiss MedTech, SwissT.net, IEEE, IGExact and microTec Südwest
- Webinars
- Emails to existing customers (about 50 mails sent until July in 2022)

Information on website

MS8892 Ultra-Low-Power Wake-Up Sensor
https://www.microdul.com/en/ultra-low-power-sensors/human-body-detector/

MS1089 Ultra-Low-Power Temperature Sensor
https://www.microdul.com/en/ultra-low-power-sensors/temperatursensor/

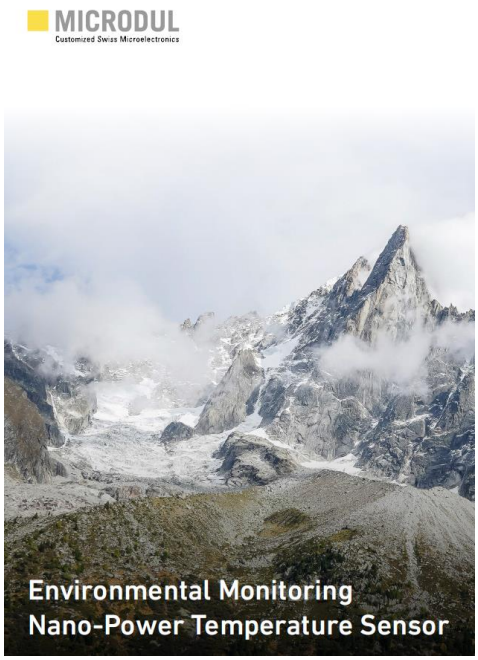
	**MA8892B** Summary Datasheet Application Note Flyer
	**MS1089A** Summary Datasheet Application note Flyer

Table 54 Information on AMANDA and dissemination material on Microdul website

Miscellaneous dissemination activities

Prototypes of the capacitive sensor MS8892A in QFN16 were available in September 2020. Although the MS8892A samples were suitable for the AMANDA project, there was a design bug that affected the standalone operation, and a redesign was started. Samples of MS8892B were available in early 2022. Activities to promote the MS8892 started in 2021 and are continuing in 2022, as listed above and below.

Prototypes of the temperature sensor MS1089 in a SOIC-16 case were available in March 2021 for the unconstrained prototype. The CSP version was made available in early 2022. Activities to promote the MS1089 started in 2022.

Generally, dissemination has been delayed by COVID19. Two abstracts detailed were drafted and submitted in 2019 for presentations in 2020:

- An abstract entitled "CMOS mixed-signal array technology and what it can do for you" (M90-21-1021) was submitted for inclusion at the microTec Südwest Cluster Conference in Freiburg in March 2020. The conference was postponed to 18th March 2021 due to COVID. Two slides mentioned the AMANDA project.
- An abstract entitled "Ultra-Low-Power Capacitive Sensors based on Microdul's own semi-custom, mixed-signal array technology" was submitted for inclusion at the IDTechEx trade show/conference in Berlin in May 2020. Unfortunately, this trade show was cancelled.
- Instead, Microdul turned the presentation into a webinar called “Ultra-Low-Power Capacitive Sensors” M90-21-1022 and gave this on the 23rd of March 2021. 29 people attended the webinar.
- After the webinar, Microdul turned the webinar into a tutorial, “Ultra-Low-Power Capacitive Sensors” M90-21-1063, that is now available on the website. 27 people have viewed the webinar since March 2021 (Status July 2022).

Figure 50 Microdul attended participation

5.7.7.1 Attended participation M13-M45

Type of activity	Title	Date	Place/Country

Trade show exhibition	NANS20 (North American Neuromodulation Society Conference)	23-26 January 2020	Las Vegas/USA
Trade show exhibition	MD&M West	11-13 February 2020	CA/USA
Trade show exhibition	SwissMedTechDay	22 September 2020	Bern/Switzerland
Virtual trade show	Compamed	16-18 November 2020	Düsseldorf/Germany
Virtual trade show	microTec Cluster-Konferenz 2021	16-18 March 2021	On-Line (Germany)
Webinar	Ultra-Low-Power Capacitive Sensors	23 March 2021	On-Line (Microdul)
Virtual trade show	Sensor & Test	04-06 May 2021	On-line (Germany)
Trade show exhibition	MD&M 10 August 21	10-12 August 2021	Anaheim, California
Virtual trade show	IVAM HighTech Summit, “Human Body Detection & Temperature Monitoring” M90-21-1073	25-25 August 2021	On-Line (Germany)
Trade show exhibition	Sindex 2021	31 August – 2 September 2021	Bern, Switzerland
Trade show exhibition	SwissMedTechDay	8-9 September 2021	Bern, Switzerland
Trade show exhibition	SwissMedTech Expo	14-15 September 2021	Lucerne, Switzerland
Tutorial	Ultra-Low-Power Capacitive Sensors	From September 2021	Microdul Website
Trade show exhibition	NANS22 (North American Neuromodulation Society Conference)	13-15 January 2022	Orlando, Florida, USA
Trade show exhibition	MD&M West 2022	12-14 April 2022	Anaheim CA
Trade show exhibition	MedTec 2022	3-5 May 2022	Nürnberg, Germany
Trade show exhibition	Sensor & Test 2022	10-12 May 2022	Nürnberg, Germany
Trade show exhibition	SwissMedTechDay	14 June 2022	Bern, Switzerland

Table 55 Dissemination activities by Microdul M13-M45

Type of audience	Size of audience
NANS 2020, 2022: Neuro-modulation companies	1900-5000 people
MD&M West 2020, 2021 and 2022: Medical companies	20000 professionals
SwissMedTechDay 2020, 2021, 2022	Estimated 100 companies, 500 people
Compamed 2020: Medical companies	45000 visitors
microTec ClusterKonferenz 2021: Industrial companies	200 attendees
Webinar 2021: Development Engineers	29 people viewed the webinar
Sensor & Test, 2021, 2022	Virtual (21), 370 exhibitors, 4'500 visitors (22)
IVAM HighTech Summit 2021	250 companies, 93 contacts
Sindex 2021: Industrial companies	13000 visitors
Tutorial from 2021	27 contacts (status July 22)
SwissMedTechExpo 2021	160 exhibitors, 3000 visitors
MedTechLive 2022	400 exhibitors

Table 56 Estimated number of people reached by Microdul M13-M45

5.7.7.2 Foreseen participation for the period M43-M45 and after M45

Microdul has planned exhibitions at the following trade shows in 2022:

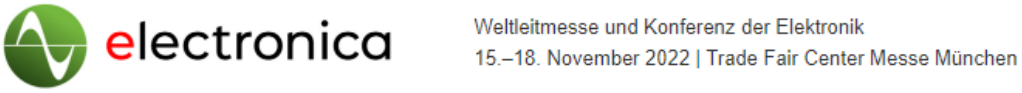


Figure 51 Microdul foreseen participation

Type of activity	Title	Date	Place/Country
Trade show exhibition	Electronica	15-18 November 2022	Munich/Germany

Trade show exhibition	Compamed	14-17 November 2022	Düsseldorf/Germany

Table 57 Foreseen dissemination activities by Microdul M43-M45 and after

At trade shows and for membership of Swiss MedTech, SwissT.net, IEEE, IGExact and microTec SüdWest, dissemination is supported by:

- Demonstrators for the capacitive sensors and temperature sensors
- Flyers
- One-to-one contact with potential customers

Cold acquisition and posts on social media will be supported with:

- A presentation containing a market pitch to highlight applications and product advantages
- Videos are planned towards the end of 2022 to illustrate product advantages
- Website information including datasheets, application notes and flyers
- Samples are available for potential customers

Type of audience	Size of audience
Electronica: Consumer and Industrial companies.	80000 visitors expected
Compamed: Medical companies	100000 visitors expected

Table 58 Estimated number of visitors to trade shows where Microdul exhibits

5.7.8 PENTA participation

PENTA is heavily involved in public traffic and Smart Cities projects. Dissemination activities lie in the promotion of products. Each PENTA activity emphasises involvement in the AMANDA project, promoting its goals and project partners.

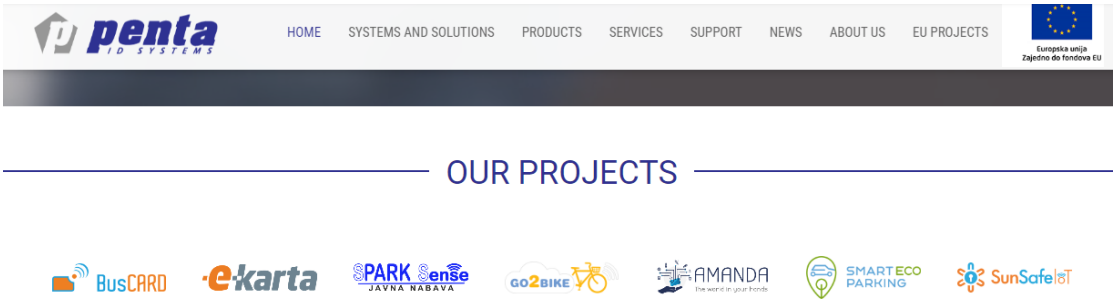


Figure 52 Mentioned AMANDA project on PENTA website

EU Projects

AMANDA
AutonoMous self-powered miniAturised iNtelligent sensor for environmental sensing anD asset tracking in smArt IoT environments.

AMANDA is a European project funded under the Horizon 2020 programme, which focuses on developing an intelligent system with miniature dimensions and ultra-low-power consumption that can be easily installed or used as wearable and with a maintenance-free lifetime of more then ten years. Our motivation for research, development and innovation, i.e. implementation of the AMANDA project, comes from a growing need for a sophisticated approach to solving problems in smart cities (air quality monitoring, temperature, humidity, noise and occupancy), people and asset security (imaging, tracking, data privacy, cybersecurity) and the pandemic.

SUNSAFE IoT
The solution for a safe day at the beach.

The project aims to develop SUNSAFE IoT, an innovative device with an integrated round housing with an upper surface covered with photovoltaic cells, which is mounted on a parasol bar between two deck chairs on the beach. SUNSAFE IoT functions are connecting users to the wi-fi network, connection to other IoT devices on the beach and the central system through innovative software and applications in the cloud. The SUNSAFE IoT is innovative, intelligent, safe, robust and energy independent.

SMART ECO PARKING
Intelligent parking solutions that create smart cities.

The EU funded project represents the transition of the current urban mobility through the innovative service "SMART ECO PARKING" and the innovative product "SMART PARKING" offering intelligent transport solutions for urban and stationary traffic (parking) and the development of green infrastructure and reducing the impact of climate change in urban areas. The expected results of the project implementation are smart urban development, innovative use of parking lots with an emphasis on renewable energy sources and increasing the share of green infrastructure, reducing greenhouse gas emissions, and the impact on air quality in cities.

Figure 53 Mention the AMANDA project in the PENTA company profile brochure

"Održivo poslovanje u današnje vrijeme nije privilegija već prioritet svake tvrtke, lokalne uprave, kao i svake druge poslovne organizacije."
2022

SMART ECO PARKING

Ponuda pametnih rješenja namijenjenih urbanom prometu i parkingu uz razvoj zelene infrastrukture može utjecati na ublažavanje klimatskih promjena u urbanim područjima. Upravo stoga je sredstvima EU sufinanciran projekt naziva SMART ECO PARKING koji okuplja tri hrvatska poduzeća PENTA, SENSUM i 3E PROJEKTI koji uz podršku integratora ECORYS HRVATSKA nude na europskom tržištu inovativnu uslugu SMART ECO PARKING te inovativni proizvod SMART PARKING.

penta

PENTA d.o.o., osnovana 1990. godine, jedan je od vodećih integratora sustava automatske identifikacije osoba i objekata s naglaskom na napredne tehnologije (RFID, NFC, LoRaWAN, IoT..). Sudjelovanjem kao partner u „**Smart City**" projektima u Hrvatskoj i regiji, Penta osigurava vlastiti razvoj, proizvodnju i servis elektroničkih uređaja za automatsku identifikaciju, registraciju i kontrolu pristupa, ali i interni razvoj i održavanje softvera. Penta pruža usluge u području upravljanja inteligentnim transportnim rješenjima i sustavima te upravljanja prometom u mirovanju (parkingom) s naglaskom na rješenja u urbanim područjima.

Bogat portfelj rješenja, koji se prilagođava potrebama i zahtjevima korisnika čine sljedeći sustavi:

- BusCARD autobusna kartica
- CityPASS gradska kartica
- SmartPark pametni parkirni sustav
- ePASS kontrola pristupa
- GO2BIKE bike sharing, eLramobili, trokolice
- eKarta IT sustav prodaje autobusnih karata na kioscima

AMANDA – jedna kartica, a toliko mogućnosti i rješenja!

AMANDA, istraživačko - inovacijski projekt financiran od strane **EU** (HORIZON 2020) u kojem sudjeluju:

Tvrtke	Instituti
▪ PENTA	▪ CERTH
▪ MICRODUL	▪ IMEC
▪ E-PEAS	▪ ZHAW
▪ ILIKA	
▪ LIGHTRICITY	

za cilj ima razvoj i proizvodnju autonomne multisenzorske kartice veličine kreditne kartice i debljine do 3mm, koja svoju primjenu nalazi u IoT tehnologiji podržanim rješenjima, kao što su rješenja u oblasti pametnih gradova, agrokulturi, zdravstvu, industriji. Najistaknutije rješenje s primjenom AMANDA kartice svakako je očitanje zauzetosti parkirnih mjesta.

AMANDA kartica najnovija je generacija autonomne pametne kartice koja uključuje senzore razvijene od strane konzorcija (temperaturni, kapacitativni, slikovni, te CO2 senzor) kao i niz komercijalnih off-the-shelf senzora. Autonomnost kartice osigurana je fotonaponskim modulom, predviđeni vijek trajanja baterije je 10 godina, a kao okolina za prijenos podataka koriste se LoRa, BLE i NFC bežične mreže.

Istaknute prednosti AMANDA-e u odnosu na ostale proizvode na tržištu su autonomija, jedinstvena kombinacija senzora i male dimenzije.

Figure 54 Mention the AMANDA project in the SMART ECO PARKING brochure

5.7.8.1 Attended participation M1-M12

Type of activity	Title	Date	Place/country
Tech Talk in Croatian Chamber of economy	IoT technology in smart cities	19 June 2019	Pula/Croatia
Presentation in the Ministry of Culture of the Republic of Montenegro	National Cultural Card	03-06 September 2019	Cetinje/Montenegro

Tech talk in Croatian Chamber of Economy	Energy Efficiency in Construction, Innovation and Environmental Protection	3 October 2019	Pula/Croatia
Conference	Urban traffic at a standstill	10-11 October 2019	Zagreb/Croatia

Table 59 Dissemination activities by PENTA M1-M12

Type of audience	Size of audience
A mixed audience of academics, students	~150
Mixed audience	~100
Tech talk - mixed audience of academics and industry, students and scientific community	~300

Table 60 Estimated number of people reached by PENTA M1-M12

5.7.8.2 Attended participation M13-M27

Type of activity	Title	Date	Place/country
Round Table	Innovative Solutions For Smart Urban Mobility	26 November 2020	Online/Croatia
Kick-off meeting	Smart Eco Parking	22 December 2020	Online/Croatia
Kick-off meeting	SUNSAFE IoT	03 February 2021	Online/Croatia

Table 61 Dissemination activities by PENTA M13-M27

Type of audience	Size of audience
Mixed audience (Scientific community, industry, IT sector, public city companies)	33

Table 62 Estimated number of people reached by PENTA M13-M27

5.7.8.3 Foreseen participation for the period M13-M27

SMARTCITY EXPO WORLD CONGRESS

INTERTRAFFIC

Figure 55 PENTA foreseen participation

Type of activity	Title	Date	Place/country
Trade show exhibition	InnoTrans	22-25 September 2020	Berlin/Germany
Conference and trade show exhibition	IT-TRANS	3-5 March 2020	Karlsruhe/Germany
Trade show exhibition	SMART CITY EXPO World Congress	November 2020	Barcelona/Spain
Trade show exhibition	INTERTRAFFIC	21-24 April 2020	Amsterdam/The Netherlands

Table 63 Foreseen dissemination activities by PENTA M13-M27

5.7.8.4 Foreseen participation for the period M28-M42

Type of activity	Title	Date	Place/country
Trade show exhibition	SMART CITY EXPO World Congress	16-18 November 2021	Barcelona/Spain
Conference and trade show exhibition	IT-TRANS	08-10 March 2022	Karlsruhe/Germany
Trade show exhibition	INTERTRAFFIC	29 March – 01 April 2022	Amsterdam/The Netherlands

Table 64 Foreseen dissemination activities by PENTA M28-M42

5.7.8.5 Attended participation M28-M45

Type of activity	Title	Date	Place/country
Webinar	AMANDA – Autonomous Smart Sensing Card	17 May 2021	Online
Trade show exhibition	Smart City Expo World Congress 2021	16-18 November 2021	Barcelona/Spain
Exhibition	EFECS - European Forum for Electronic	23-25 November 2021	Online

	Components and Systems 2021		
Webinar	AMANDA – Autonomous Smart Sensing Card	07 December 2021	Online
Meeting	Smart Eco Parking	25 March 2022	Online
Trade show exhibition	Intertraffic Amsterdam 2022	29 March – 01 April 2022	Amsterdam/The Netherlands
Webinar	AMANDA – Autonomous Smart Sensing Card	19 April 2022	Online
Conference	Let's Grow	06 May 2022	Pula/Croatia
Trade show exhibition	IT-TRANS 2022	10-12 May 2022	Karlsruhe/Germany
Webinar	Smart Eco Parking	01 June 2022	Online
Trade show exhibition	InnoTrans 2022	20-23 September 2022	Berlin/Germany

Table 65 Dissemination activities by PENTA M28-M45

Type of audience	Size of audience
AMANDA Webinar series (mixed audience)	78 attendees
Smart City Expo World Congress (Industry, customers, scientific community)	14000 visitors
EFECS - European Forum for Electronic Components and Systems 2021 (Industry, running projects, associations, representatives of funding instruments)	59 visitors at the AMANDA virtual booth
Smart Eco Parking meeting (Industry)	5 participants joined the meeting
Intertraffic Amsterdam 2022 (Industry, IT sector, city representatives)	23526 visitors
Let's Grow conference (Industry, scientific community)	1000 visitors
IT-TRANS 2022 (Industry, IT sector, city representatives)	6500 visitors
Smart Eco Parking webinar (Local and regional self-government units (cities, municipalities)	27 atendees
InnoTrans 2022	140000 visitors

Table 66 Estimated number of people reached by PENTA M28-M45

5.7.9 Dissemination Activities Report (DAR)

In addition to the given lists of individual partner participation in external events, below follow the Dissemination Activities Reports presenting more specific details about communication activities and attended events. Dissemination Activities Report consists of the following Sections: basic event information, scope of the event, description of the participation, audience reached, feedback and follow-up, key figures, useful links, and photos where available.

5.7.10 Tech Talk on 19 June 2019

Key figures				
Name of event	**IoT Technology in Smart Cities**			
Date	**19 June 2019**			
Place	**Pula, Croatia**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release	**X**	Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Website		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific community (higher education, research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
	X	Policy markers		
Countries addressed	Croatia			
Partners	PENTA			

5.7.10.1 Scope of the event

In cooperation with the Croatian Chamber of Economy - Pula County Chamber, PENTA and Faculty of Informatics Pula, organised a Tech Talk with the main topic of IoT technology. The event was held on 19 June 2019 at the premises of the Croatian Chamber of Economy - County Chamber of Pula. This event was intended for the transport, industry and IT sector, public city companies, and local and regional self-government. Representatives of the Faculty of Informatics in Pula presented the IoT research of the Faculty, while representatives of PENTA d.o.o. talked about the AMANDA project and the application of IoT technology in smart cities.

5.7.10.2 Description of the participation

Oskar Vujičić (PENTA), at the beginning of the event, presented the AMANDA project's Consortium. In particular, the objectives of the AMANDA project, the technical challenges ahead of the project and the possible further application of the Autonomous Smart Sensing Card (ASSC) were discussed. After the conference, a very constructive discussion was held about the technical features and possibilities of using the ASSC.

5.7.10.3 Audience reached

The scientific community, transport, industry and IT sector, public city companies, local and regional self-government

5.7.10.4 Feedback and follow-up

AMANDA project raised interest in a very positive way. Participants considered Autonomous Smart Sensing Card (ASSC) a unique solution and were interested in information on the further progress of the project, especially in the development and evaluation of the presented sensors, as well as on possible use cases.

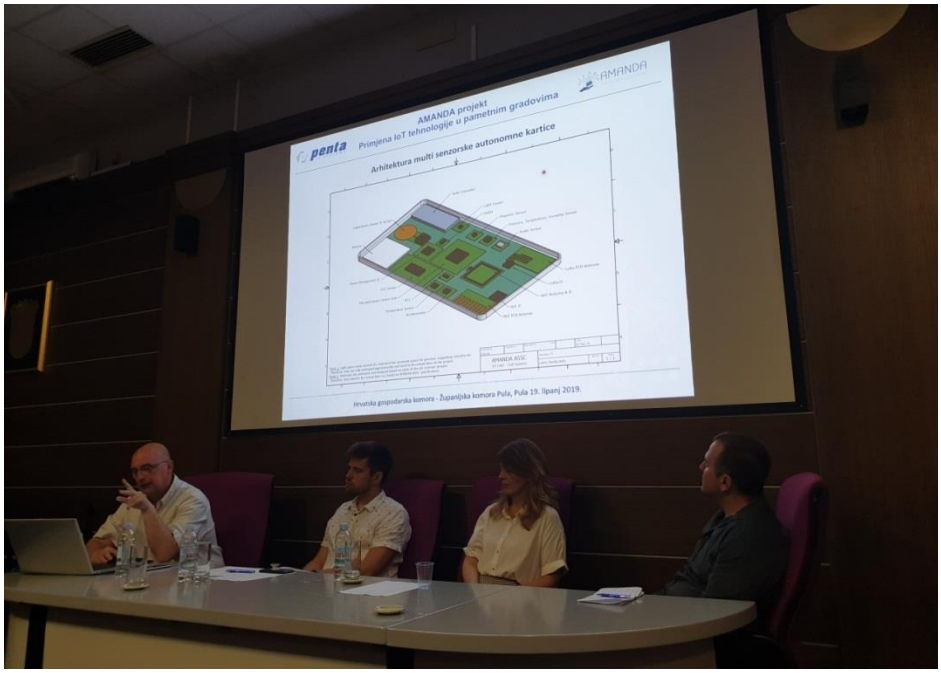
5.7.10.5 Key figures

40 participants from Croatia, Slovenia

5.7.10.6 Useful links

https://hgk.hr/zupanijska-komora-pula/u-hgk-zk-pula-odrzano-predavanje-o-iot-tehnologiji
https://amanda-project.eu/news-events/130-amanda-project-presentation-in-croatian-chamber-of-economy

5.7.10.7 Photos



5.7.11 Conference on 9 July 2019

Key figures				
Name of event	**HiTEN 19**			
Date	**9 July 2019**			
Place	**Oxford UK**			
Type of Activity		Organisation of conference paper reviews, poster presentation	**X**	Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop

		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Website		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific community (higher education, research)		Medias
	X	Industry		Investor
		Civil Society		Customers
		General Public		Other
		Policy markers		
Countries addressed	UK			
Partners	ILIKA			

5.7.11.1 Scope of the event

What the organisers say: "The objective of the HiTEN Conference is to have a unique forum that brings together researchers and practitioners in academia and industry from all over the world. All styles of practical high-temperature electronics design and implementation approaches are encouraged, along with a variety of high-temperature application areas. Today the main semiconductor focus of HITEN is silicon and silicon on insulator (SOI). Although, HITEN is not simply a semiconductor focused network. HITEN provides a conduit for the exchange and dissemination of information on all aspects of high-temperature electronics. It is a global network with users, suppliers, developers and fundamental researchers dealing in all aspects of High-Temperature Electronics.

5.7.11.2 Description of the participation

Denis Pasero, Product Commercialisation Manager, gave an oral presentation, "Miniature Power Sources for High Temperature Industrial Sensors"

5.7.11.3 Audience reached

Scientific community, industry

5.7.11.4 Feedback and follow-up

Two good contacts

5.7.11.5 Business opportunities identified

Two good business opportunities with a developer of sensors for the automotive industry and a developer of miniature medical devices.

5.7.11.6 Key figures

~50 people attended

5.7.11.7 Photos

5.7.12 Presentation on 3 September 2019

Key figures				
Name of event	**National Cultural Card**			
Date	**3-6 September 2019**			
Place	**Cetinje, Montenegro**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release	**X**	Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Website		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience		Scientific community (higher education, research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
	X	Policy markers		

Countries addressed	Croatia, Montenegro
Partners	PENTA

5.7.12.1 Scope of the event

"National Cultural Card" presentation was held at the premises of the Ministry of Culture Montenegro, and the scope of this event was to present the overall content of two projects (National Cultural Card, AMANDA), as well as defined tasks and primary objectives.

5.7.12.2 Description of the participation

Darko Maljić (PENTA) presented the National Cultural Card project goals, the project's hardware foreseen, and the project's application content. Oskar Vujičić (PENTA) presented the AMANDA project, used technologies, objectives and potential use cases. One of the main goals of this event was to explain the features of AMANDA ASSC and the potential of connecting with the National Cultural Card project, which is a part of the Cetinje Smart City project.

5.7.12.3 Audience reached

Industry, public city companies, local and state government

5.7.12.4 Feedback and follow-up

Participants reported their interests in a response form after the presentation. Contact data (email addresses) of those present who were interested in receiving project communication material were collected.

5.7.12.5 Business opportunities identified

A potential connection with the Cetinje Smart City project was identified. Cooperation depends on the further development of the AMANDA project.

5.7.12.6 Key figures

30 participants from Croatia, Montenegro

5.7.12.7 Useful links

https://amanda-project.eu/news-events/137-talk

5.7.12.8 Photos

5.7.13 Conference on 8 September 2019

Key figures				
Name of event	**IEEE 9th ICCE conference 2019**			
Date	**8-11 September, 2019**			
Place	**Berlin, Germany**			
Type of Activity		Organisation of conference paper reviews, poster presentation	**X**	Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Website		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific community (higher education, research)		Medias
		Industry		Investor
		Civil Society		Customers
	X	General Public		Other

		Policy markers		
Countries addressed	Europe, America			
Partners	CERTH			

5.7.13.1 Scope of the event

The 9th International Conference on Consumer Electronics (ICCE-Berlin) 2019 was organised as part of the world's leading trade show for consumer electronics and home appliances, IFA Berlin. Dr Charis Kouzinopoulos from CERTH presented the conference paper titled "AMANDA: An Autonomous Self-Powered Miniaturized Smart Sensing Embedded System" which gives an overview of the AMANDA project

5.7.13.2 Audience reached

Scientific Community

5.7.13.3 Conference paper

https://ieeexplore.ieee.org/document/8966223

5.7.13.4 Key figures

50 participants from all over Europe and America

5.7.13.5 Useful links

http://www.icce-berlin.org/
https://amanda-project.eu/documents/public-deliverables/send/6-public-deliverables/11-amanda-an-autonomous-self-powered-miniaturized-smart-sensing-embedded-system-2
https://edas.info/p25749

5.7.13.6 Photos

5.7.14 Workshop on 26 September 2019

Key figures				
Name of event	**SURFAS 19**			
Date	**26 September 2019**			
Place	**Guildford UK**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop	**X**	Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Website		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific community (higher education, research)		Medias
		Industry		Investor
		Civil Society		Customers
		General Public		Other

		Policy markers		
Countries addressed	UK			
Partners	ILIKA			

5.7.14.1 Scope of the event

The workshop is originating from EU funded Interreg cross-channel collaboration programme "SURFAS" with France, where we target development of RF energy harvesters for low power, small device applications.

5.7.14.2 Description of the participation

Denis Pasero, Product Commercialisation Manager, gave an oral presentation Powering Autonomous Sensors for Industry 4.0 and MedTech with Solid State Batteries."

5.7.14.3 Audience reached

Scientific community

5.7.14.4 Feedback and follow-up

Excellent feedback about feasibility of batteries combined with Energy Harvesting, here vibration

5.7.14.5 Business opportunities identified

Two good contacts with University of Guildford and ESIGELEC Technopôle du Madrillet, France

5.7.14.6 Key figures

~20 people attended the webinar

5.7.14.7 Photos

5.7.15 Conference on 3 October 2019

Key figures	
Name of event	**Energy Efficiency in Construction, Innovation and Environmental Protection**

Date	**3 October 2019**			
Place	**Pula, Croatia**			
Type of Activity		Organisation of conference paper reviews, poster presentation	**X**	Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Website		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific community (higher education, research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
	X	Policy markers		
Countries addressed	Croatia			
Partners	PENTA			

5.7.15.1 Scope of the event

"Energy Efficiency in Construction, Innovation and Environmental Protection" conference was organised by the Croatian Chamber of Economy – Pula County Chamber. The conference presented innovations and solutions provided by Croatian manufacturers and service providers in energy efficiency and environmental protection. Representatives of the companies gave presentations about public sector buildings after energy renovation, emphasising that many solutions related to consumption control as well as air quality control, smart lighting, smart parking, etc. are applicable not only in public but also in other sectors. The scope of the event was IoT (Internet of Things) in the context of energy efficiency.

5.7.15.2 Description of the participation

The autonomous self-powered multi-sensor card and application in building automation were Oskar Vujičić (PENTA) presentation. In his speech, Oskar Vujičić presented all the partners in the project, the primary goals and expectations, and especially commented on the application of the AMANDA ASSC in building automation.

5.7.15.3 Audience reached

The scientific community, industry, public city companies, local and regional self-government

5.7.15.4 Feedback and follow-up

Even though the discussion after PENTA's presentation was mainly focused on the building automation direction, an open debate and relevant brainstorming followed for almost all AMANDA use cases. After the conference, several companies were informed about the AMANDA project and expressed interest in receiving the project communication material.

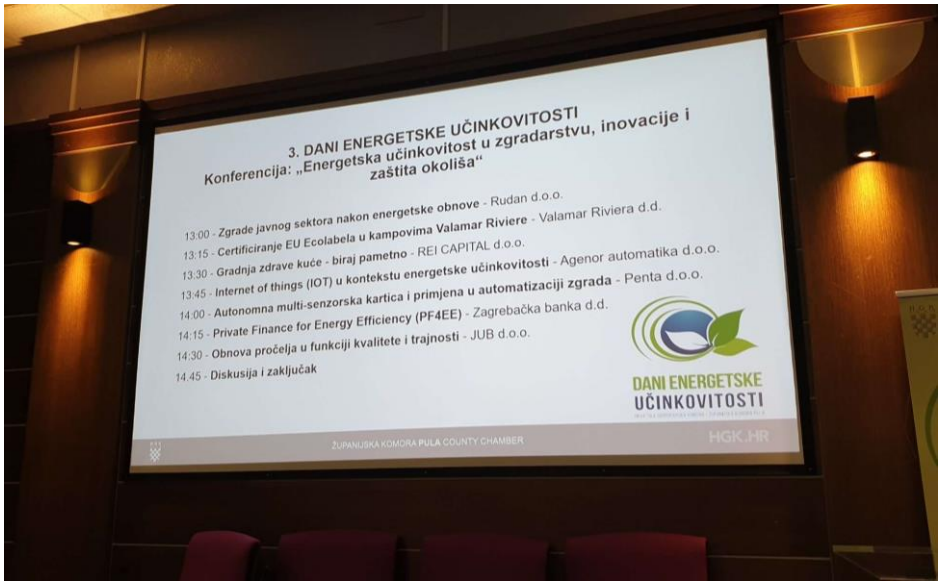
5.7.15.5 Key figures

50 participants from Croatia, Slovenia

5.7.15.6 Useful links

https://www.hgk.hr/zupanijska-komora-pula/u-hgk-zk-pula-odrzana-konferencija-energetska-ucinkovitost-u-zgradarstvu-inovacije-i-zastita-okolisa-najava
http://www.regionalexpress.hr/site/more/konferencija-energetska-uinkovitost-u-zgradarstvu-inovacije-i-zatita-okolia

5.7.15.7 Photos




IOT

5.7.16 Conference on 10 October 2019

Key figures				
Name of event	**Urban Traffic at a Standstill Conference**			
Date	**10-11 October 2019**			
Place	**Zagreb, Croatia**			
Type of Activity		Organisation of conference paper reviews, poster presentation	**X**	Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Website		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific community (higher education, research)		Medias
	X	Industry		Investor
		Civil Society		Customers
	X	General Public		Other
		Policy markers		
Countries addressed	Croatia			
Partners	PENTA			

5.7.16.1 Scope of the event

The Conference "Urban Traffic at a Standstill" organised by the Faculty of Transport and Traffic Sciences was held from 10-11 October 2019 to present the results and achievements of the project SPARK Sense, funded by the European Regional Development Fund. The holder of the SPARK Sense project is PENTA, while the project partner is the Faculty of Transport and Traffic Sciences from Zagreb. On the first day of the conference, the AMANDA project, Consortium, primary goals, as well as the expected results were presented.

5.7.16.2 Description of the participation

The Faculty of Transport and Traffic Sciences from Zagreb, a scientific research institution and a partner in this project, presented the research results on the impact of the system on the environment. As part of the research, the faculty created an environmental impact study and a citizen satisfaction study with a new standstill traffic solution. CEO of PENTA, Mladen Pamić, took the opportunity to present the AMANDA project, features and possibilities of using the

innovative ASSC card in smart parking systems, emphasising that it can be integrated into the realised SPARK Sense project.

5.7.16.3 Audience reached

Scientific community, industry and IT sector, general public

5.7.16.4 Feedback and follow-up

The high interest of all present was expressed, which was reflected in the affirmative and substantive discussion. As the AMANDA project was in the first year of implementation, participants were interested in monitoring the project's progress, so they were given information about the official website, profiles on social networks (LinkedIn, Twitter), and contacts of PENTA as a project partner.

5.7.16.5 Business opportunities identified

Instead of using sensors with a battery life of up to 5 years that are attached to the asphalt surface, in SPARK Sense parking solution, it is possible to use the AMANDA ASSC by installing it in parking barriers located in parking spaces.

5.7.16.6 Key figures

70 persons joined the two-day conference

5.7.16.7 Useful links

https://www.penta.hr/en/news/spark-sense-project-presentation-faculty-transport-and-traffic-sciences-zagreb-traffic-rest-conference/

5.7.16.8 Photos

5.7.17 Exhibition on 20 November 2019

Key figures				
Name of event	**SigFox Connect 2019**			
Date	**20-21 November 2019**			
Place	**Singapore**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
	X	Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience		Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society		Customers
		General Public		Other
		Policy markers		
Countries addressed	Asia			

Partners	E-PEAS

5.7.17.1 Scope of the event
Exhibition around the SigFox technology and its use in IoT.

5.7.17.2 Description of the participation
E-PEAS had a booth to present its power management ICs and their application within IoT. The technology shown is the same as the one used in the AMANDA project.

5.7.17.3 Audience reached
2000 participants from 70 countries

5.7.17.4 Feedback and follow-up
Interesting opportunities showed up – actual follow-up on 2 of them

5.7.17.5 Business opportunities identified
Mainly internal

5.7.17.6 Useful links
https://www.sigfox.com/en/sigfox-connect-20-21-november-2019-singapore

5.7.18 Exhibition on 07 January 2020

Key figures				
Name of event	**Consumer Electronic Show**			
Date	**07-10 January 2020**			
Place	**Las Vegas, USA**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
	X	Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience		Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers

	X	General Public		Other
		Policy markers		
Countries addressed	Worldwide			
Partners	E-PEAS			

5.7.18.1 Scope of the event
It is the largest consumer electronic show that gathers all actors in the field. This exhibition is the occasion for the main annual announcement of innovations.

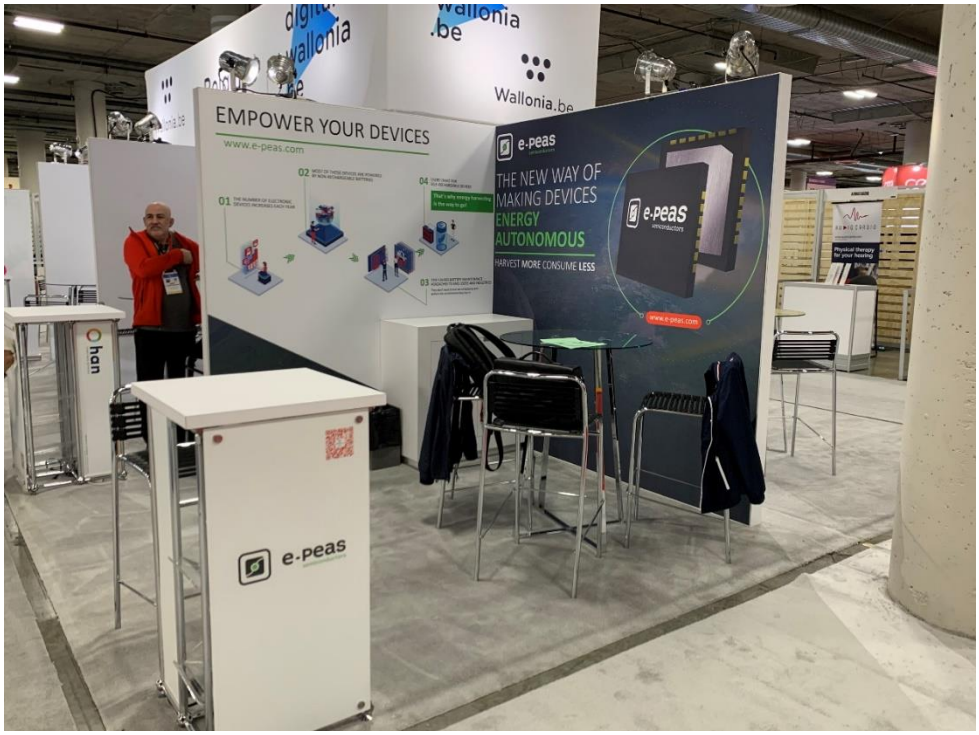
5.7.18.2 Description of the participation
E-PEAS had a booth to present its power management ICs and their application within IoT. The technology shown is the same as the one used in the AMANDA project.

5.7.18.3 Audience reached
180000 attendees and >4500 exhibitors

5.7.18.4 Feedback and follow-up
The exhibition was an exciting opportunity to meet partners, customer and investigate new opportunities.

5.7.18.5 Business opportunities identified
Mainly internal

5.7.18.6 Useful links
https://www.ces.tech/

5.7.18.7 Photos


5.7.19 Conference on 23 January 2020

Key figures				
Name of event	**NANS20 (North American Neuromodulation Society Conference)**			
Date	**23-26 January 2020**			
Place	**Las Vegas, USA**			
Type of Activity		Organisation of conference paper reviews, poster presentation	**X**	Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
		Policy markers		
Countries addressed	USA plus world wide			
Partners	MICRODUL			

5.7.19.1 Scope of the event

The three-day conference for education and promotion in Las Vegas, USA aimed at all players in the neuro-modulation business.

5.7.19.2 Description of the participation

Microdul prepared a short presentation (90210961) of the AMANDA project, which was continuously presented on a laptop in a prominent position next to our demonstration model during the trade show.

5.7.19.3 Audience reached

30 visitors with potential interest and discussion for Microdul products or services.

5.7.19.4 Feedback and follow-up

Thirty leads for Microdul and three leads for Microdul-Semiconductors, all in the area of neuro-stimulation.

5.7.19.5 Business opportunities identified

No leads were directly relevant to the AMANDA project. The possible manufacture of the battery was discussed with Ilika at the conference.

5.7.19.6 Key figures

Participation of 50 companies and 3000-5000 people.

5.7.19.7 Useful links

https://conference.neuromodulation.org/
https://www.microdul.com/en/news/newsarticles/next-trade-show-compamed.html

5.7.19.8 Photos

5.7.20 Conference and exhibition on 30 January 2020

Key figures				
Name of event	**The Things 2020**			
Date	**30-31 January 2020**			
Place	**Amsterdam, The Netherlands**			
Type of Activity		Organisation of conference paper reviews, poster presentation	**X**	Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
	X	Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience		Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
		Policy markers		
Countries addressed	European countries			
Partners	E-PEAS			

5.7.20.1 Scope of the event

Conference about LoRaWAN, LoRa technology and its application in the IoT ecosystem

5.7.20.2 Description of the participation

E-PEAS participated in the conference and some workshops. They had a small booth presenting the same energy harvesting solution used in AMANDA along with LoRa technology.

5.7.20.3 Audience reached

Major LoRa eco-system actors. Over 2000 visitors

5.7.20.4 Feedback and follow-up

Main contact with partners to propose a common solution

5.7.20.5 Business opportunities identified

Mainly internal

5.7.20.6 Useful links

https://www.thethingsnetwork.org/conference/

5.7.21 Conference on 11 February 2020

Key figures				
Name of event	**MD&M West**			
Date	**11-13 February 2020**			
Place	**Anaheim, California, USA**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media	**X**	Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience		Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
		Policy markers		
Countries addressed	The USA plus worldwide			
Partners	MICRODUL, participation together with Switzerland Global Enterprise			

5.7.21.1 Scope of the event

Three-day show in Anaheim, California, aimed at the world medical device market. All major players in the medical market attend this show.

5.7.21.2 Description of the participation

Microdul prepared a short presentation (90210961) of the AMANDA project, which was continuously presented on a laptop in a prominent position next to our demonstration model during the trade show.

5.7.21.3 Audience reached

40-50 visitors with potential interest and discussion for Microdul products or services.

5.7.21.4 Feedback and follow-up

One company showed interest in the temperature sensor

5.7.21.5 Business opportunities identified

Three leads in the area of Microdul Semiconductors but only one relevant to the temperature sensor.

5.7.21.6 Key figures

Participation of 1900 companies and 20000 people.

5.7.21.7 Useful links

https://www.mdmwest.com/en/
https://www.microdul.com/en/news/newsarticles/trade-show-md-und-m-west-2020/

5.7.21.8 Photos

5.7.22 Conference on 25 February 2020

Key figures				
Name of event	**Embedded World Conference 2020**			
Date	**25-27 February 2020**			
Place	**Nuremberg, Germany**			
Type of Activity		Organisation of conference paper reviews, poster presentation	**X**	Participation to a conference
		Organisation of a workshop		Participation to a workshop

		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
	X	Civil Society		Customers
	X	General Public		Other
	X	Policy markers		
Countries addressed	All (Embedded World is a World event)			
Partners	ZHAW			

5.7.22.1 Scope of the event

The embedded world Exhibition & Conference is the world's leading meeting place for the embedded community. The conference and the fair run in parallel. Allowing academia, industry and the general public to interact and exchange information about various themes related to embedded systems. This year, the corona crisis seriously affected the numbers, with hundreds of firms and thousand of visitors staying away. Prof. Marcel Meli from ZHAW attended moderating sessions on low-power and presented the paper “Powering Sigfox Nodes with Harvested Energy”. That paper is related to the low-power wireless aspects of the AMANDA project.

5.7.22.2 Audience reached

Scientific Community, Industry

5.7.22.3 Conference paper

https://doi.org/10.21256/zhaw-20066

5.7.22.4 Key figures

Tens of participants from several countries

5.7.22.5 Useful links

https://www.elektroniknet.de/international/embedded-world-conference-2020-connecting-embedded-intelligence-165228.html
https://www.electronicspecifier.com/news/podcasts/highlights-from-embedded-world-2020

Review 2020:
Thank you for joining embedded world Exhibition&Conference 2020

At embedded world 2020, the international meeting place for the industry, more than 900 exhibitors from 42 countries presented the entire value chain for embedded system technologies this year. Once again, the embedded world Conference and the electronic displays Conference convinced with expert knowledge at the highest standards.

- 1500 attendees
- 266 presentations
- 197 net hours or more than 8 days of lectures
- 13 in-depth classes
- Top-level keynote, given by Prof. Dr. Ulrich Loewen, Senior Principal Key Expert Engineer, Siemens Corporate Technology

Nevertheless, this year's embedded world Conference was anything else than usual. Due to the upcoming corona crisis some speakers could not physically come to the event. We were able to compensate for this and run the full conference program with close to 60 life remote presentations. Our thanks go to all speakers for their willingness to cooperate and to all participants for their understanding for some program changes on a short notice.

5.7.23 Conference and exhibition on 25 February 2020

Key figures				
Name of event	**Embedded World 2020**			
Date	**25-27 February 2020**			
Place	**Nuremberg, Germany**			
Type of Activity		Organisation of conference paper reviews, poster presentation	**X**	Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
	X	Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience		Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
		Policy markers		
Countries addressed	European countries			
Partners	E-PEAS			

5.7.23.1 Scope of the event
Electronic show with a dedicated conference on embedded systems. The exhibition allows excellent networking for both partners and customers.

5.7.23.2 Description of the participation
E-PEAS participated in the exhibition with a booth and presenting the energy harvesting controller products within multiple application.

5.7.23.3 Audience reached
Industry and customers

5.7.23.4 Feedback and follow-up
Some first contact has been taken. The opportunities are still at an early stage.

5.7.23.5 Business opportunities identified
Mainly internal

5.7.23.6 Key figures
>900 exhibitors, >150000 visitors

5.7.23.7 Useful links
https://www.embedded-world.de/en

5.7.24 Webinar on 19 May 2020

Key figures				
Name of event	**Sensor Solution International (Angel Tech Online Summit)**			
Date	**19 May 2020**			
Place	**On-line webinar**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release	**X**	Participation to an event other than a conference or workshop (WEBINAR)
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
	X	Industry		Investor

		Civil Society		Customers
		General Public		Other
		Policy markers		
Countries addressed	International			
Partners	ILIKA			

5.7.24.1 Scope of the event

Initially, a 2-day event in Brussels, Belgium, on March 20, was cancelled due to Covid-19 and replaced by an online seminar. The organisers say: "AngelTech is the number one global event covering compound semiconductor, photonic integrated circuit and sensor technologies. With a strong over-lap between the three conferences, attendees and exhibitors are exposed to the full relevant supply chains and customer and supplier bases."

5.7.24.2 Description of the participation

Denis Pasero, Product Commercialisation Manager, gave an oral presentation, "Extended temperature range Solid State Batteries for Industrial IoT", at 15:05 GMT and answered questions.

5.7.24.3 Audience reached

Scientific community, industry

5.7.24.4 Feedback and follow-up

No feedback

5.7.24.5 Business opportunities identified

Disappointing online event with no feedback received

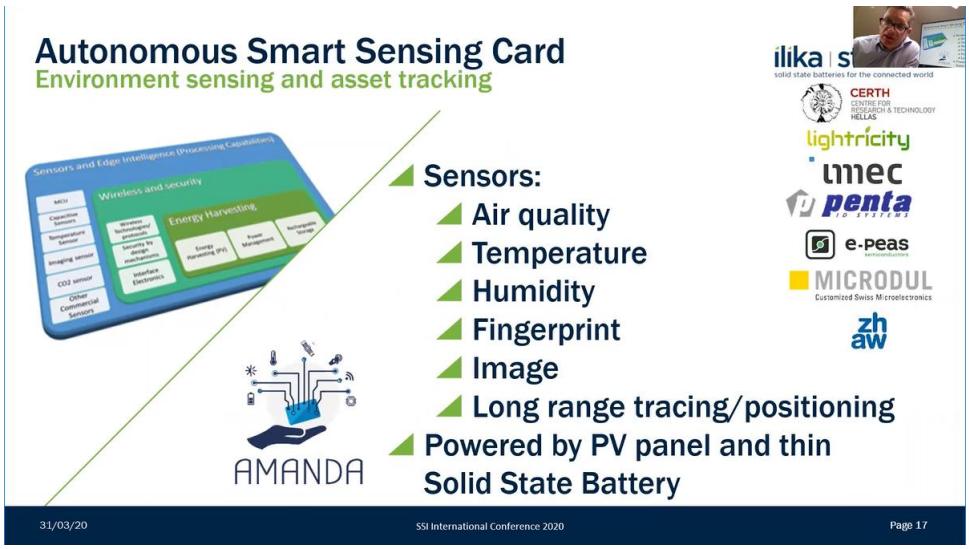
5.7.24.6 Key figures

~40 people attended the webinar

5.7.24.7 Useful links

https://www.ilika.com/latest-news/webinar-sensor-solutions-international-19th-may-2020/

5.7.24.8 Photos



5.7.25 Conference on 19 May 2020

Key figures				
Name of event	**Sensors Solution International, Online Summit**			
Date	**19 May 2020**			
Place	**Online**			
Type of Activity		Organisation of conference paper reviews, poster presentation	**X**	Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific Community (higher education, Research)	**X**	Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
		Policy markers		
Countries addressed	Worldwide			
Partners	LIGHTRICITY			

5.7.25.1 Scope of the event

Connecting, informing and inspiring the global sensors industry

5.7.25.2 Description of the participation

Lightricity made a presentation on ultra-high efficiency photovoltaic energy harvesting for challenging environments. This included some slides on the AMANDA project around autonomous sensing.

5.7.25.3 Audience reached

Industry: ~100; Scientific community: ~30; Others: ~100

5.7.25.4 Feedback and follow-up

Good interest from delegates (~5 follow-up leads)

5.7.25.5 Business opportunities identified

Mainly internal opportunities

5.7.25.6 Key figures

3 conferences, 700+ delegates; 80+ exhibitors

5.7.25.7 Useful links

https://sensorsinternational.net/

5.7.26 Webinar on 06 August 2020

Key figures				
Name of event	**Machine Failure and Prevention Technology MFPT 20**			
Date	**6 August 2020**			
Place	**On-line webinar**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release	**X**	Participation to an event other than a conference or workshop (WEBINAR)
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society		Customers
		General Public		Other
		Policy markers		
Countries addressed	International			
Partners	ILIKA			

5.7.26.1 Scope of the event

Initially, a 2-day event in Savannah, Georgia, on August 20, was cancelled due to COVID-19 and replaced by an online seminar. What the organisers say: "The MFPT and Vibration Institute Annual Training Conference & Expo (VIATC) gives you practical learning and provides you quality networking for industrial vibration analysis, precision alignment and balancing, and

highlights insights into complementary condition monitoring technologies and emerging issues impacting reliability management like artificial intelligence(AI) and motion amplification."

5.7.26.2 Description of the participation

Denis Pasero, Product Commercialisation Manager, has recorded an ON-DEMAND oral presentation, "Miniature Solid State Batteries for High-Temperature Industrial Sensors".

5.7.26.3 Audience reached

Scientific community, industry

5.7.26.4 Feedback and follow-up

No feedback

5.7.26.5 Business opportunities identified

Disappointing online event with no feedback received

5.7.26.6 Key figures

6 people requested the webinar

5.7.26.7 Useful links

https://www.ilika.com/latest-news/webinar-sensor-solutions-international-19th-may-2020/

5.7.27 Conference and exhibition on 03 September 2020

Key figures				
Name of event	**SIDO 2020**			
Date	**03-07 September 2020**			
Place	**Lyon, France**			
Type of Activity		Organisation of conference paper reviews, poster presentation	**X**	Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
	X	Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience		Scientific Community (higher education, Research)		Medias
	X	Industry		Investor

		Civil Society	**X**	Customers
		General Public		Other
		Policy markers		
Countries addressed	Mainly France			
Partners	E-PEAS			

5.7.27.1 Scope of the event

The event is focused on multiple subjects such as IoT, Robotics or IA and helps create synergy between all actors. Due to Coronavirus, it was not sure that the exhibition would be held up to the end. Therefore, some major actors didn't show up as announced.

5.7.27.2 Description of the participation

E-PEAS participated in the exhibition with a small booth, but the presence was limited to be compatible with the restriction rules imposed by the coronavirus crisis.

5.7.27.3 Audience reached

Industry and customers

5.7.27.4 Feedback and follow-up

This edition was relatively low in results due to the absence of some big actors. Contacts with existing customers and partners were possible, but no new opportunity popped up.

5.7.27.5 Business opportunities identified

None

5.7.27.6 Key figures

>150 exhibitors

5.7.27.7 Useful links

https://www.sido-lyon.com/

5.7.28 Pitch event on 08 September 2020

Key figures				
Name of event	**Future Networks Lab Accelerator Showcase and Demo Day**			
Date	**8 September 2020**			
Place	**Online**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training	**X**	Pitch event
		Social media		Trade fair

		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific Community (higher education, Research)	**X**	Medias
	X	Industry	**X**	Investor
		Civil Society	**X**	Customers
		General Public		Other
		Policy markers		
Countries addressed	The UK mainly			
Partners	LIGHTRICITY			

5.7.28.1 Scope of the event

Pitch day event organised by the Digital Catapult (UK) to showcase technologies that are transforming the UK's technology ecosystem.

5.7.28.2 Description of the participation

Lightricity made a presentation on its ultra-high efficiency photovoltaic energy harvesting and applications within the IoT (asset tracking and monitoring). This included some information on the AMANDA project around autonomous sensing.

5.7.28.3 Audience reached

Industry: ~50; Scientific community: ~30; Investors: 10; Others: ~100

5.7.28.4 Feedback and follow-up

1 video was shot on Lightricity premises for dissemination purposes.

5.7.28.5 Business opportunities identified

Mainly networking opportunities and access to independent laboratory facilities (external validation).

5.7.28.6 Useful links

https://lightricity.co.uk/news/f/upcoming-digital-catapults-futurenetworkslab-pitch-day
https://www.youtube.com/watch?v=1tHe32DmfKE

5.7.29 Conference on 17 September 2020

Key figures				
Name of event	**5th IEEE International Symposium on Smart and Wireless Systems**			
Date	**17-18 September 2020**			
Place	**On-line, hosted in Dortmund, Germany**			
Type of Activity		Organisation of conference paper reviews, poster presentation	**X**	Participation to a conference

		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
		Industry		Investor
		Civil Society		Customers
		General Public		Other
		Policy markers		
Countries addressed	All (Embedded World is a World event)			
Partners	ZHAW			

5.7.29.1 Scope of the event

The symposium explores wireless systems and their applications. The aim of the Symposium is to exchange experiences and enhance scientific collaboration. In particular, papers focusing on novel developments in wireless radio technologies, wireless network architectures, advanced IoT applications and services and smart wireless systems will be welcomed. Due to the corona virus crisis, the conference that was scheduled to take place in Dortmund Germany, was finally held online.
Prof. Marcel Meli from ZHAW attended, presenting 2 papers:
As oral presentation: “Low Power LoRaWAN node based on FRAM Microcontroller”.
As video presentation: “Low Light Energy Autonomous LoRaWAN Node”
Both papers are related to the low-power embedded and wireless aspects of the AMANDA project.

5.7.29.2 Audience reached

Scientific Community

5.7.29.3 Conference paper

Not yet online. Papers and presentation are available from the Amanda Consortium server.

5.7.29.4 Key figures

About 50 participants from several countries (online) during the oral presentations.

5.7.29.5 Useful links

http://idaacs.net/2020

https://www.youtube.com/watch?v=_mNBRqS6UCA

5.7.29.6 Photos

The paper "Low Light Energy Autonomous LoRaWAN Node" also won the best paper award in the category of the papers that were presented on video.

5.7.30 Conference on 22 September 2020

Key figures				
Name of event	**Swiss Medtech-Day 2020**			
Date	**22 September 2020**			
Place	**Bern, Switzerland**			
Type of Activity		Organisation of conference paper reviews, poster presentation	**X**	Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other

Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
		Policy markers		
Countries addressed	Switzerland and German speaking European companies			
Partners	MICRODUL, as a member of Swiss Medtech			

5.7.30.1 Scope of the event

A one-day conference for education and promotion in Switzerland, Bern, aimed at medical companies.

5.7.30.2 Description of the participation

Microdul prepared a short presentation (90210961) of the AMANDA project, which was continuously presented on a laptop in a prominent position next to our demonstration model during the trade show. AMANDA brochures were on hand.

5.7.30.3 Audience reached

25 visitors with potential interest and discussion for Microdul products or services.

5.7.30.4 Feedback and follow-up

About 15 leads for Microdul and 2 relevant for Microdul Semiconductors. One or two people took the AMANDA brochures.

5.7.30.5 Business opportunities identified

No leads were directly relevant to the AMANDA project.

5.7.30.6 Key figures

Participation of about 100 companies and about 500 people.

5.7.30.7 Useful links

https://www.microdul.com/en/news/newsarticles/swiss-medtech-day-2020.html
https://www.swissmedtechday.ch/

5.7.30.8 Photos

5.7.31 Interview on 25 September 2020

Key figures	
Name of event	**Interview in the Athenian/Macedonian News Agency**
Date	**25 September, 2020**
Place	**Thessaloniki, Greece**

Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
	X	Communication campaign (e.g radio, TV))		Other
Type of Audience		Scientific Community (higher education, Research)		Medias
		Industry		Investor
		Civil Society		Customers
	X	General Public		Other
		Policy markers		
Countries addressed	Greece			
Partners	CERTH			

5.7.31.1 Scope of the event

Dr Dimitrios Tzovaras and Dr Charis Kouzinopoulos gave an interview in the Athenian/Macedonian News Agency, the Greek National news agency, on the AMANDA project progress and how it is related to the mitigation of the effects of COVID-19. The interview was later republished in most Greek Internet Media outlets.

5.7.31.2 Audience reached

General Public

5.7.31.3 Useful links

https://www.cnn.gr/tech/story/235781/thessaloniki-ypologistis-tsepis-os-ergaleio-kata-toy-koronoioy-deite-pos
https://www.amna.gr/home/article/490921/Ypologistis-tsepis-ginetai-ergaleio-kata-tou-koronoiou

5.7.31.4 Photos

5.7.32 Communication campaign on 30 September 2020

Key figures				
Name of event	**Interview of Dr Kouzinopoulos on AMANDA and the COVID-19 mitigation scenarios in the ERT3 channel**			
Date	**30 September, 2020**			
Place	**Thessaloniki, Greece**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
	X	Communication campaign (e.g radio, TV))		Other
Type of Audience		Scientific Community (higher education, Research)	**X**	Medias
		Industry		Investor
		Civil Society		Customers
	X	General Public		Other
		Policy markers		
Countries addressed	Greece			
Partners	CERTH			

5.7.32.1 Scope of the event

Dr Kouzinopoulos gave an interview for the current progress of the AMANDA project, the miniaturized size of the card as well as the general and COVID-19 mitigation scenarios of the Project in the Greek National TV channel ERT3.

5.7.32.2 Audience reached

General Public

5.7.32.3 Useful links

https://www.youtube.com/watch?v=RMDG2g5erN8&ab_channel=AMANDAproject

5.7.32.4 Photos

5.7.33 Communication campaign on 01 October 2020

Key figures				
Name of event	**Interview of Dr Charis Kouzinopoulos on AMANDA and the COVID-19 mitigation scenarios in the ERT1 channel**			
Date	**1 October, 2020**			
Place	**Thessaloniki, Greece**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)

	X	Communication campaign (e.g radio, TV))		Other
Type of Audience		Scientific Community (higher education, Research)		Medias
		Industry		Investor
		Civil Society		Customers
	X	General Public		Other
		Policy markers		
Countries addressed	Greece			
Partners	CERTH			

5.7.33.1 Scope of the event

Dr Kouzinopoulos gave an interview for the current progress of the AMANDA project, the miniaturized size of the card, as well as the general and COVID-19 mitigation scenarios of the Project in the Greek National TV channel ERT3.

5.7.33.2 Audience reached

General Public

5.7.33.3 Useful links

https://www.youtube.com/watch?v=vef2PyVXxy4&ab_channel=AMANDAproject

5.7.33.4 Photos

5.7.34 Conference on 10 November 2020

Key figures				
Name of event	**Wireless Congress Conference 2020**			
Date	**10-12 November 2020**			
Place	**Munich, Germany (on line)**			
Type of Activity		Organisation of conference paper reviews, poster presentation	**X**	Participation to a conference

		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
	X	Civil Society		Customers
	X	General Public		Other
	X	Policy markers		
Countries addressed	All (Wireless Congress draws people from different countries)			
Partners	ZHAW			

5.7.34.1 Scope of the event

The Wireless Congress (Systems and Applications) is an international conference that takes place every year in Germany. Every second year, it is staged in parallel with Electronica which is one of the world's largest Fair for electronics. Wireless Congress allows exchanges between the academic world and the industry with a strong emphasis on finding/presenting solutions to current issues in the industry but also looking into upcoming technologies. The event of this year (2020) was online, due to the restrictions related to the pandemic. Prof. Marcel Meli from ZHAW attended and was involved in 3 presentations, all related to low-power, energy harvesting and wireless system. One of the presentations was about “The Amanda Project”, introducing the different aspects of the project, the partners, goals and giving some information about its progress and challenges.

5.7.34.2 Audience reached

Scientific Community, Industry

5.7.34.3 Conference presentation

Available on Amanda Web site: https://amanda-project.eu/documents/dissemination-materials/send/5-dissemination-materials/33-amanda-presentation-at-wireless-congress-2020-zhaw

5.7.34.4 Key figures

Tens of participants from several countries

5.7.34.5 Useful links

A review of the WC2020 taken from the web site of the conference (26th January 2021) (from Prof. Dr. Axel Sikora, Offenburg University, Hahn-Schickard)
https://events.weka-fachmedien.de/wireless-congress/home/

REVIEW 2020

Wireless Congress: Systems & Applications
10-12 November 2020 I virtual and interactive conference

The Future of Wireless

In keeping with the motto of the panel discussion "The Future of Wireless", the 17th Wireless Congress demonstrated the possibilities that modern communication technology already offers today to shape our future. As a live conference in which all participants communicated with each other via the Internet, the Wireless Congress 2020 connected speakers and participants across continents and time zones. The programme, which was extended to three days, made it possible to integrate participation in the Wireless Congress into the working day via computer - whether from the office or the home office. The wireless experts were also able to use the chat function and video conferencing in the networking area to exchange information during the three days of the congress. The digital platform of the Wireless Congress offered speakers, exhibitors - EnOcean, Hyline Communication and Sierra Wireless - and participants opportunities to make new contacts and refresh existing contacts. Participants could post questions to the speakers in a separate Q&A chat. They were answered in a special "Session Panel Discussion" at the end of each session.

Wireless will continue to conquer new fields of application

The quest for more bandwidth and the utilisation of higher frequencies is driving wireless researchers worldwide. Insights into current and future research projects were provided by the three keynote speakers: Joseph Barry, Analog Devices, Dr. Josef Blanz, Qualcomm CDMA Technologies GmbH, and Prof. Dr. Nils Weimann, University of Duisburg-Essen (UDE). They highlighted the potential of new and improved wireless technologies. Radio communication will penetrate areas and enable applications for which radio seems unsuitable today, e.g. where fast control, high availability and robustness or sensor technology are required.

5G, Wi-Fi 6, Mioty and more

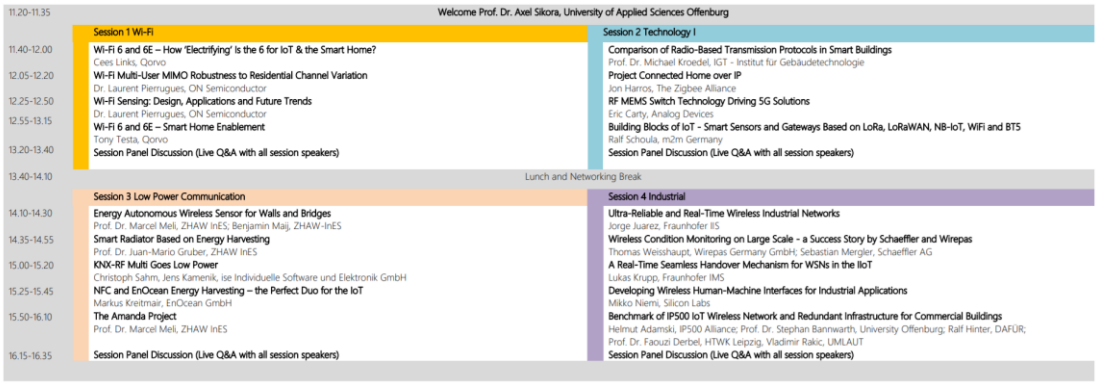
In addition to 5G and Wi-Fi 6, the major topics of the 17th Wireless Congress included LPWAN technologies, Bluetooth and the still young Mioty radio protocol. For the first time, the Wireless Congress dedicated an entire session to the Mioty topic. Other future topics were discussed in the sessions Industrial and Technology, Security and Low Power Communication.Günter Grundmann, VdS Schadenverhütung, made it clear in his keynote speech that radio communication also must fulfil general conditions, e.g. in order to be used in the security sector. Further framework conditions are provided by the European Commission, among others. In a Compliance session, the congress participants learned about the implementing measures currently being worked on by the Commission - in the course of the Radio Equipment Directive 2014/53/EU - and the consequences SMEs fear.The 17th Wireless Congress - for the first time organised and transmitted digitally on the Internet over three days - ended with the conclusion: Digital communication technology offers mature and reliable opportunities to exchange information in a pandemic - but it cannot replace personal experience and discussions on the fringes of a traditional congress.

The coming 18th Wireless Congress will be planned again as a traditional congress with exhibition on 10-11 November 2021.

Our thanks go to our **partners** – the Messe München, organizers of the electronica virtual, and the German Electrical and Electronic Manufacturers' Association (ZVEI) – **exhibitors**, **speakers** and **participants.** Without you this event would not have become what it was - a successful, interactive, virtual event with many interesting discussions and a very high quality programme.

5.7.34.6 Photos

Part of the program (day 1 of 3 days) showing the slot for The Amanda Project presentation



5.7.35 Conference on 16 November 2020

Key figures				
Name of event	**Compamed**			
Date	**16-19 November 2020**			
Place	**On-line (Düsseldorf, Germany)**			
Type of Activity		Organisation of conference paper reviews, poster presentation	**X**	Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media	**X**	Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
		Policy markers		
Countries addressed	Worldwide medical companies			
Partners	MICRODUL			

5.7.35.1 Scope of the event

Four-day conference for medical companies in Europe but worldwide attendance.

5.7.35.2 Description of the participation

Microdul prepared a presentation (M90-21-1007), “Saving power for wearables using Microdul Sensor Technology”, which was presented live. Two slides were dedicated to the AMANDA project.

5.7.35.3 Audience reached

15 people participated in the live webinar, and about 60 people participated via YouTube.

5.7.35.4 Feedback and follow-up

About 12 leads for Microdul and none relevant for Microdul Semiconductors.

5.7.35.5 Business opportunities identified

No leads were directly relevant to the AMANDA project.

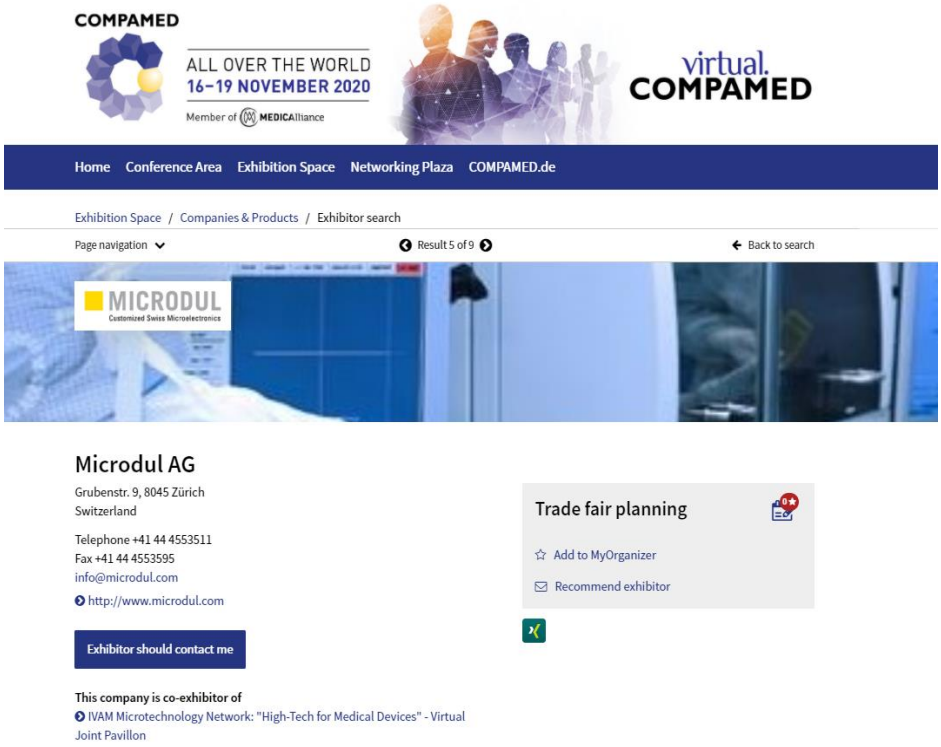
5.7.35.6 Key figures

Participation of about 45000 people from 169 nations with 1500 exhibitors.

5.7.35.7 Useful links

Microdul AG of Zürich at COMPAMED 2020 in Düsseldorf (compamed-tradefair.com)
https://www.youtube.com/watch?v=Q0xitT5tLQ8&feature=youtu.be

5.7.35.8 Photos



Product category: Wearables

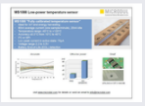
Human Body Detector (HBD)

Dramatically cut system power by switching it off when your wearable is not being worn by using the Microdul "Human Body Detector". The human body detector is designed to detect if a wearable is on the body or not. A typical application is the Everion product from Biovotion (https://www.biovotion.com/everion/). The human body detector is best-in-class with respect to power consumption. The human body detector uses two electrodes per channel. One transmits and one receives. The capacitance values and the thresholds can be read out. The threshold value can be changed via the interface.

Less

https://youtu.be/FGz2HWKBLwE

PDF HBD Flyer



Product category: Temperature sensors

MS1088 Low-power temperature sensor

MS1088 "Fully calibrated temperature sensor"

- Ideal for IoT and energy harvesting
- 80nA average current (one sample/minute), 20nA idle
- Temperature range -40°C to +120°C
- Accuracy ±0.3°C from 10°C to 40°C
- I2C or SPI
- Low peak current in active state: 75µA
- Voltage range 2.2 to 3.5V
- Battery End-of-Life (EOL) detection

Less

Visit us

Unsettled / NN

16.11.2020	Topic
all-day	**The Microdul team is there for you all day** Als ISO 9001- und ISO13485-zertifizierter Spezialist für qualitativ hochwertige Mikroelektronik beherrscht Microdul sämtliche Prozesse vom Engineering bis zur… More PDF Microdul AG image brochure E M30 14 3912
18.11.2020	**Topic**
11:00	**Saving Power for Wearables using Microdul Sensor Technology** Roland Steger Microdul AG, Zürich, CH Dr. Philip J Poole Microdul AG, Zürich, CH PDF Microdul Datasheet E

AMANDA
The world in your hands

Capacitive & temperature sensor roadmap

AutonoMous self powered miniAturized iNtelligent sensor for environmental sensing anD asset tracking in smArt IoT environments

Microdul Inside

- MS8892 Ultra-low-power capacitive sensor 65nA used for wake-up
- MS1089 Ultra-low-power temperature sensor with “30nA” standby current

- Autonomous, connected sensor card
- Ultra-low-power, ultra long life – 10 years
- Solid state battery, no battery change required
- Small and thin (3mm thickness)
- Multi-sensor

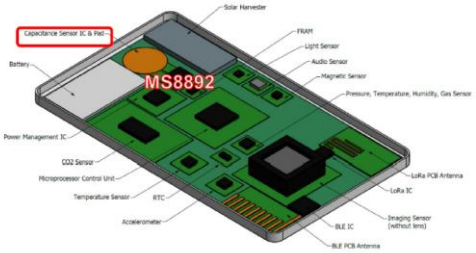
Use cases

- Environmental monitoring and reporting
- Assets tracking and occupancy monitoring
- Mitigating the effects of the current pandemic

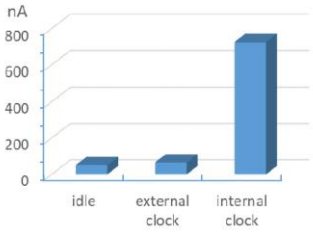
This project has received funding from the European Union’s Horizon 2020 Research and innovation programme under Grant Agreement n°825464

MICRODUL
Customized Swiss Microelectronics

Save power, wake-up with MS8892

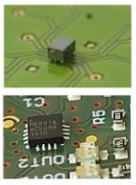


MS8892 Cap-Sensor Current



MS8892

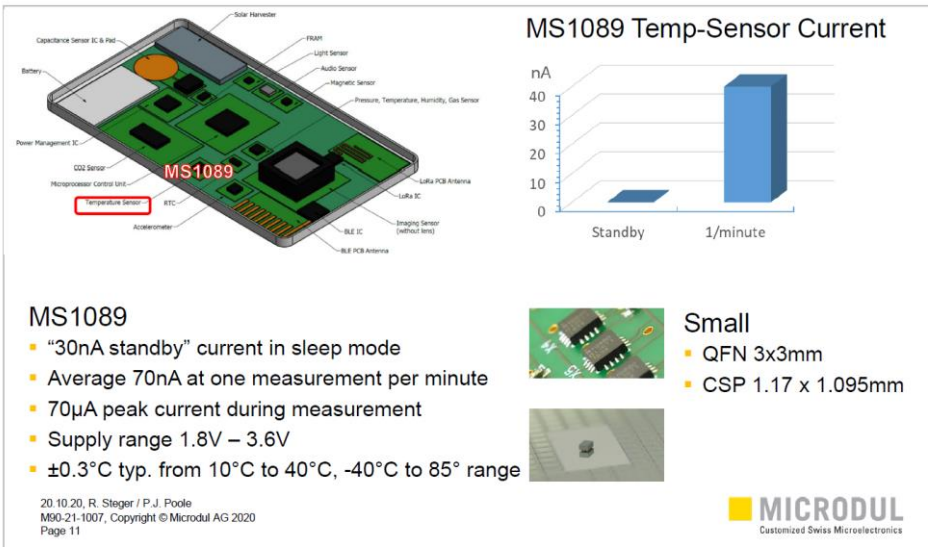
- 65nA external clock, 725nA internal clock
- Capacitance measurement or switch mode
- Automatically compensates factory tolerances
- Measures up to 1pF, voltage range 1.8-4.5V
- Autonomous operation or I²C with MCU



Small

- QFN 3x3mm
- CSP 1.52 x 1.03mm

MICRODUL
Customized Swiss Microelectronics



5.7.36 Conference on 25 November 2020

Key figures				
Name of event	**Energy Harvesting 2020**			
Date	**25 November 2020**			
Place	**Online**			
Type of Activity		Organisation of conference paper reviews, poster presentation	**X**	Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific Community (higher education, Research)	**X**	Medias
	X	Industry		Investor
		Civil Society		Customers
		General Public		Other

		Policy markers		
Countries addressed	International			
Partners	LIGHTRICITY			

5.7.36.1 Scope of the event
The 10th annual Energy Harvesting Network Dissemination Event took place as a webinar series.

5.7.36.2 Description of the participation
Lightricity made a presentation on its photovoltaic energy harvesting technology and applications for IoT. This included information on the AMANDA project around autonomous sensing.

5.7.36.3 Audience reached
Industry: ~50; Scientific community ~30; Others: ~100

5.7.36.4 Feedback and follow-up
Good interest from delegates (3-4 follow-up leads)

5.7.36.5 Business opportunities identified
Mainly internal.

5.7.36.6 Useful links
http://eh-network.org/news_event.php?id=292

5.7.37 Webinar on 25 November 2020

Key figures				
Name of event	**Energy Harvesting EH2020**			
Date	**25 November 2020**			
Place	**On-line webinar**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release	**X**	Participation to an event other than a conference or workshop (WEBINAR)
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific Community (higher education, Research)		Medias

	X	Industry		Investor
		Civil Society		Customers
		General Public		Other
		Policy markers		
Countries addressed	International			
Partners	ILIKA			

5.7.37.1 Scope of the event

What the organisers say: The focus of this year's event is on showcasing EH technology demonstrations, from R&D prototypes in the lab to ready commercial solutions. The EH Network has registered members from over 400 companies/institutions, and this annual event brings together academics, industrialists, policy stakeholders and end-users of EH technologies.

5.7.37.2 Description of the participation

Denis Pasero, Product Commercialisation Manager, gave an oral presentation, "Miniaturising IoT Sensors with Solid State Batteries and Energy Harvesting".

5.7.37.3 Audience reached

Scientific community, industry

5.7.37.4 Feedback and follow-up

Organisers are professionals in Energy harvesting at Uni of Aston and Chester – contact created

5.7.37.5 Business opportunities identified

Possible follow-up collaborations with organisers

5.7.37.6 Key figures

100+ attendees

5.7.37.7 Useful links

https://preview.mailerlite.com/d6m1f9/1530564899317486701/i2v0/

5.7.38 Round table on 26 November 2020

Key figures				
Name of event	**Round table "Innovative Solutions For Smart Urban Mobility"**			
Date	**26 November 2020**			
Place	**Online, Jitsi Meet**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release	X	Participation to an event other than a conference or workshop

		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
	X	Policy markers		
Countries addressed	Croatia			
Partners	PENTA			

5.7.38.1 Scope of the event

The Round Table "Innovative solutions for smart urban mobility" is held online on 26 November 2020. Its purpose was to open a discussion between representatives of the Ministry, entrepreneurs offering innovative solutions for smart urban mobility, academic, and companies' representatives for public urban passenger transport.

5.7.38.2 Description of the participation

Mladen Pamić (PENTA) talked about innovative solutions we are developing in urban mobility and urban public transport. He highlighted CITYpass solution's benefits, AMANDA Autonomous Smart Sensing Card, and SPARK VCAM ticketless parking solution in his presentation.

5.7.38.3 Audience reached

Scientific community, transport, industry and IT sector, public city companies, government

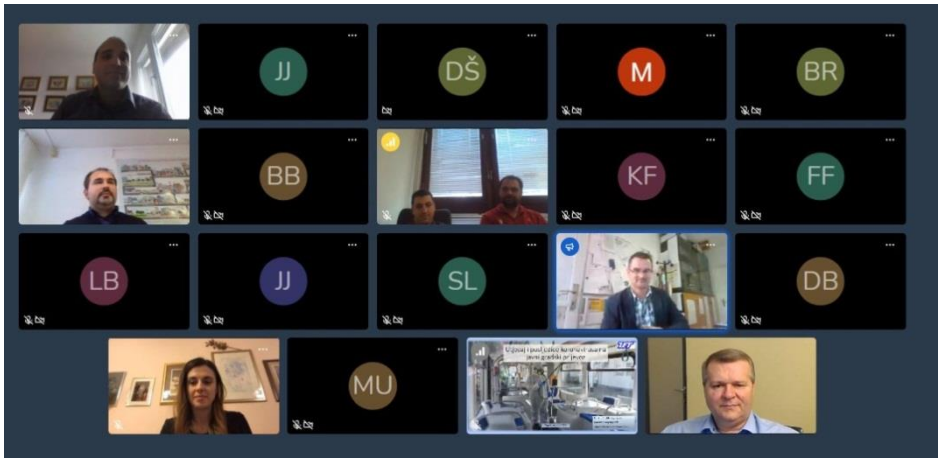
5.7.38.4 Feedback and follow-up

AMANDA project raised the interest in a very positive way. Participants considered Autonomous Smart Sensing Card (ASSC) a unique solution and were interested in receiving more information of ASSC application in SC03 Continuous occupancy monitoring in a parking lot.

5.7.38.5 Key figures

20 participants from Croatia

5.7.38.6 Photos



5.7.39 Meeting on 22 December 2020

Key figures

Name of event	**Smart Eco Parking, Kick-off meeting**			
Date	**22 December 2020**			
Place	**Online, Jitsi Meet**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))	**X**	Other
Type of Audience		Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
		Policy markers		
Countries addressed	Croatia			
Partners	PENTA			

5.7.39.1 Scope of the event

The Smart Eco Parking project is co-financed by the European Regional Development Fund, and its implementation began on 01 December 2020. On 22 December 2020, a kick-off meeting was attended by four companies that briefly presented their scope of business and the projects they are currently implementing. The Smart Eco Parking project aims to establish cooperation between the three SME companies and an integrator by establishing a Consortium cooperation department/expert team to create innovative service "SMART ECO PARKING" and product "SMART PARKING."

5.7.39.2 Description of the participation

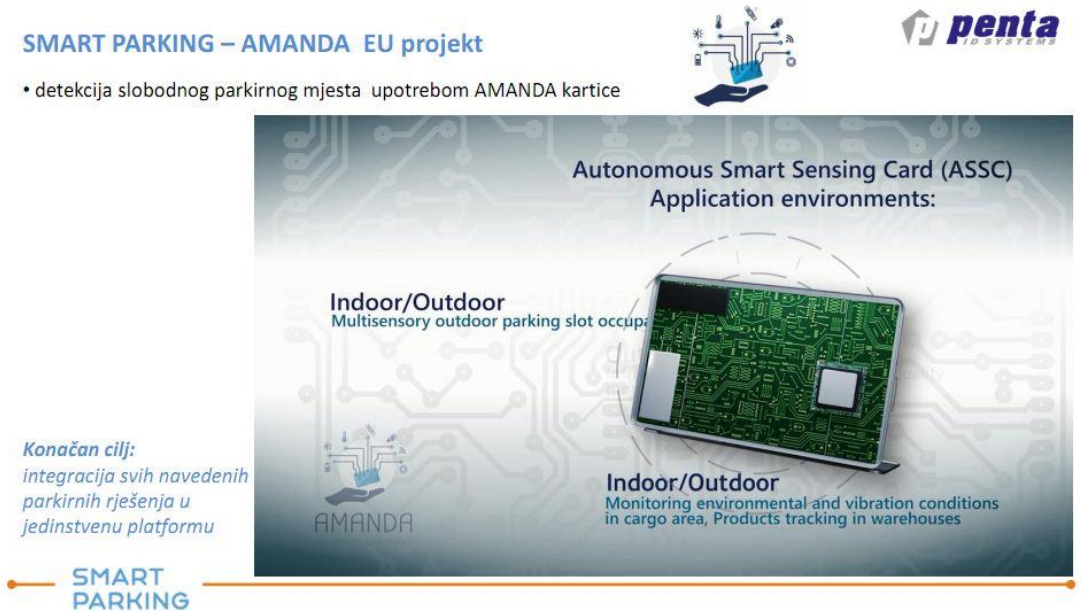
Andrea Mihaljević Pulić (PENTA) and Mladen Pamić (PENTA) presented the goals and current achievements of the AMANDA project to the members of the Consortium (3E Projekti d.o.o., SENSUM d.o.o., PENTA d.o.o.). The SMART ECO PARKING and AMANDA project have a similar user group and field of application - SC03 Continuous occupancy monitoring in a parking lot. Within the SMART ECO PARKING project, a Consortium consisting of three partners has the opportunity to promote the AMANDA project and offer the ASSC as one of the solutions for the sustainable development of stationary traffic (parking).

5.7.39.3 Audience reached
Industry and IT sector

5.7.39.4 Feedback and follow-up
The Smart Eco Parking project Consortium members are very interested in cooperating and connecting with the AMANDA project. Details on the knowledge exchange will be further elaborated in the next meetings.

5.7.39.5 Key figures
7 participants from Croatia

5.7.39.6 Photos

5.7.40 Meeting on 19 January 2021

Key figures	
Name of event	**Presentation of AMANDA project to DIGICAT – Digital Catapult London**
Date	**19 January 2021**
Place	**Online MS Teams meeting**

Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))	**X**	Other
Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
		Industry		Investor
		Civil Society		Customers
		General Public		Other
		Policy markers		
Countries addressed	UK			
Partners	IMEC-NL, CERTH, ILIKA			

5.7.40.1 Scope of the event

This meeting was set up to introduce the DIGICAT Digital Innovation Hub to the AMANDA project and explore possible synergies between the DIH and the project.

5.7.40.2 Description of the participation

The agenda of the meeting was the following:

- Round of introduction
- What is the AMANDA project?
- Consortium
- General Architecture
- Use-cases
- Current status
- Why are we reaching out?
- Q&A

5.7.40.3 Audience reached

From DigiCat, there were four people on the call, a Commercial Manger IoT, a Project/product Team Manager, a Manager of the Future Network Labs and a Lead engineer IoT

5.7.40.4 Feedback and follow-up

After the meeting, Digicat had an internal review meeting and reported that “We're excited by your project ...”.
There are several follow-up activities that Digicat could engage in (see list below) though this requires a final form-factor device. Potential follow-up action will be discussed in the Consortium to align on which follow-up actions to take/pursue.

5.7.40.5 Business opportunities identified

Possible actions proposed by Digicat were:

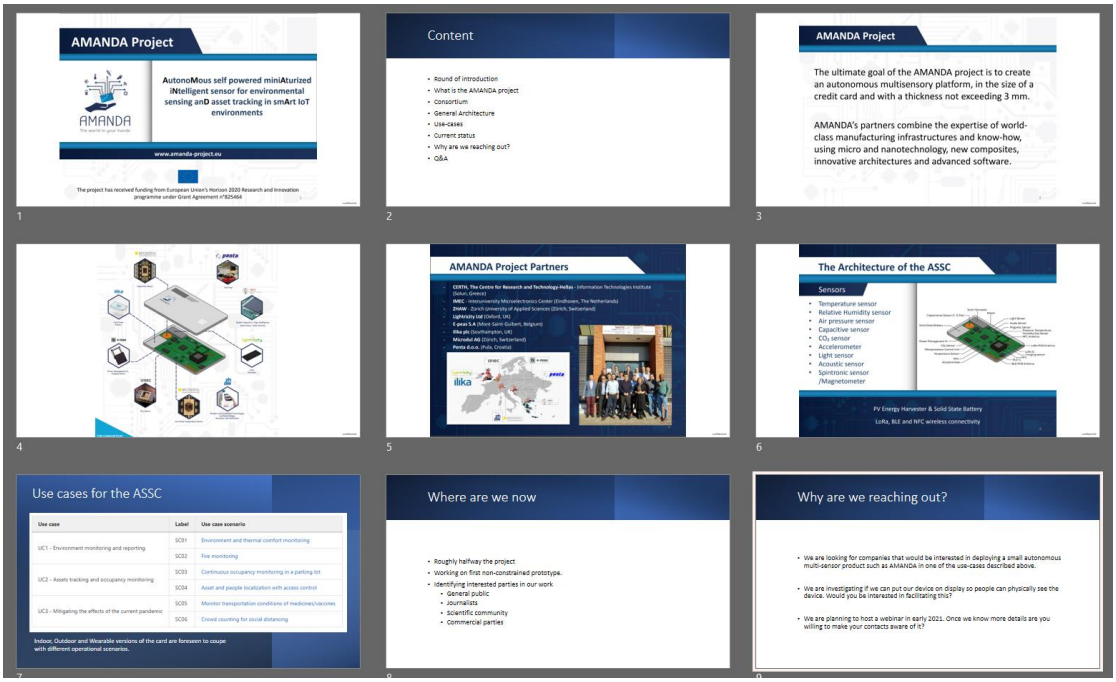
- We'd be very happy to host demos and marketing material in the FNL. The big challenge, of course, is that we are still locked down, so the footfall is very low. We've added cameras to the Lab and can offer virtual tours, which is better than nothing at all!
- We do have a number of ongoing projects which could take advantage of your hardware (LoRaWAN) in the asset tracking use case
- We'd be pleased to do testing and power consumption profiling
- We'd be happy to introduce you to some of the partners in the FNL who might be able to offer distribution and/or larger-scale manufacturing opportunities
- In terms of creating a challenging programme, this would really have to be on a commercial basis, which typically carries a price tag of £50K or more. This is effectively a competition, where we set a number of challenges (which obviously would involve using your hardware) to solve particular use cases - and then to open this up to a large number of SMEs who compete to win - they then go on to received funding/pilots etc. This might work better as a more formal "Beta" programme, but again that would be on a commercial basis, and we'd have to work on that together

5.7.40.6 Useful links

https://www.digicatapult.org.uk/

5.7.40.7 Photos

A screenshot of the slide deck used



5.7.41 Meeting on 03 February 2021

Key figures				
Name of event	**SUNSAFE IoT, Kick-off meeting**			
Date	**03 February 2021**			
Place	**Online, Microsoft Teams Meeting**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))	**X**	Other
Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society		Customers
		General Public		Other
		Policy markers		
Countries addressed	Croatia			
Partners	PENTA			

5.7.41.1 Scope of the event

The implementation of the SUNSAFE IoT project started on 18 January 2021, as part of the Call for Proposals "Increasing the development of new products and services resulting from research and development activities - Phase II", funded by the European Regional Development Fund. On 03 February 2021, a kick-off meeting was held at which the project's goals were presented, as well as possible cooperation and connection with projects of similar thematic interest. The project aims to develop SUNSAFE IoT (smart umbrella) product due to the implementation of research, development, and innovation activities. SUNSAFE IoT is a device with an integrated round housing with an upper surface covered with photovoltaic cells. Its purpose meets the tourism sector's needs and is in line with the thematic priority area S3, energy and sustainable environment.

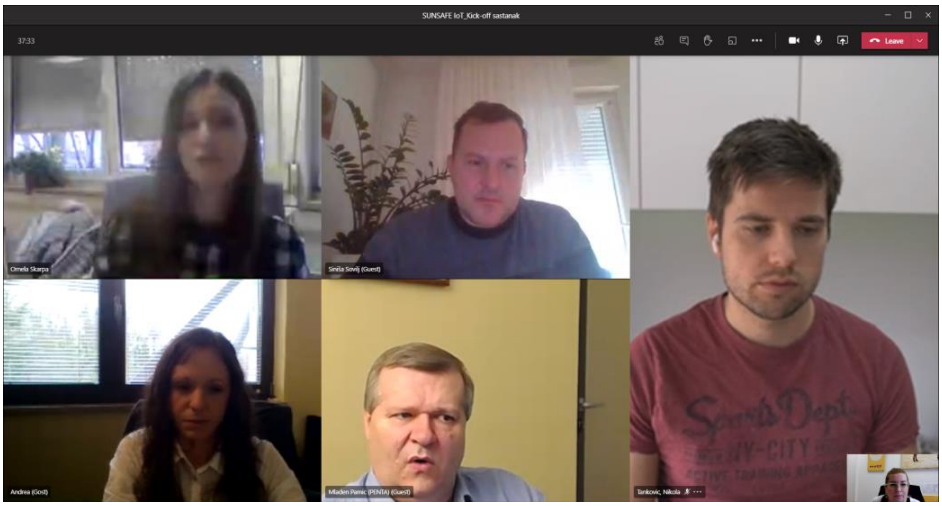
5.7.41.2 Description of the participation

Andrea Mihaljević Pulić (PENTA), the coordinator of the SUNSAFE IoT project, and Mladen Pamić (PENTA), project manager, presented the AMANDA project to the members of the Consortium (Faculty of Informatics, Juraj Dobrila University of Pula, SENSUM d.o.o., PENTA d.o.o.) and a discussion was held on areas in which the potential cooperation of both projects would benefit. Similar technologies are being used in both projects (LoRa IoT communication, BLE, sensor technology), so an exchange in knowledge and evaluation techniques is expected.

5.7.41.3 Audience reached
Scientific community, industry and IT sector

5.7.41.4 Feedback and follow-up
The SUNSAFE IoT project Consortium members are very interested in cooperating and connecting with the AMANDA project. Details on the exchange of knowledge will be further elaborated on in the next meetings.

5.7.41.5 Key figures
6 participants from Croatia

5.7.41.6 Photos


5.7.42 Conference on 16 March 2021

Key figures				
Name of event	**microTec Clusterkonferenz 2021**			
Date	**16-18 March 2021**			
Place	**On-line (Germany)**			
Type of Activity		Organisation of conference paper reviews, poster presentation	**X**	Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media	**X**	Trade fair

		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
		Policy markers		
Countries addressed	European companies, mostly from Germany			
Partners	MICRODUL			

5.7.42.1 Scope of the event

Three-day conference for industrial companies, mainly from Germany but also neighbouring countries.

5.7.42.2 Description of the participation

Microdul prepared a presentation (M90-21-1021) “CMOS mixed-signal array technology and what it can do for you” Two slides were dedicated to the AMANDA project.

5.7.42.3 Audience reached

200 people attended the conference, and about 60 people participated in the live webinar.

5.7.42.4 Feedback and follow-up

1 industrial lead who wished to discuss ideas about a possible ASIC development.
Slides were distributed to participants.

5.7.42.5 Key figures

Participation of about 200 people, mainly from Germany.

5.7.42.6 Useful links

https://www.microtec-suedwest.de/news-termine/clusterkonferenz/clusterkonferenz-programm-vortraege
https://www.microtec-suedwest.de/images/Presse/2021/Nachbericht_Clusterkonferenz_microTEC_Südwest.pdf

5.7.42.7 Photos

microTEC Südwest

Home Über uns Mitgli

DONNERSTAG 18. MÄRZ 2021

10:00
Begrüßung und Start des 3. Tages der Clusterkonferenz

Begrüßung
Hans Joachim Fröhlich (Vorstandsmitglied microTEC Südwest, Endress+Hauser Services AG)

10:15 – Session 8: „Cyber-physische Systeme (CPS) made in Baden-Württemberg"

› Session 8 anzeigen

11:15
Kaffeepause

11:30 – Session 9: „Mikroelektronik: Fertigung"

› Session 9 anzeigen

Moderation: Dr. André Kretschmann (Robert Bosch GmbH)

11:30
„Microtransformers for high frequency applications"
Dr. Dragan Dinulovic (Würth Elektronik eiSos GmbH & Co. KG)

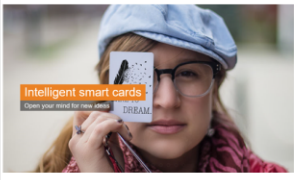
11:45
„CMOS mixed-signal array technology and what it can do for you"
Dr. Phil Poole (Microdul AG)

Example: EU-2020 Project AMANDA

AMANDA
The world in your hands

imec lightricity e-peas ilika MICRODUL penta

AutonoMous self powered miniAturized iNtelligent sensor for environmental sensing anD asset tracking in smArt IoT environments



This project has received funding from the European Union's Horizon 2020 Research and innovation programme under Grant Agreement n°825464

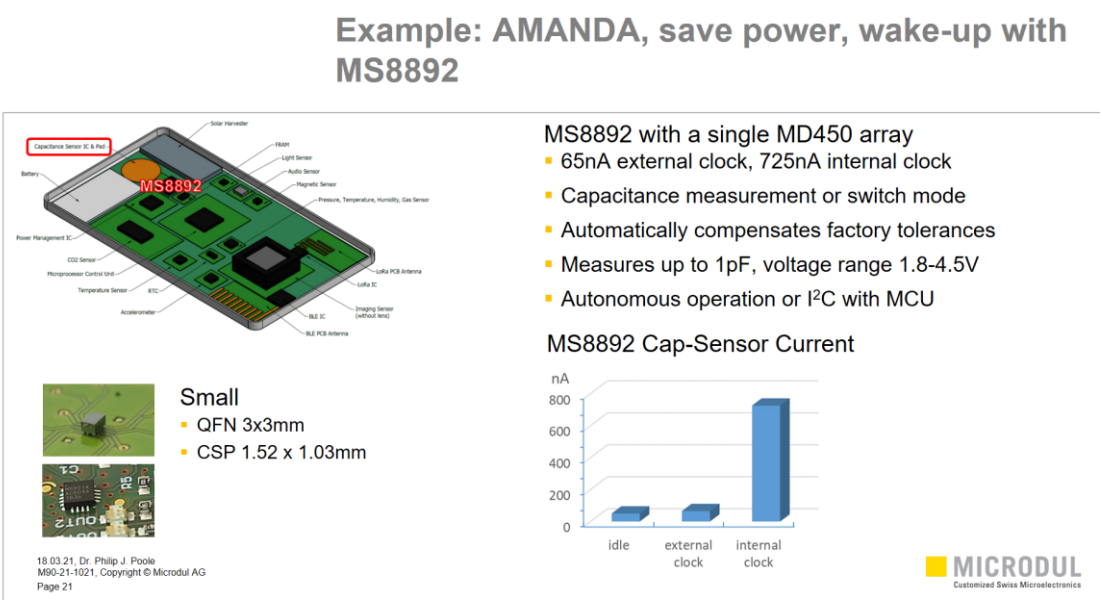
18.03.21, Dr. Philip J. Poole
M90-21-1021, Copyright © Microdul AG
Page 20

AMANDA
- Autonomous, connected sensor card
- Ultra-low-power, ultra long life – 10 years
- Solid state battery, no battery change required
- Small and thin (3mm thickness)
- Multi-sensor (see next slide)

Microdul
- MS8892 Ultra-low-power capacitive sensor 65nA used for wake-up
- MS1089 Ultra-low-power temperature sensor with "zero" standby current

Use Cases
- Environment monitoring and reporting (comfort monitoring, fire monitoring)
- Assets tracking and occupancy monitoring (parking lot, asset access & localization)
- Mitigating the effects of the current pandemic (vaccine monitoring, crowd counting)

MICRODUL
Customized Swiss Microelectronics



5.7.43 Webinar on 23 March 2021

Key figures				
Name of event	**Microdul Webinar: Ultra-Low-Power Capacitive Sensors**			
Date	**23.03.2021**			
Place	**On-line MS-Teams Live Event from Microdul**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))	**X**	Other
Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
		Policy markers		
Countries addressed	European companies			

Partners	MICRODUL

5.7.43.1 Scope of the event
Webinar for potential customers of capacitive sensors from Microdul.

5.7.43.2 Description of the participation
Microdul hosted a live Webinar entitled “Ultra-Low-Power Capacitive Sensors” M90-21-1022.

5.7.43.3 Audience reached
29 people registered for the webinar.

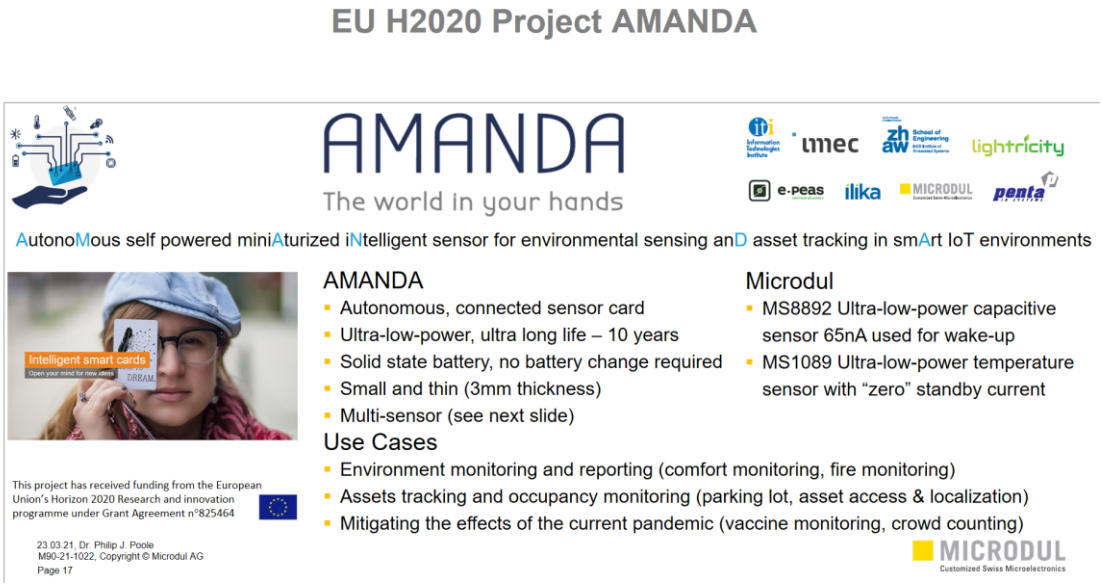
5.7.43.4 Feedback and follow-up
Q&A plus a question via email after the event. A video of the webinar was prepared for future dissemination on the Microdul website.

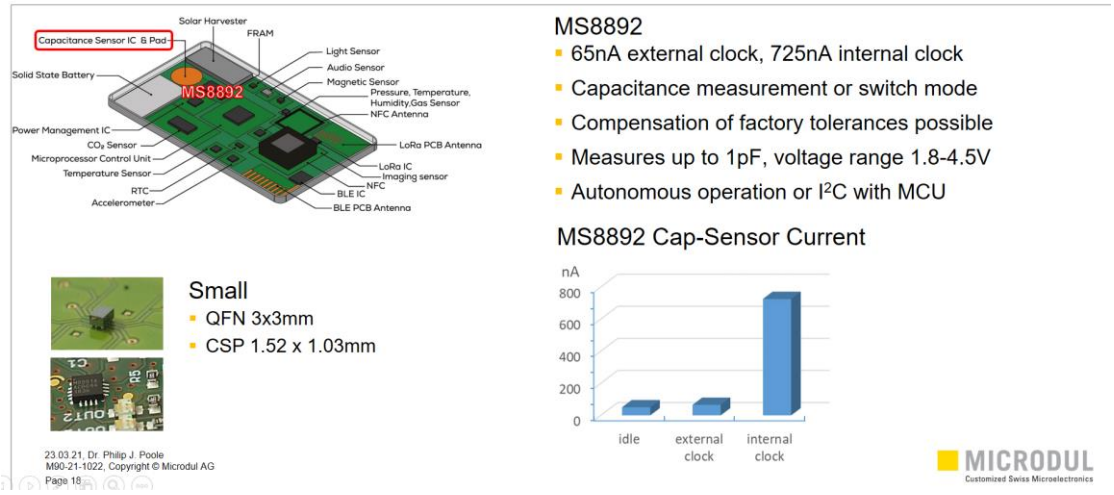
5.7.43.5 Business opportunities identified
No leads were directly relevant to the AMANDA project. 24 people viewed the tutorial that was made after the webinar. The email addresses have been collected.

5.7.43.6 Key figures
29 people registered from some interesting companies.

5.7.43.7 Useful links
The webinar was converted to a tutorial (M90-21-1063)
https://www.microdul.com/de/unternehmen/tutorials.html

5.7.43.8 Photos





5.7.44 Exhibition on 4 May 2021

Key figures				
Name of event	**Sensor & Test 2021**			
Date	**4-6 May 2021**			
Place	**On-line due to COVID restrictions**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media	**X**	Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience		Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
		Policy markers		
Countries addressed	Germany, Europe, Worldwide			

Partners	MICRODUL

5.7.44.1 Scope of the event

Sensor & Test is usually held in Nürnberg, Germany but in 2021 was held as a virtual event due to COVID-19. The normal event usually attracts about 7000 visitors with about 500 exhibitors. Visitors are mainly from Europe but also worldwide. This virtual event was poorly attended in comparison to the normal event.

5.7.44.2 Description of the participation

Microdul was represented by Phil Poole (Director Semiconductors), Adrian Stalder (Technical Sales), Marian Lancki (Sales, Germany) and Roland Steger (Sales, Germany). Slides about the AMANDA project (M90-21-1043) were made available.

5.7.44.3 Audience reached

95 people visited the Microdul virtual exhibition.

5.7.44.4 Feedback and follow-up

There were 12 leads of which 3 were priority leads.

5.7.44.5 Business opportunities identified

There were no leads for the AMANDA project.

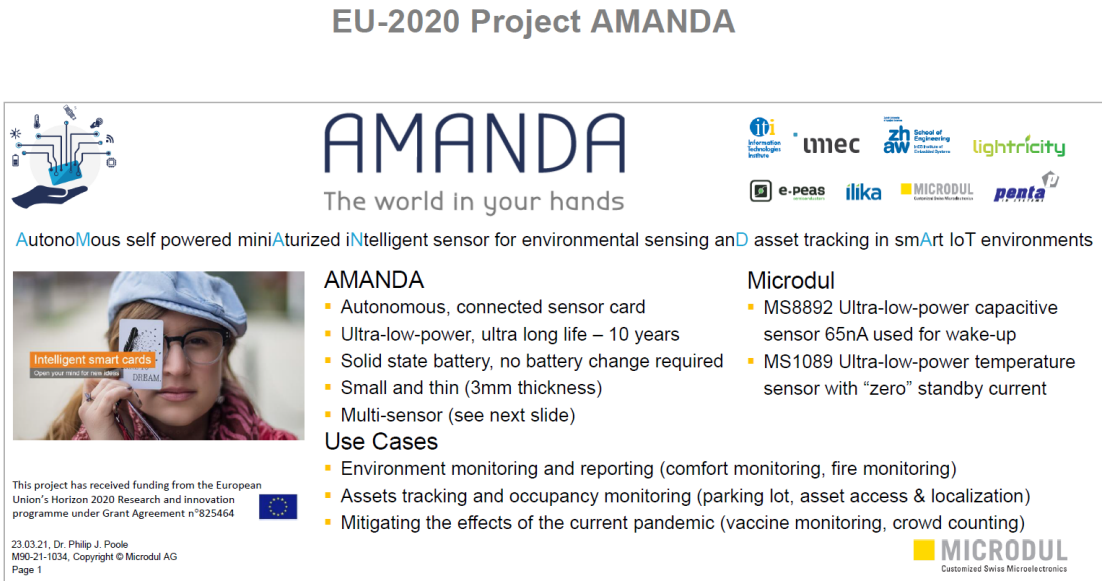
5.7.44.6 Key figures

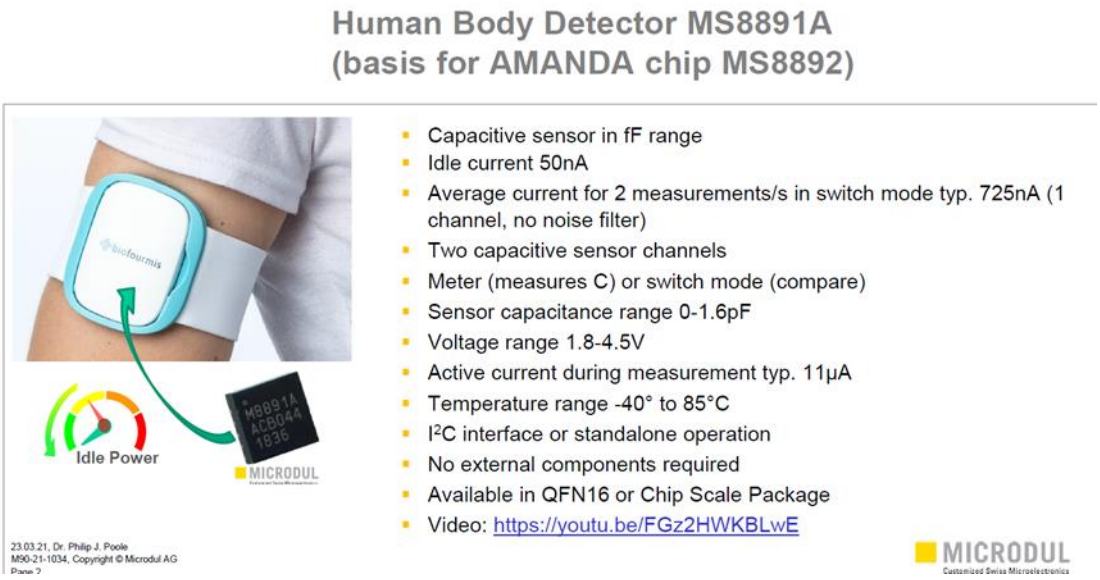
95 visitors to the Microdul virtual stand.

5.7.44.7 Useful links

https://www.sensor-test.de/press/press-center/press-releases/sensor-test-2021-to-take-place-digitally

5.7.44.8 Photos





5.7.45 Webinar on 17 May 2021

Key figures				
Name of event	**AMANDA – Autonomous Smart Sensing Card**			
Date	**17 May 2021**			
Place	**On-line webinar**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release	**X**	Participation to an event other than a conference or workshop (Webinar)
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
		Policy markers		
Countries addressed	European countries, international			

Partners	CERTH, ILIKA, ZHAW, IMEC, PENTA

5.7.45.1 Scope of the event

The AMANDA – Autonomous Smart Sensing Card webinar aimed to present a general overview of the H2020 funded AMANDA project, emphasising the possibility and benefits of using the unique ASSC to help mitigate the effects of current and future pandemics. The webinar provided participants with a better understanding of the significant advantages of the AMANDA card over the products on the market and presented where the card can be applicable – in the field of smart cities, smart homes and intelligent working environments.

5.7.45.2 Description of the participation

The AMANDA webinar included three presentations and a dynamic Q&A session. In the first presentation, Dr Charis Kouzinopoulos (CERTH) presented the AMANDA concept, main hardware and software components, and wireless communication capabilities of the ASSC. In the presentation that followed, Dr Denis Pasero (ILIKA) explained the three use cases identified in the AMANDA project and six scenarios that make optimal use of all the functionalities of the AMANDA card in its three versions – indoor, outdoor and wearable. In the third presentation, Prof. Dr Marcel Meli (ZHAW) focused on use cases related to air quality and COVID-19 and led an informative discussion on the AMANDA card – a powerful portable system as a monitoring companion.

5.7.45.3 Audience reached

Industry, IT sector, the scientific community

5.7.45.4 Feedback and follow-up

Two days after the webinar, the follow-up e-mail was sent, and all registrants received a link with the recording and a link to download webinar presentations. Based on the feedback we gathered from the poll and post-survey, we received the necessary information to help us prepare for the following two webinars.

5.7.45.5 Key figures

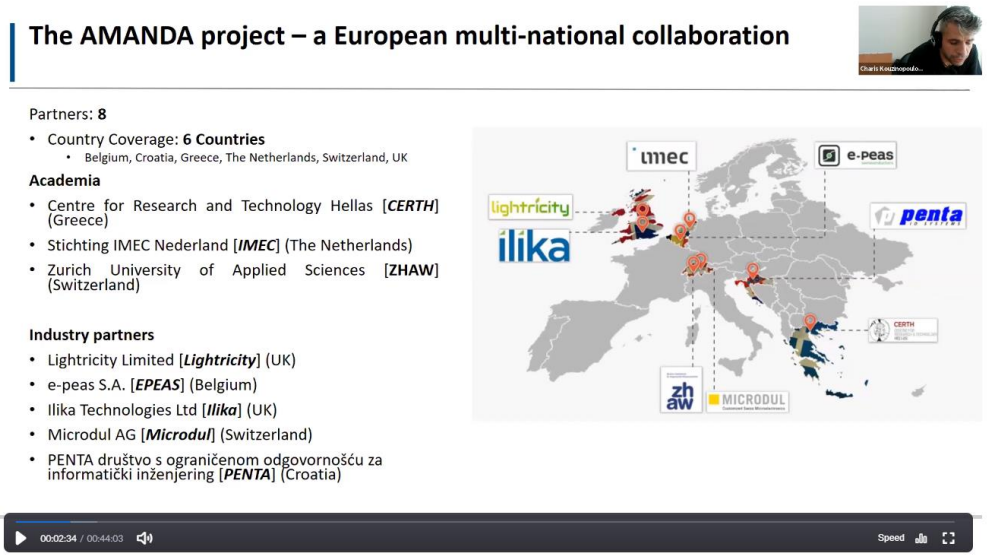
49 people registered for the webinar, but 33 attended

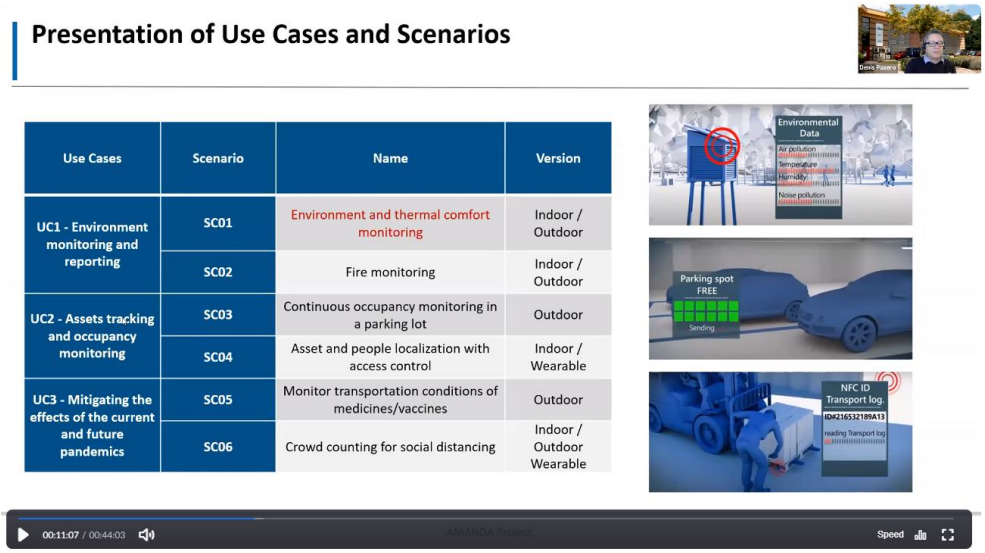
5.7.45.6 Useful links

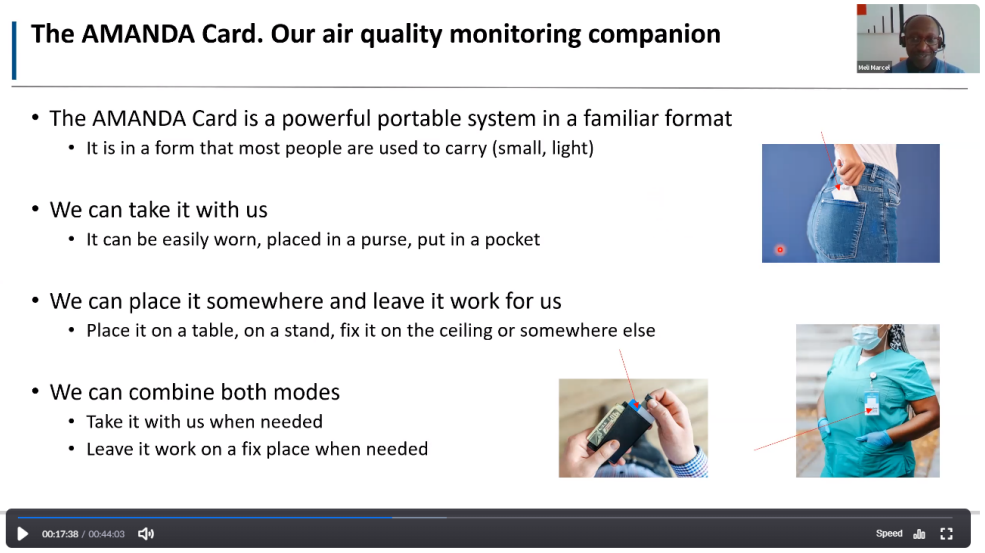
https://www.youtube.com/watch?v=6iDKV2GctkE

5.7.45.7 Photos


Gathering
Room data:
Light 40
Temperature 27
Humidity 45
Sending
AMANDA
Join our next webinar!
AMANDA
AUTONOMOUS SMART SENSING CARD (ASSC)
17 May 2021 | 15:00 (CEST time)
zoom
Duration: 30 min
Learn more about the ASSC in smart living and smart working applications.
Did you know that the ASSC can help tackle the COVID-19 outbreak?
Join us and explore the world of possibilities of the AMANDA ASSC!
SPEAKERS
Dr. Charis Kouzinopoulos
Postdoctoral Researcher
CERTH (ITI)
Dr. Denis Pasero
Product Commercialisation Manager, ILIKA
Prof. Dr. Marcel Meli
Lecturer and Head of the Wireless System Group
ZHAW (InES)
REGISTER NOW!
https://zoom.us/webinar/register/WN_pmMYKL3aQV6lDNeyrhZyUw
The AMANDA project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 825464
AMANDA


The AMANDA project – a European multi-national collaboration
Partners: 8
Country Coverage: 6 Countries
Belgium, Croatia, Greece, The Netherlands, Switzerland, UK
Academia
Centre for Research and Technology Hellas [CERTH] (Greece)
Stichting IMEC Nederland [IMEC] (The Netherlands)
Zurich University of Applied Sciences [ZHAW] (Switzerland)
Industry partners
Lightricity Limited [Lightricity] (UK)
e-peas S.A. [EPEAS] (Belgium)
Ilika Technologies Ltd [Ilika] (UK)
Microdul AG [Microdul] (Switzerland)
PENTA društvo s ograničenom odgovornošću za informatički inženjering [PENTA] (Croatia)
imec
e-peas
lightricity
ilika
penta
CERTH
zh aw
MICRODUL
00:02:34 / 00:44:03
Speed





5.7.46 Conference on 10 June 2021

Key figures				
Name of event	**APEC (Applied Power Electronics Conference)– Industry Sessions**			
Date	**10th June 2021**			
Place	**Online**			
Type of Activity		Organisation of conference paper reviews, poster presentation	**X**	Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop (WEBINAR)
		Exhibition		Brokerage event
		Flyers training		Pitch event

		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society		Customers
		General Public		Other
		Policy markers		
Countries addressed	Global			
Partners	ILIKA			

5.7.46.1 Scope of the event

The Applied Power Electronics Conference (APEC) focuses on the practical and applied aspects of the power electronics business. This is not just a designer's conference; APEC has something of interest for anyone involved in power electronics:

- Equipment OEMs that use power supplies and dc-dc converters in their equipment
- Designers of power supplies, dc-dc converters, motor drives, uninterruptable power supplies, inverters and any other power electronic circuits, equipment and systems
- Manufacturers and suppliers of components and assemblies used in power electronics
- Manufacturing, quality and test engineers involved with power electronics equipment
- Marketing, sales and anyone involved in the business of power electronics
- Compliance engineers testing and qualifying power electronics equipment or equipment that uses power electronics

5.7.46.2 Description of the participation

Denis Pasero, Product Commercialisation manager, gave an oral presentation, "Review of Energy Storage Solutions for IoT Edge Nodes". This was pre-recorded and on-demand, i.e. not live. The AMANDA project was presented, and some of our partners were name-checked throughout, see Photos Section below.

5.7.46.3 Audience reached

Scientific community, Industry

5.7.46.4 Feedback and follow-up

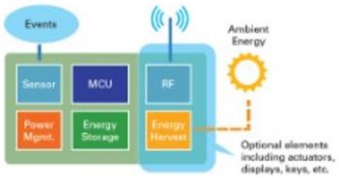
1 direct lead, but related to Ilika's batteries

5.7.46.5 Key figures

Approximately 100 people attended the session

5.7.46.6 Photos

IoT mm-scale Ecosystem



Energy Source		Harvested Power
	Photovolataic – Office – Outdoor	10 µW/cm² 10 µW/cm²
	Vibration/Motion – Human – Industry	4 µW/cm² 100 µW/cm²
	Thermal Engergy – Human – Industry	25 µW/cm² 1-10 mW/cm²
	RF – GSM (900MHz) – Wi-Fi (2.4GHz)	0.1 µW/cm² 0.01 µW/cm²

- All parts of the IoT ecosystem must have similar goals:
  - Comms: ultra-thin BLE; longer range Bluetooth 5
  - PMIC: ultra low quiescent current; load switching
  - TEG: miniaturised TEG but sink still large
  - High Temp components >125°C

Mm-scale technology	NON-EXHAUSTIVE list of companies ADD YOUR NAME HERE
PMIC	E-peas Tyndall (in development)
ASIC	Microdul
TEG	Matrix Tyndall (in development)
Solar	Lightricity (Indoors)
Vibration	QPower Votek3
Ultrasound charging	Piezo Energy Technologies
RF scavenging	WiliOT
Magnetic harvesting	Fraba
3D integration	Cirtec Murata (NeuroStone)
IPD	Murata (IPDiA)
Supercaps	CAP-XX
BLE	Dialog
LoRa	Semtech

Design Considerations

Power management

- Increasing number of off-the-shelf ultra low power PMIC
  - E-peas AEM10941
  - Texas Instruments bq25570
  - Analog Devices ADP5091

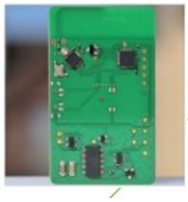
Description
Battery protection (operational voltage window)
Output voltage conversion: 3-4V → useful voltage
Regulate input current and voltage (Energy Harvester)
Mm-scale footprint
Low quiescent currents

100 µAh SSB @ 3.5V

+40% @ 1.8V

- Some OEM prefer to design their own ASIC including such functions
  - MICRODUL MA198

Description
Detect voltage levels for organising power flow or charging
Switch power from different sources, switch output power on or off
Use ultra-low-power
Buck and boost voltage
Battery charge management



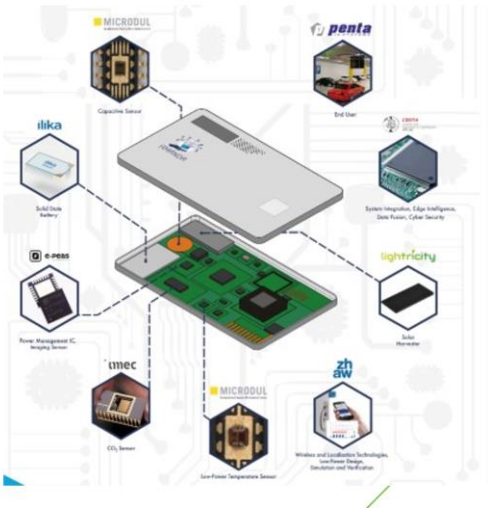
Applications

Embedded Electronics

AMANDA

- Memory Back-up
- Real Time Clocks
- MCU Backup
- Smart Electronic Cards
- Asset Tagging
- Electronic Shelf Display
- Embedded Security

Stereax benefits
- Ultra low leakage current
- High energy density
- Small and thin
- Large cycle number



5.7.47 Conference on 10 August 2021

Key figures				
Name of event	**MD&M West**			
Date	**10-12 August 2021**			
Place	**Anaheim, CA**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media	**X**	Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience		Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
		Policy markers		
Countries addressed	USA plus world wide			
Partners	MICRODUL, participation together with Switzerland Global Enterprise			

5.7.47.1 Scope of the event

Three-day show in Anaheim, California, aimed at the world medical device market. All major players in the medical market attend this show.

5.7.47.2 Description of the participation

Microdul prepared a short presentation (90211074) of the AMANDA project, which was continuously presented on a laptop in a prominent position next to our demonstration model during the trade show.

5.7.47.3 Audience reached

40-50 visitors to the stand

5.7.47.4 Feedback and follow-up

24 leads but none for the AMANDA ICs

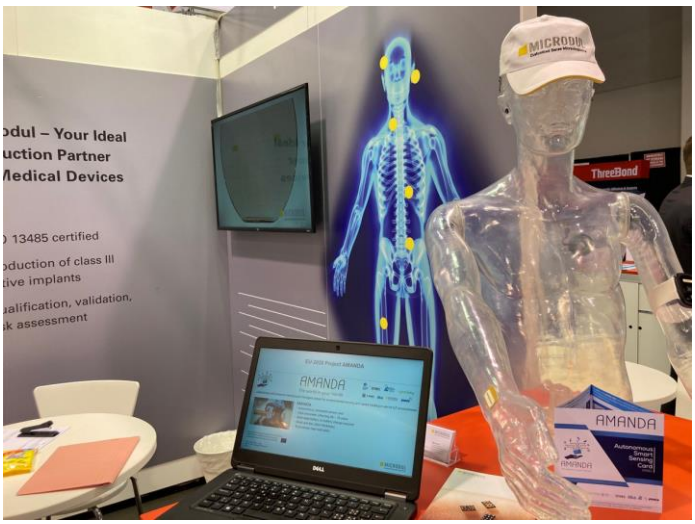
5.7.47.5 Key figures

Participation of 1’400 exhibitors with 13’000 attendees from 70 countries

5.7.47.6 Useful links

https://www.mdmwest.com/en/
https://www.microdul.com/en/news/newsarticles/news-about-the-trade-show-md-und-m-west-2021/

5.7.47.7 Photos



5.7.48 Conference on 23 August 2021

Key figures	
Name of event	**IEEE Sensors Applications Symposium 2021**
Date	**23-25 August 2021**
Place	**Virtual conference**

Type of Activity		Organisation of conference paper reviews, poster presentation	**X**	Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
	X	Civil Society		Customers
	X	General Public		Other
	X	Policy markers		
Countries addressed	All (It was a virtual event)			
Partners	CERTH			

5.7.48.1 Scope of the event

Sensors Applications Symposium gathers international researchers and developers to share and discuss ideas and results on sensor technologies, methods, applications, standardization and commercialization, as the organizers mention. Due to the pandemic of COVID 19, the conference was held in a virtual format and participants from 30 countries were able to attend.

5.7.48.2 Description of the participation

Alexis Papaioannou from CERTH attended, presenting the paper “A low-power fire monitoring and detection system on embedded systems using a Multilayer perceptron”. That paper is related to the second scenario of the Amanda Project (SC02 Fire monitoring).

5.7.48.3 Audience reached

Scientific Community

5.7.48.4 Key figures

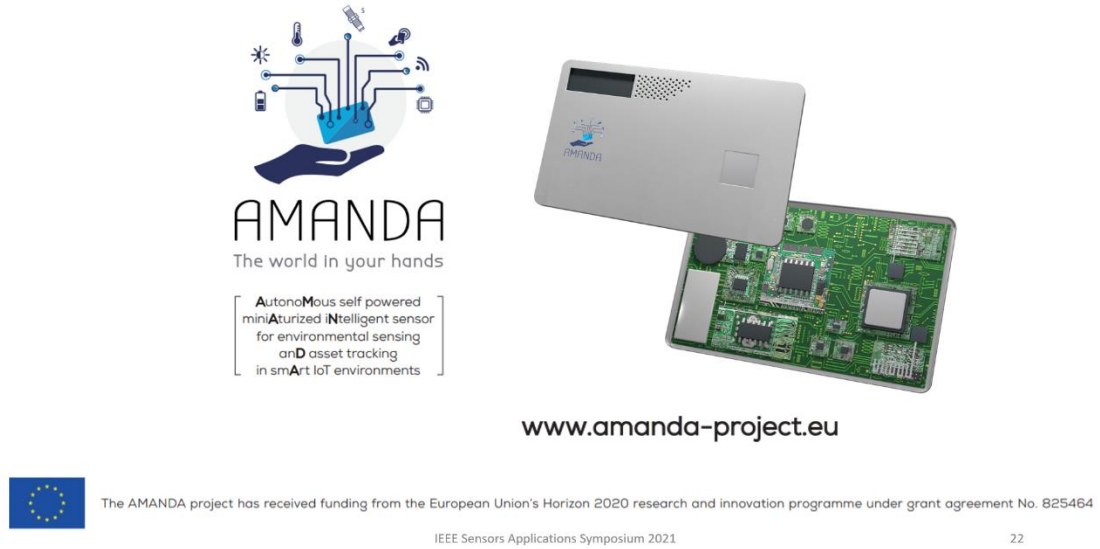
Virtual Event and on-demand

5.7.48.5 Useful links

https://2021.sensorapps.org/sas-2021-program/

https://amanda-project.eu/documents/dissemination-materials/send/5-dissemination-materials/58-sas-2021-a-low-power-embedded-system-for-fire-monitoring-and-detection-using-a-multilayer-perceptron
https://amanda-project.eu/documents/dissemination-materials/send/5-dissemination-materials/59-sas-2021-presentation-a-low-power-embedded-system-for-fire-monitoring-and-detection-using-a-multilayer-perceptron

5.7.48.6 Photos



5.7.49 Conference on 25 August 2021

Key figures				
Name of event	**IVAM Hightech Summit**			
Date	**25-26 August 2021**			
Place	**On-line Zoom event**			
Type of Activity		Organisation of conference paper reviews, poster presentation	**X**	Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other

Type of Audience		Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
		Policy markers		
Countries addressed	Germany, rest of Europe			
Partners	MICRODUL			

5.7.49.1 Scope of the event
Virtual microtechnology conference with digital exhibition

5.7.49.2 Description of the participation
Microdul presented "Human Body Detection & Temperature Monitoring – Saving System Wearable Power" M90-21-1073 at 15:00 on the Wearables topic.

5.7.49.3 Audience reached
About 250 companies attended the virtual conference.

5.7.49.4 Feedback and follow-up
One Linked-In message from an adhesive specialist.

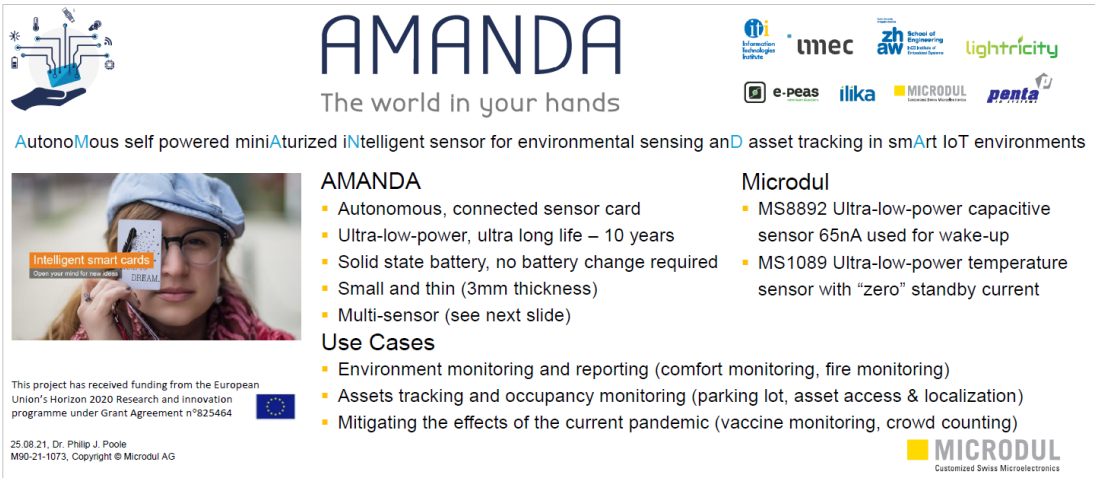
5.7.49.5 Business opportunities identified
93 contacts were sent to the speakers after the event. These contacts will be worked through in the coming weeks.

5.7.49.6 Key figures
About 250 companies attended. 93 people left contact data.

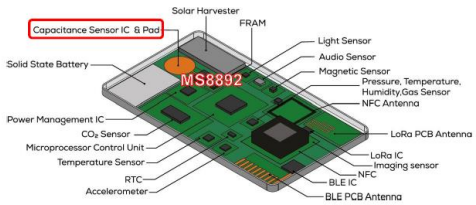
5.7.49.7 Useful links
https://www.ivam.de/events/ivam_hightech_summit?lang=en
https://ivam.de/programs/ivam_hightech_summit
https://www.ivam-hightech-summit.com/
https://youtu.be/kmxpnAGBoaI

5.7.49.8 Photos

EU-2020 Project AMANDA



AMANDA, save power, wake-up with MS8892



MS8892

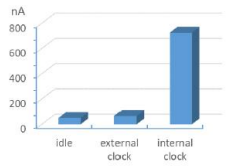
- 65nA external clock, 725nA internal clock
- Capacitance measurement or switch mode
- Compensation of factory tolerances possible
- Measures up to 1pF, voltage range 1.8-4.5V
- Autonomous operation or I²C with MCU

Small

QFN 3x3mm

CSP 1.52 x 1.03mm

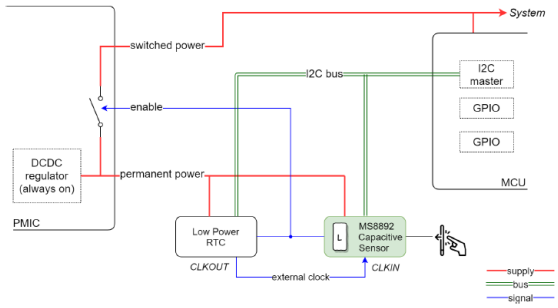
MS8892 Cap-Sensor Current



25.08.21, Dr. Philip J. Poole
M90-21-1073, Copyright © Microdul AG

MICRODUL
Customized Swiss Microelectronics

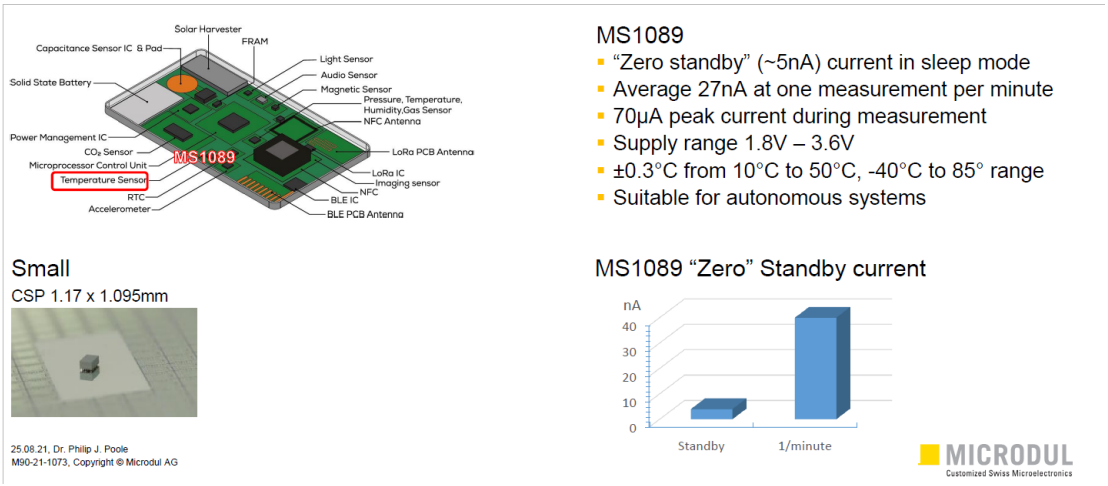
AMANDA, save power, wake-up with MS8892



- The permanent power, from the PMIC to the RTC and the capacitive sensor is always on.
- The MCU and rest of system are supplied by a switched power supply.
- System power is switched on when there is an alarm from the RTC or a touch event at the capacitive sensor.
- The power state is latched (L) in the MS8892.
- The RTC enable and the MS8892 enable are low active, open drain types.
- Either the RTC or the MS8892 can cause the power state (L) to be switched to power-on.
- The MCU switches off (its) power via I²C or GPIO
- When the system is powered down, I = ~300nA.

25.08.21, Dr. Philip J. Poole
M90-21-1073, Copyright © Microdul AG

MICRODUL
Customized Swiss Microelectronics



14:15	Short break	
14:30	Keynote: Micro- and Nanotechnologies as Enabler for Future Health Care	Dr. Frank van de Scheur Philips Engineering Solutions, MEMS & Micro Devices, Eindhoven, NL

Stage 1	Stage 2
Nano for Electromobility	**Medical Technology: Microtechnology for Mobile Diagnostics and Therapy**
Session Chair: Prof. Andreas Leson Nano in Germany e.V., Würzburg, DE	Session Chair: Dr. Jens Ebnet Ebnet Medical GmbH, Schwerin, DE
15:00 Welcome and Introduction: Nano in Germany Prof. Andreas Leson Fraunhofer IWS, Dresden, DE	15:00 Human Body Detection & Temperature Monitoring – Saving Wearable System Power Dr. Philip J. Poole Microdul AG, Zürich, CH
15:10 Network Nano4eMob: Development of Hybrid Nanomaterials for Electromobility Dr. Andrea Deißenberger Nanoinitiative Bayern GmbH, Würzburg, DE	15:20 A Concept for Wearable Sensor Patches for Medical Monitoring Nicole Knodel InnoME GmbH, Espelkamp, DE
15:30 Bipolar Plates for Fuel Cells and Electrolyzer with Particles with Nanostructure Dr. Thorsten Hickmann Eisenhuth GmbH & Co. KG, Osterode am Harz, DE	15:40 Mobile Biosensing Systems for Various Applications Michael Langenmair Jobst Technologies GmbH, Freiburg, DE
15:50 Reactive Multilayer Systems (RMS) - Tailormade Joining for Lightweight Structures and Microsystems Erik Pflug Fraunhofer IWS, Dresden, DE	16:00 LEDs for Biosensors and Medical Applications Antje Thamm EPIGAP Optronic GmbH, Berlin, DE
16:10 DLS Probe Technology: You Might Not Need to Dilute your Sample Anymore Dr. Daniel Hagmeyer Microtrac Retsch GmbH, Haan, DE	16:20 Sensor Solutions for Vital Parameter Measurement in the Ear Dr. Martin Schädel CiS Forschungsinstitut für Mikrosensorik GmbH, Erfurt, DE
16:30 Discussion Prof. Andreas Leson	

5.7.50 Conference on 31 August 2021

Key figures				
Name of event	**Sindex 2021**			
Date	**31 August 2021 – 02 September 2021**			
Place	**Bern, Switzerland**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop

		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media	**X**	Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience		Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
		Policy markers		
Countries addressed	Switzerland, Europe			
Partners	MICRODUL			

5.7.50.1 Scope of the event
Sindex is the leading Swiss trade fair for industrial automation and takes place over three days, 31st August to 2nd September, in Bern, Switzerland, with over 100 exhibitors.

5.7.50.2 Description of the participation
Microdul is represented by CEO / Sales & Marketing Manager Jörg Markwalder and Sales Adrian Stalder, who were present at the Microdul booth C36 in Hall 3.0. A presentation M90-21-1074 was shown on a laptop at the booth.

5.7.50.3 Audience reached
Several hundred people walked past the booth.

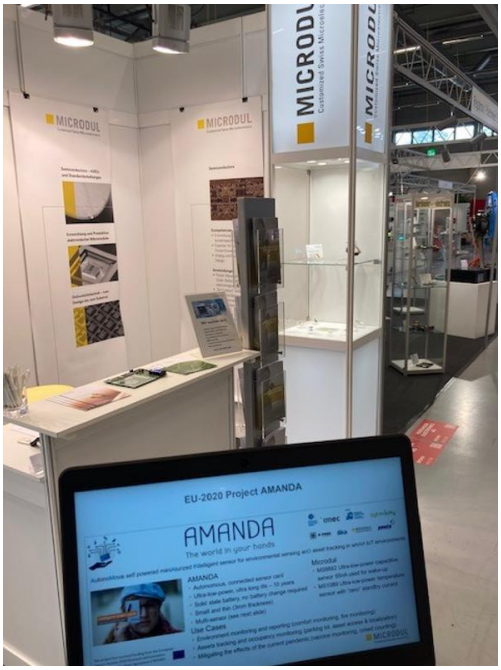
5.7.50.4 Feedback and follow-up
No priority leads to follow-up. The show is significantly smaller than the last.

5.7.50.5 Business opportunities identified
31 leads but no priority leads and no leads for the AMANDA project.

5.7.50.6 Key figures
120 Exhibitors and 3.800 visitors attended the SINDEX show either on-site or virtually.

5.7.50.7 Useful links
https://www.sindex.ch/sin-de.aspx
https://www.microdul.com/en/news/newsarticles/news-about-the-trade-show-sindex-2018.html

5.7.50.8 Photos



5.7.51 Conference on 8 September 2021

Key figures	
Name of event	Swiss Medtech-Day 2021
Date	08-09 September 2021
Place	Bern, Switzerland

Type of Activity		Organisation of conference paper reviews, poster presentation	**X**	Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
		Policy markers		
Countries addressed	Switzerland and German speaking European companies			
Partners	MICRODUL as a member of Swiss Medtech			

5.7.51.1 Scope of the event

One-day conference for education and promotion in Switzerland, Bern aimed at medical companies.

5.7.51.2 Description of the participation

Microdul prepared a short presentation (M90-21-1074) of the AMANDA project, which was continuously presented on a laptop in a prominent position next to our demonstration model during the trade show. AMANDA brochures were on hand.

5.7.51.3 Audience reached

About 20 visitors with potential interest and discussion for Microdul products or services.

5.7.51.4 Feedback and follow-up

10 leads for Microdul with 1 priority lead. One or two people took the AMANDA brochures.

5.7.51.5 Business opportunities identified

No leads were directly relevant for the AMANDA project.

5.7.51.6 Key figures

Participation of about 100 companies and about 500 people.

5.7.51.7 Useful links

https://www.swiss-medtech.ch/sites/default/files/2021-08/SMD21_Programmflyer_EN_20210824.pdf

5.7.51.8 Photos

5.7.52 Conference on 14 September 2021

Key figures				
Name of event	**Swiss MedtechExpo 2021**			
Date	**14-15 September 2021**			
Place	**Lucerne, Switzerland**			
Type of Activity		Organisation of conference paper reviews, poster presentation	**X**	Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
		Policy markers		
Countries addressed	Switzerland and German speaking European companies			
Partners	MICRODUL as a member of Swiss Medtech			

5.7.52.1 Scope of the event

Two-day conference for education and promotion in Switzerland, Lucerne aimed at medical companies. About 160 exhibitors and 3000 visitors.

5.7.52.2 Description of the participation

Microdul prepared a short presentation (M90-21-1074) of the AMANDA project, which was continuously presented on a laptop in a prominent position next to our demonstration model during the trade show. AMANDA brochures were on hand.

5.7.52.3 Audience reached

About 20 visitors with potential interest and discussion for Microdul products or services.

5.7.52.4 Feedback and follow-up

12 leads for Microdul with 1 priority lead. One or two people took the AMANDA brochures.

5.7.52.5 Business opportunities identified

No leads were directly relevant for the AMANDA project.

5.7.52.6 Key figures

Participation of about 160 companies and about 3000 people.

5.7.52.7 Useful links

https://www.swiss-medtech.ch/messen/swiss-medtech-expo

5.7.52.8 Photos

5.7.53 Trade fair on 09 November 2021

Key figures				
Name of event	**Sensor Solutions International**			
Date	**9-10 November 2021**			
Place	**Brussels (Belgium)**			
Type of Activity		Organisation of conference paper reviews, poster presentation	**X**	Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
	X	Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media	**X**	Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers

		General Public		Other
	X	Policy markers		
Countries addressed	European countries, international			
Partners	LIGHTRICITY			

5.7.53.1 Scope of the event

Sensor Solutions International (SSI), from June 27 to 29 was a exhibition and conference focused on the semiconductor design and manufacturing industry with the community of sensing applications. The event combined discussion of technologies and application with a broad range of process designers, high-end manufacturing technology providers as well as a broad range of OEMs of MEMS, image sensors, ultra-precise pressure sensor companies presenting and exchanging the latest advancements with ecosystem providers. Target applications ranged from automotive to healthcare-related wearables to the automatic analysis of industrial processes.

5.7.53.2 Description of the participation

Dr Julien Campos, Lead Technologist was an invited speaker at Sensor Solutions International and provided an overview of the Lightricity technology, solutions and products. More than 700 people attended the event and contacts were made with a number of companies. The conference had a heavy focus on photonics this year.

5.7.53.3 Audience reached

Industry, IT sector, scientific community

5.7.53.4 Feedback and follow-up

After the event, Lightricity sent a follow-up e-mail to all contacts made, especially in the electronics services and device packaging sectors.

5.7.53.5 Key figures

Industry-leading insiders delivering more than 30 presentations spanning five sectors providing an up-to-date overview of the status of the global sensors industry.

5.7.53.6 Photos


RIBA
CS


CS INTERNATIONAL CONFERENCE
ULVAC
Enabling Next Generation
By Solving Tough Material
Mobility & the Immersive
High-Performance
Transformation of the
The Cloud

5.7.54 Trade fair on 16 November 2021

Key figures				
Name of event	**Smart City Expo World Congress 2021**			
Date	**16-18 November 2021**			
Place	**Barcelona (Spain)**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
	X	Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media	**X**	Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
	X	Industry		Investor

		Civil Society	**X**	Customers
		General Public		Other
	X	Policy markers		
Countries addressed	European countries, international			
Partners	PENTA			

5.7.54.1 Scope of the event

Smart City Expo World Congress is the leading international event for the smart city sector, a key meeting point for experts and leaders of the world's most innovative cities, companies, research centres and international organisations. SCEWC is a global event with three main areas to explore: congress (a three-day program with international experts coming together to share insights and learn best practices for a more sustainable urban world, both online and in Barcelona), Expo (a marketplace where hundreds of global companies and organisations can engage with worldwide professional attendees and show the world their cutting-edge projects and smart implemented solutions), and side events and activities (list of events and workshops, including digital sessions).

5.7.54.2 Description of the participation

PENTA participated in the Smart City Expo World Congress (SCEWC), which took place from 16-18 November 2021 in Barcelona, Spain. PENTA was represented by Mladen Pamic (CEO), Oskar Vujicic (Project Manager), Andrea Mihaljevic Pulic (Marketing Manager) and Melisa Demarin (Sales Manager). BusCARD, CityPASS and SmartPark solutions (SMART ECO PARKING project), including the AMANDA project, were the main topics of PENTA's presentation. It was an excellent opportunity and relevant event to showcase the AMANDA project, its goals, and use cases applicable to smart and sustainable cities. Special attention and the greatest interest of visitors had the AMANDA's ASSC solution for continuous occupancy monitoring in a parking lot.

5.7.54.3 Audience reached

Industry, IT sector, city representatives

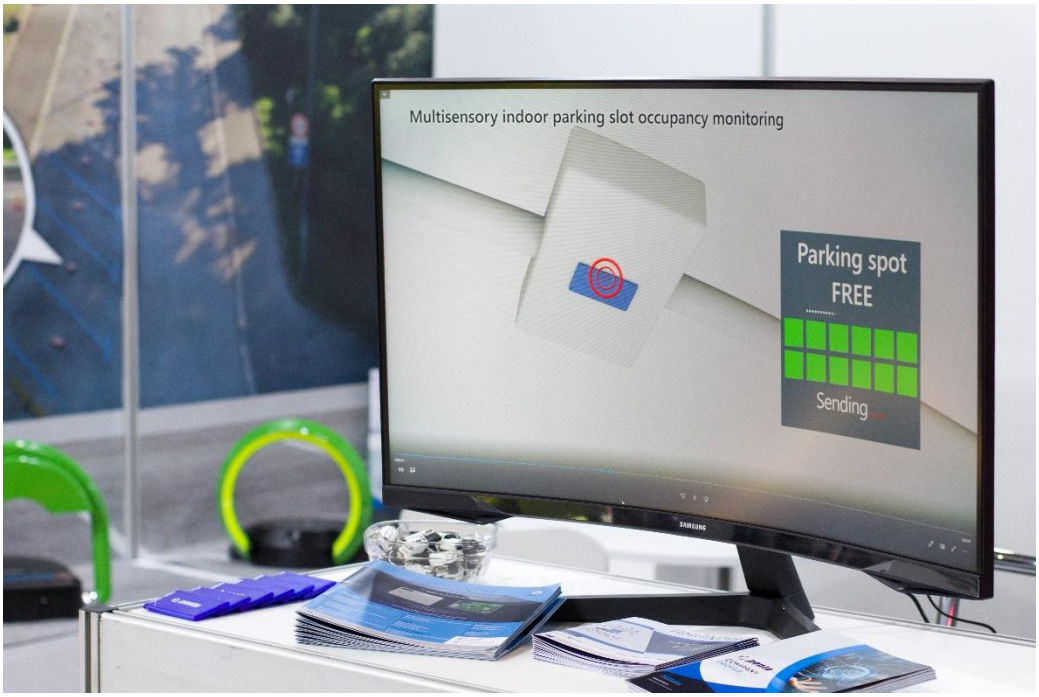
5.7.54.4 Feedback and follow-up

4 leads to consider to follow-up (IOTSENS, Spain; SISVEL Spain; Itaipu Technology Park, Brasil; INTELIGG P.C., Greece)

5.7.54.5 Key figures

Over 14,000 professional visitors attended this year in person, with 452 exhibitors, along with 350 international speakers

5.7.54.6 Photos


Multisensory indoor parking slot occupancy monitoring
Parking spot
FREE
Sending

5.7.55 Exhibition on 23 November 2021

Key figures				
Name of event	**EFECS - European Forum for Electronic Components and Systems 2021**			
Date	**23-25 November 2021**			
Place	**Online (The Swapcard platform)**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop

		Press release		Participation to an event other than a conference or workshop
	X	Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience		Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society		Customers
		General Public	**X**	Other
	X	Policy markers		
Countries addressed	European countries			
Partners	PENTA, ILIKA, IMEC, CERTH			

5.7.55.1 Scope of the event

EFECS is the international forum focusing on "Our Digital Future" for a green and competitive Europe along the Electronic Components and Systems value chain in Europe. It is a yearly event focusing on R&D&I. Therefore, the organisers of this event, AENEAS, EPoSS and Inside and in association with ECSEL Joint Undertaking, the European Commission and EUREKA have joined forces to bring all stakeholders together on 23-25 November 2021 online, where they discover, network, learn and shape "Our Digital Future" and how to manage the ECS impact for a green transition of digitalisation. During the event, there were opportunities to pitch concrete project ideas, investigate the interest in international collaborative projects, and participate in workshops and matchmaking programmes.

5.7.55.2 Description of the participation

The event went live on 23 November. One month before the event took place, on 26 October, Swapcard - the platform used for this virtual event – was opened. This early opening of the event platform allowed us to network even before the event started, and other participants could visit our booth already.
All WP7 partners (PENTA, ILIKA, IMEC, CERTH) agreed to be present online, and we made registration for four team members – Oskar Vujicic, Dr Denis Pasero, Peter Vis, Dr Charis Kouzinopoulos. At the end of the event, we downloaded a list of people who visited our booth.

5.7.55.3 Audience reached

Funding instruments (ECSEL, EUREKA, XECS), Running projects (61), Project ideas (11), Affiliation (HIPEAC, IPCEI, SSI), SMEs (8), Associations (AENEAS, EPoSS, INSIDE Industry Association)

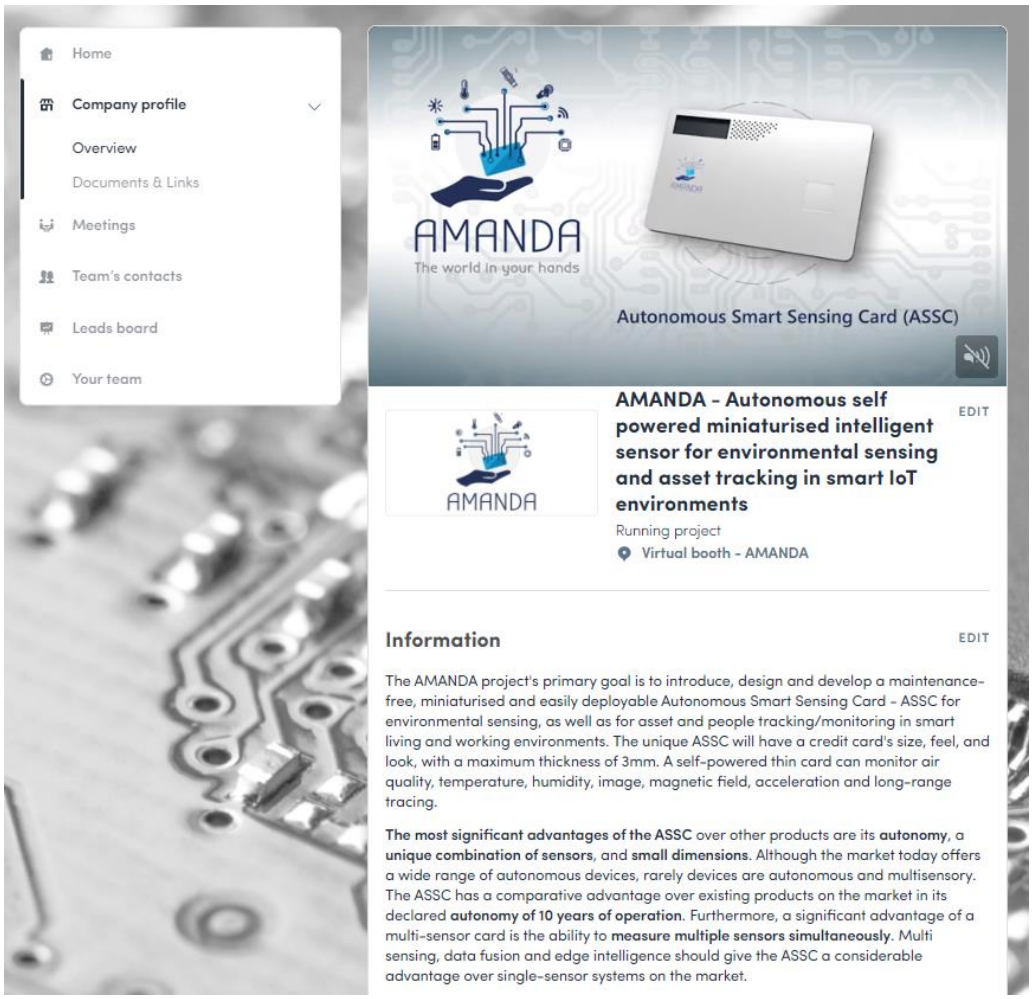
5.7.55.4 Feedback and follow-up

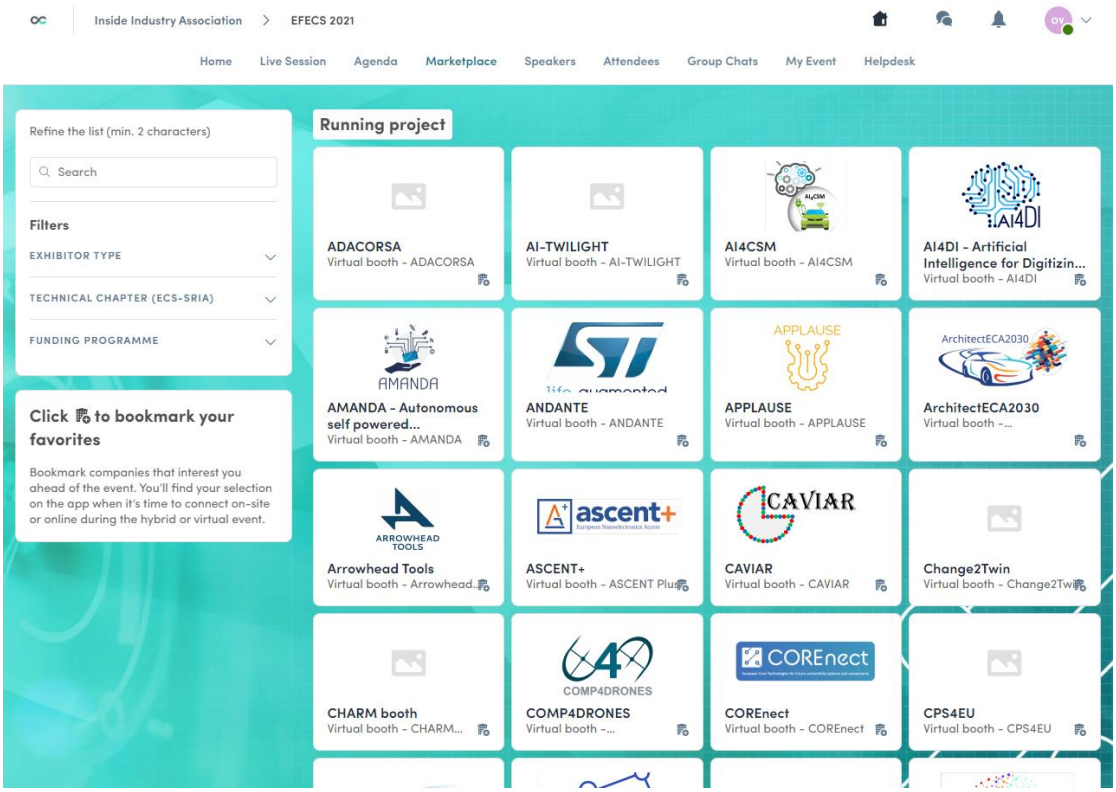
An inquiry was received from ASCENT+ that operate an EU funded access programme to research infrastructure & expertise in the microelectronic sector for SMEs and researchers in academia.

5.7.55.5 Key figures

59 visitors at the AMANDA virtual booth

5.7.55.6 Photos





5.7.56 Webinar on 07 December 2021

Key figures				
Name of event	**AMANDA – Autonomous Smart Sensing Card**			
Date	**07 December 2021**			
Place	**On-line webinar**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release	**X**	Participation to an event other than a conference or workshop (Webinar)
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
	X	Industry		Investor

		Civil Society	**X**	Customers
		General Public		Other
		Policy markers		
Countries addressed	European countries, international			
Partners	CERTH, ILIKA, MICRODUL, LIGHTRICITY, IMEC, PENTA			

5.7.56.1 Scope of the event

On Tuesday, 7 December 2021, the second webinar out of the series of webinars called "AMANDA – Autonomous Smart Sensing Card (ASSC)" was successfully held.

5.7.56.2 Description of the participation

The webinar was opened with an introductory speech by Dr Charis Kouzinopoulos (CERTH), who explained the AMANDA concept and our motivation and showed the leading hardware and software components and wireless communication capabilities of the ASSC. In the presentation that followed, Dr Denis Pasero (ILIKA) showcased the three use cases identified in the AMANDA project and six scenarios that make optimal use of all the functionalities of the AMANDA card. The central part of the webinar was dedicated to the presentations of Dr Martin Schellenberg (MICRODUL AG) and Dr Julien Campos (LIGHTRICITY). Dr Martin Schellenberg (MICRODUL AG) focused on the successful development of ultra-low-power temperature sensor and thermal comfort monitoring scenario where the MS1089 temperature sensor plays a crucial role. Dr Julien Campos (LIGHTRICITY) presented the last topic - Photovoltaic energy harvester component for miniature IoT devices, i.e. sustainable, environmentally friendly component and system that eliminate the need for battery replacements.

5.7.56.3 Audience reached

Industry, IT sector, the scientific community

5.7.56.4 Feedback and follow-up

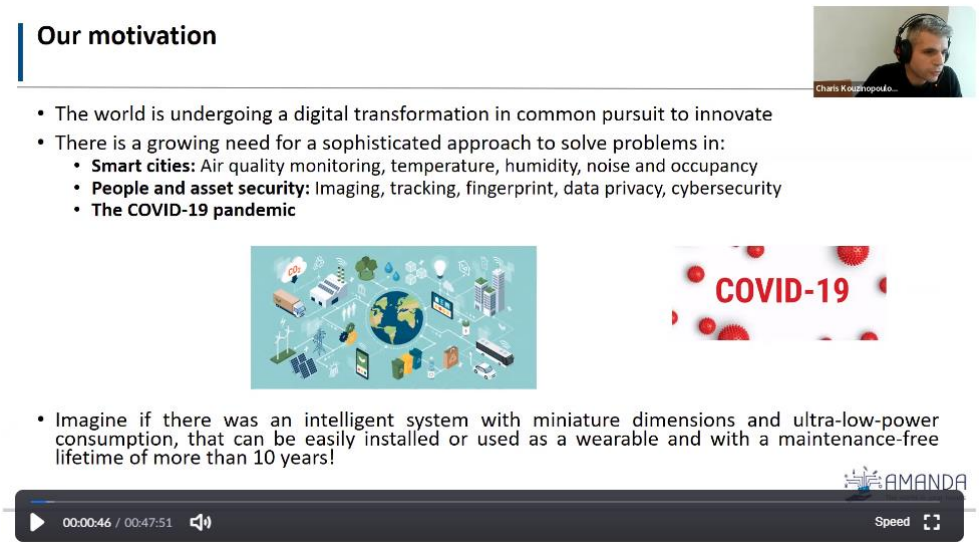
The follow-up e-mail was sent after the webinar. All who registered as participants received a link to the recording and webinar presentations.

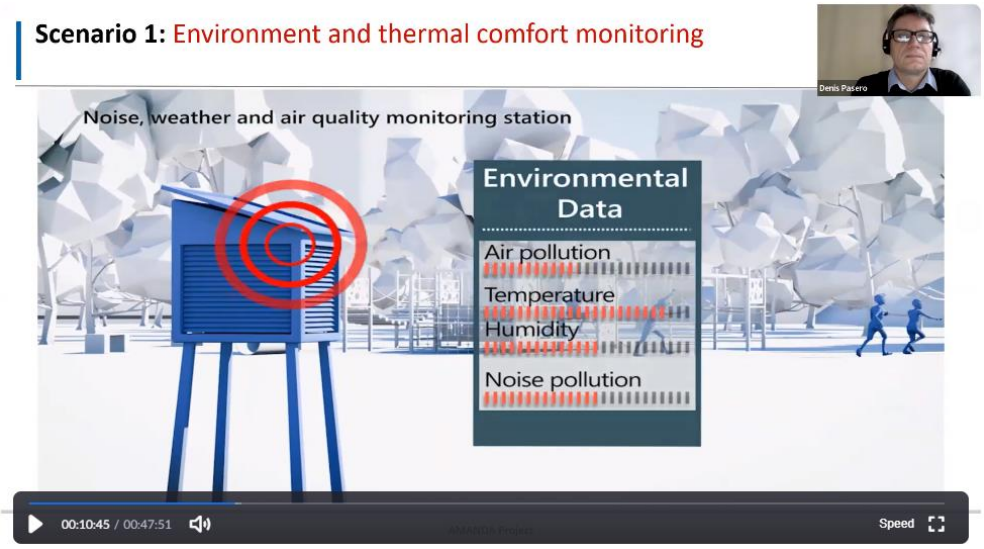
5.7.56.5 Key figures

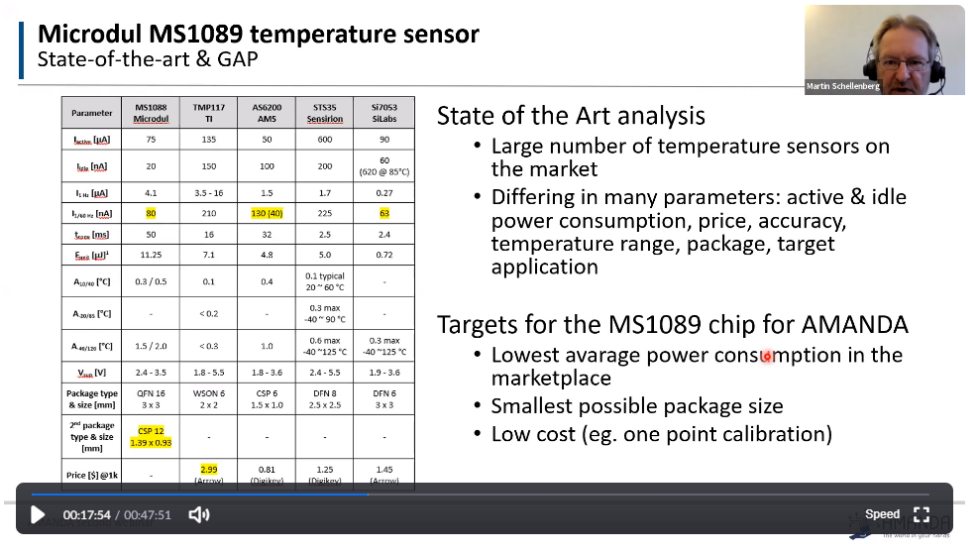
23 people registered for the webinar, but 22 attended

5.7.56.6 Photos


Join our second webinar!
AMANDA
AUTONOMOUS SMART SENSING CARD (ASSC)
07 December 2021 | 15:00 (CET time)
zoom
Duration: 30 min
ASSC for smart cities, smart homes and intelligent working environments
Temperature sensor and thermal comfort monitoring
Photovoltaic system for miniature IoT devices
SPEAKERS
Dr. Charis Kouzinopoulos
Postdoctoral Researcher
CERTH (ITI)
Dr. Denis Pasero
Product Commercialisation Manager, ILIKA
Dr. Martin Schellenberg
Project Leader
MICRODUL AG
Dr. Julien Campos
Lead Technologist
LIGHTRICITY
REGISTER NOW!
https://zoom.us/webinar/register/WN_-yoBTvDXTuOgf1dqc4x21w
The AMANDA project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 825464
AMANDA
The world in your hands


Our motivation
Charis Kouzinopoulo...
• The world is undergoing a digital transformation in common pursuit to innovate
• There is a growing need for a sophisticated approach to solve problems in:
• Smart cities: Air quality monitoring, temperature, humidity, noise and occupancy
• People and asset security: Imaging, tracking, fingerprint, data privacy, cybersecurity
• The COVID-19 pandemic
COVID-19
• Imagine if there was an intelligent system with miniature dimensions and ultra-low-power consumption, that can be easily installed or used as a wearable and with a maintenance-free lifetime of more than 10 years!
AMANDA
00:00:46 / 00:47:51
Speed





Parameter	MS1088 Microdul	TMP117 TI	AS6200 AMS	STS35 Sensirion	SI7053 SiLabs
I_{active} [µA]	75	135	50	600	90
I_{idle} [nA]	20	150	100	200	60 (620 @ 85°C)
$I_{1 Hz}$ [µA]	4.1	3.5 - 16	1.5	1.7	0.27
$I_{1/60 Hz}$ [nA]	80	210	130 [40]	225	63
t_{active} [ms]	50	16	32	2.5	2.4
E_{task} [µJ]¹	11.25	7.1	4.8	5.0	0.72
$A_{0/60}$ [°C]	0.3 / 0.5	0.1	0.4	0.1 typical 20 ~ 60 °C	-
$A_{-20/85}$ [°C]	-	< 0.2	-	0.3 max -40 ~ 90 °C	-
$A_{-40/125}$ [°C]	1.5 / 2.0	< 0.3	1.0	0.6 max -40 ~125 °C	0.3 max -40 ~125 °C
V_{min} [V]	2.4 - 3.5	1.8 - 5.5	1.8 - 3.6	2.4 - 5.5	1.9 - 3.6
Package type & size [mm]	QFN 16 3 x 3	WSON 6 2 x 2	CSP 6 1.5 x 1.0	DFN 8 2.5 x 2.5	DFN 6 3 x 3
2nd package type & size [mm]	CSP 12 1.39 x 0.93	-	-	-	-
Price [$] @1k	-	2.99 (Arrow)	0.81 (Digikey)	1.25 (Digikey)	1.45 (Arrow)

5.7.57 Trade fair on 05 January 2022

Key figures				
Name of event	**Consumer Electronic Show**			
Date	**5-8 January 2022**			
Place	**Las Vegas (USA)**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
	X	Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media	**X**	Trade fair

		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific Community (higher education, Research)	**X**	Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
	X	Policy markers		
Countries addressed	European countries, international			
Partners	LIGHTRICITY			

5.7.57.1 Scope of the event

CES 2022 was a 4-day tradeshow and a global showcase for the industry and attracts a large audience of industry commentators, technology scouts and R&D executives. This was an opportunity to showcase technologies to a large number of potential customers, collaborators and to raise the profile of Lightricity with the technical media.

5.7.57.2 Description of the participation

Lightricity has been selected to be one of 20 companies with a booth within the European Innovation Council (EIC) Pavilion at CES.

5.7.57.3 Audience reached

Industry, IT sector, scientific community

5.7.57.4 Feedback and follow-up

It is estimated the team had 200 face to face interactions (including visiting other companies booths) and 150 visitors to the Lightricity booth. This created 57 genuine leads that have been added to the CRM system and follow-up meetings have taken place.

5.7.57.5 Key figures

There were 2,300 exhibitors at CES 2022 (fewer than normal due to Covid), 1,800 global media and in excess of 40,000 visitors from 159 countries.

5.7.57.6 Photos

5.7.58 Conference on 13 January 2022

Key figures				
Name of event	**North American Neuromodulation Society 25th Annual Meeting**			
Date	**13-15 January 2022**			
Place	**Orlando, Florida, USA**			
Type of Activity		Organisation of conference paper reviews, poster presentation	**X**	Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media	**X**	Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other

Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
		Policy markers		
Countries addressed	Mostly USA			
Partners	MICRODUL			

5.7.58.1 Scope of the event

The three-day conference for education and promotion in Orlando, FL, the USA aimed at players in the neuro-modulation business with about 1900 participants.

5.7.58.2 Description of the participation

Microdul prepared a short presentation (90211074) of the AMANDA project, which was continuously presented on a laptop in a prominent position next to our demonstration model during the trade show.

5.7.58.3 Audience reached

16 leads for Microdul, and one person from Ilika visited the stand. 6 Flyers for the human body monitor and temperature sensor (forerunners of the AMANDA products) were taken.

5.7.58.4 Feedback and follow-up

16 leads, 3 of which were priority leads, with 1 for Microdul Semiconductors. There were no leads for the AMANDA project.

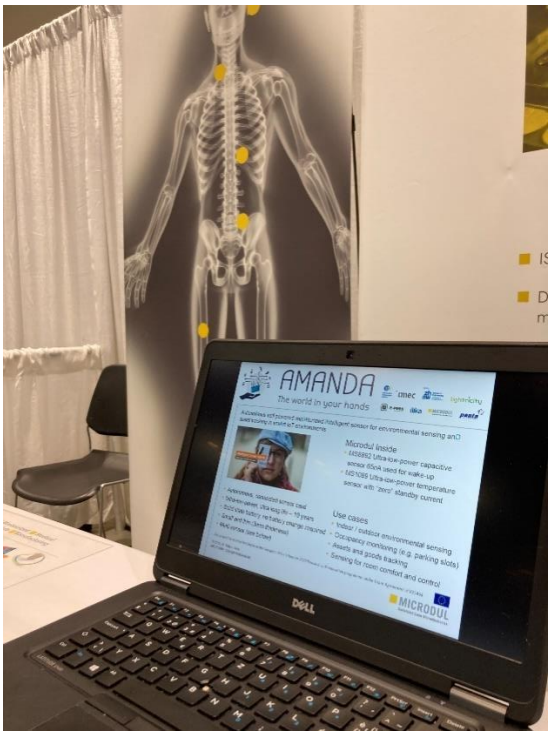
5.7.58.5 Key figures

Participation of 1900 people with about 80 companies exhibiting and 60 presentations.

5.7.58.6 Useful links

https://conference.neuromodulation.org/
https://www.microdul.com/en/news/newsarticles/news-trade-show-nans-2020.html

5.7.58.7 Photos


AMANDA
The world in your hands
MICRODUL


MICRODUL
Customized Swiss Microelectronics
MICRODUL
Customized Swiss Microelectronics
YOUR IDEAL PRODUCTION PARTNER FOR ELECTRONIC MEDICAL DEVICES
ISO 13485 certified
Development of low-power mixed-signal ASICs
Production of class III active implants
Qualification, validation, risk assessment
AMANDA
MICRODUL


MICRODUL
Customized Swiss Microelectronics
MICRODUL
Customized Swiss Microelectronics
YOUR IDEAL PRODUCTION PARTNER FOR ELECTRONIC MEDICAL DEVICES
ISO 13485 certified
Development of low-power mixed-signal ASICs
Production of class III active implants
Qualification, validation, risk assessment
AMANDA

5.7.59 Meeting on 25 March 2022

Key figures				
Name of event	**Smart Eco Parking, meeting**			
Date	**25 March 2022**			
Place	**Online**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))	**X**	Other
Type of Audience		Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
		Policy makers		
Countries addressed	Croatia, countries in the region			
Partners	PENTA			

5.7.59.1 Scope of the event

The Smart Eco Parking project is co-financed by the European Regional Development Fund, and it is one of the projects with an established connection with the AMANDA project. The SMART ECO PARKING and AMANDA project have a similar user group and field of application - SC03 Continuous occupancy monitoring in a parking lot.

5.7.59.2 Description of the participation

A SMART ECO PARKING Consortium meeting was held on 25 March 2022, all aiming to organise a webinar and present the project. SMART ECO PARKING webinar will be held on 1 June at 09:00 AM, and the plan is to invite cities and municipalities from Croatia and countries in the region. The AMANDA project will also be presented at the webinar, and the focus will be on using the AMANDA card in the parking solution proposed by PENTA.

5.7.59.3 Audience reached

Industry, customers

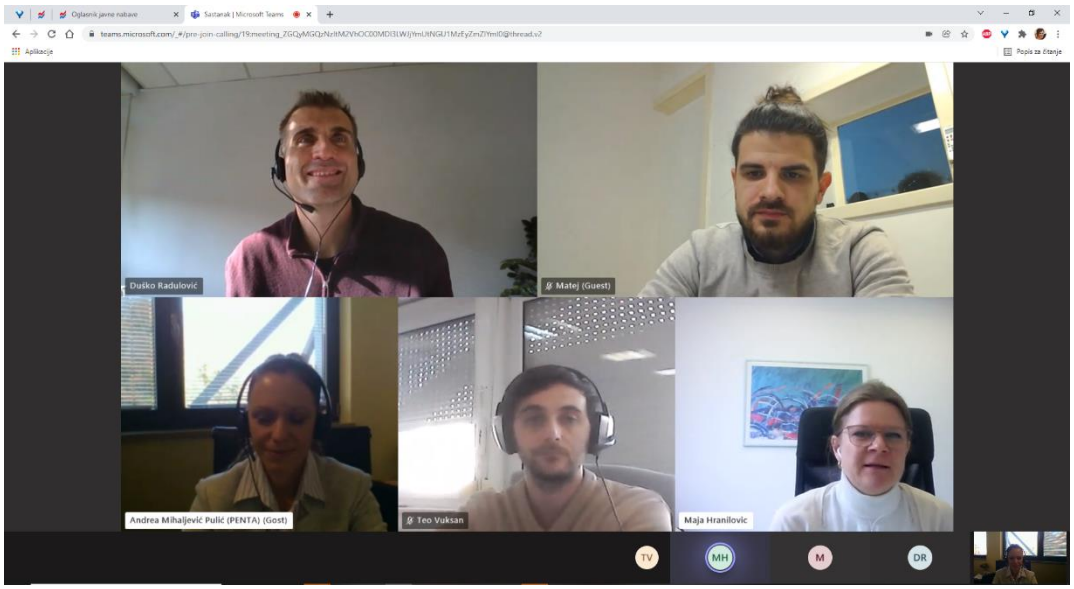
5.7.59.4 Feedback and follow-up

The cooperation between the SMART ECO PARKING and the AMANDA project is continuous. In addition to the webinars that will be held this year, a joint brochure of an informative and sales nature is also planned.

5.7.59.5 Key figures

5 participants from Croatia joined the meeting (PENTA, SENSUM, 3E PROJEKTI, ECORYS CROATIA)

5.7.59.6 Photos



5.7.60 Trade fair on 29 March 2022

Key figures				
Name of event	**Intertraffic Amsterdam 2022**			
Date	**29 March - 01 April 2022**			
Place	**Amsterdam (The Netherlands)**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
	X	Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media	**X**	Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other

Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
	X	Policy markers		
Countries addressed	European countries, international			
Partners	PENTA			

5.7.60.1 Scope of the event

Intertraffic Amsterdam is the leading global trade event for stakeholders involved in the full spectrum of the mobility ecosystem. Intertraffic Amsterdam is organised by RAI Amsterdam and took place from 29 March to 1 April 2022. It is the largest gathering of traffic and mobility professionals and offers the latest solutions in traffic infrastructure, traffic management, smart mobility, road safety and parking. Intertraffic Amsterdam provides the platform to explore 13 halls with the latest trends, products and services under one roof.

5.7.60.2 Description of the participation

PENTA participated as an exhibitor at the Intertraffic Amsterdam 2022 and was represented by Mladen Pamic (CEO), Oskar Vujicic (Project Manager), Andrea Mihaljevic Pulic (Marketing Manager) and Melisa Demarin (Account Manager). At this event, PENTA showcased its SMART ECO PARKING, GO2BIKE, GO2SHARE, and PARKELA solutions and presented the AMANDA project, emphasising the ASSC's application for continuous occupancy monitoring in a parking lot. AMANDA brochures were available at Penta's stand, namely, Application Note and Leaflet, while short videos showing the possibilities of using the AMANDA card were shown on 55'' TV.

5.7.60.3 Audience reached

Industry, IT sector, city representatives

5.7.60.4 Feedback and follow-up

After the exhibition, Penta sent a follow-up e-mail to all contacts on 7 April. Fifteen contacts were added to the AMANDA stakeholder list.

5.7.60.5 Key figures

Over the four event days, a grand attendee total of 23,526 from 121 countries worldwide engaged with 4,400 exhibiting industry specialists. The international attendance was 74%, with 20% originating from outside Europe (EU). 82% of attendees are involved in the decision-making process.

5.7.60.6 Photos


penta
parkela
GO2CHARGE


AMANDA

5.7.61 Trade fair on 12 April 2022

Key figures				
Name of event	**MD&M West**			
Date	**12-14 April 2022**			
Place	**Anaheim, California, USA**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference

		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media	**X**	Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
		Policy markers		
Countries addressed	USA and international (about 70 countries attending)			
Partners	MICRODUL, participation together with Switzerland Global Enterprise			

5.7.61.1 Scope of the event

Three-day show in Anaheim, California, aimed at the world medical device market. All major players in the medical market attend this show.

5.7.61.2 Description of the participation

Microdul prepared a short presentation (90211074) of the AMANDA project, which was presented on a laptop in a prominent position next to our demonstration model during the trade show.

5.7.61.3 Audience reached

About 50 discussions with different people. In two cases, AMANDA was discussed, but unfortunately, there was no real interest.

5.7.61.4 Feedback and follow-up

There were no direct contacts for AMANDA.

5.7.61.5 Business opportunities identified

20 contacts but no priority contacts for semiconductors or AMANDA. 3 contacts could lead to projects for Microdul.

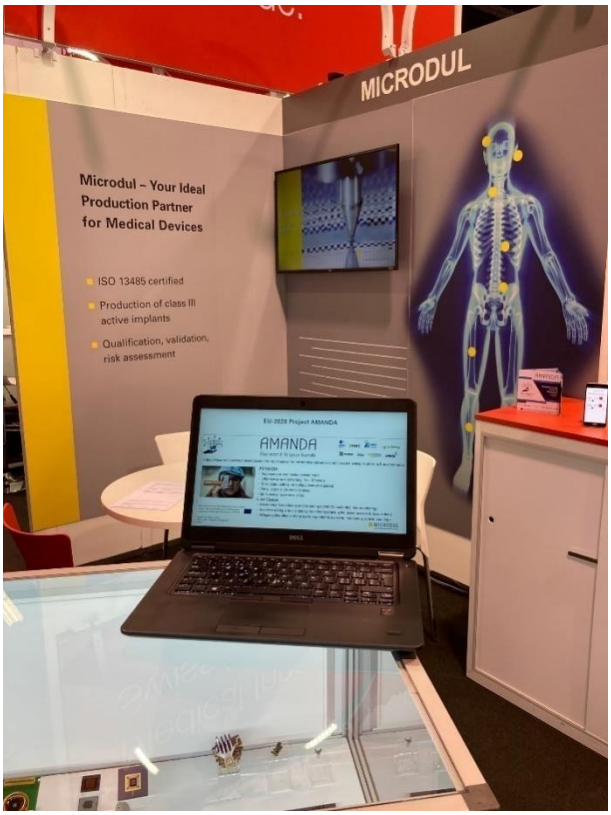
5.7.61.6 Key figures

Participation of 13’000 attendees, and 1’400 exhibitors from 70 countries.

5.7.61.7 Useful links

[MD&M West | Medical Design and Manufacturing Event (mdmwest.com)](https://www.mdmwest.com)
https://www.microdul.com/en/news/newsarticles/news-trade-show-md-und-m-west-2021/

5.7.61.8 Photos



5.7.62 Webinar on 19 April 2022

Key figures				
Name of event	**AMANDA – Autonomous Smart Sensing Card**			
Date	**19 April 2022**			
Place	**On-line webinar**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release	**X**	Participation to an event other than a conference or workshop (Webinar)
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
		Policy markers		
Countries addressed	European countries, international			
Partners	CERTH, ILIKA, PENTA, IMEC			

5.7.62.1 Scope of the event

The third episode of the AMANDA webinar series was held on Tuesday, 19 April 2022, focusing on applying the Autonomous Smart Sensing Card to detect vehicles and continuous occupancy monitoring in the parking area.

5.7.62.2 Description of the participation

The 3rd webinar provided an overview of AMANDA activities, main hardware and software components, as well as showcased the defined use cases and scenarios. The central part of the webinar was dedicated to custom AI methods for low-power systems and the application of the AMANDA card for continuous occupancy monitoring in a parking IoT.

5.7.62.3 Audience reached

Industry, IT sector, the scientific community

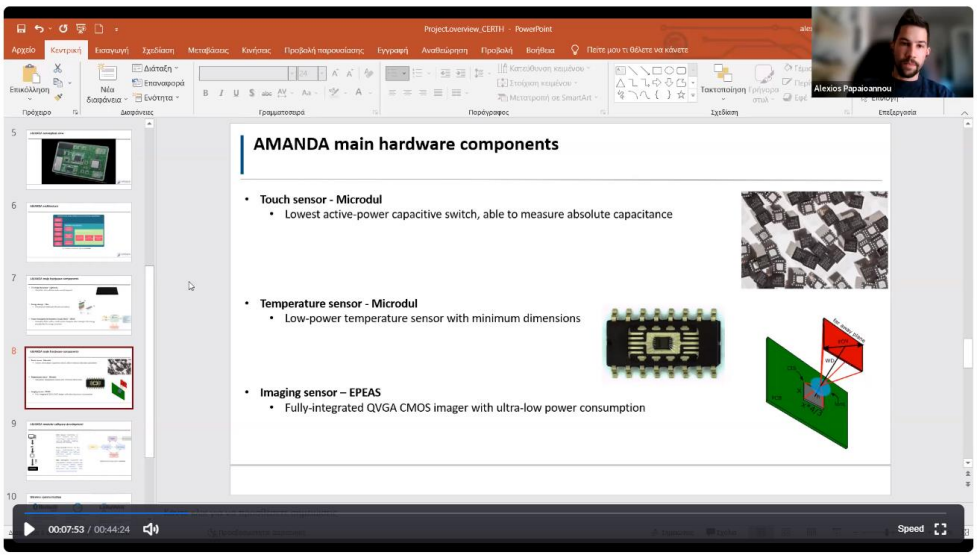
5.7.62.4 Feedback and follow-up

The follow-up e-mail was sent after the webinar. All who registered as participants received a link to the recording and webinar presentations. We also collected information on participants interested in receiving an invitation to a training session that will take place until the end of the AMANDA project.

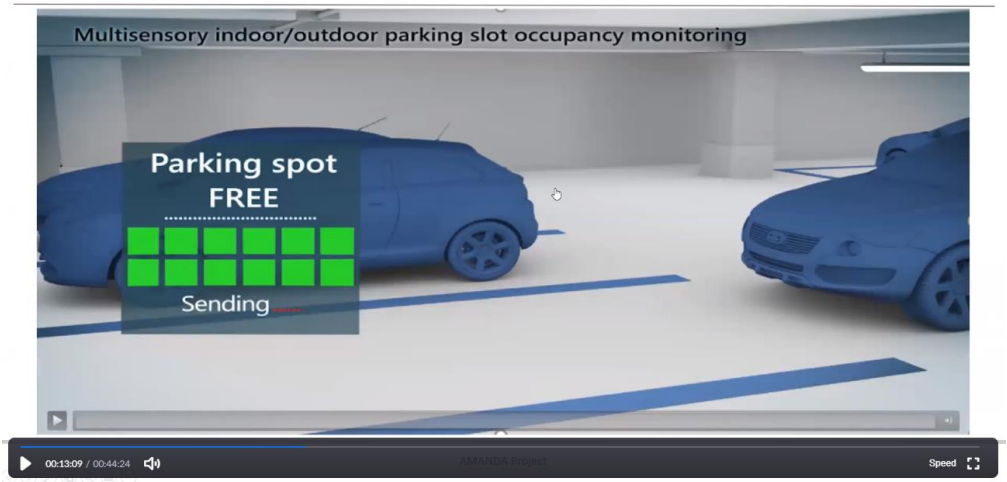
5.7.62.5 Key figures

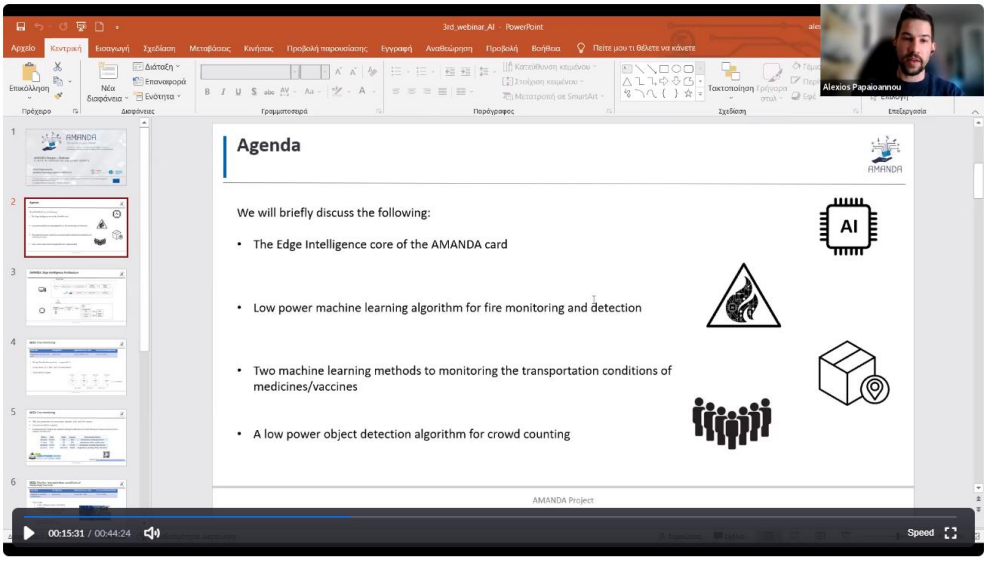
24 people registered for the webinar, but 23 attended

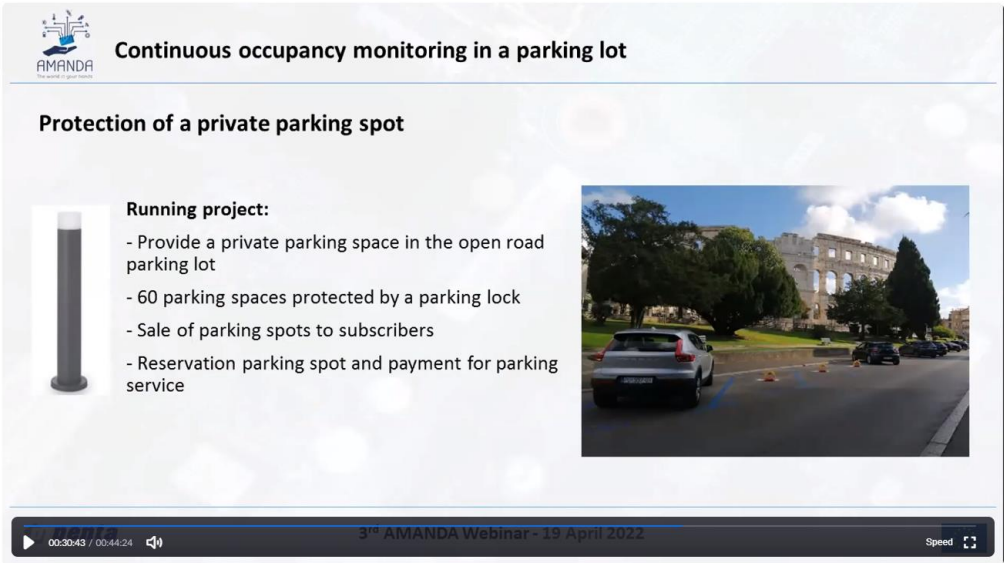
5.7.62.6 Photos



Scenario 3: Continuous occupancy monitoring in a parking lot







5.7.63 Trade fair on 03 May 2022

Key figures				
Name of event	**MedtecLive**			
Date	**03-05 May 2022**			
Place	**Nürnberg Messe**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media	**X**	Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
		Policy markers		
Countries addressed	Mainly European countries and some from USA and Japan			
Partners	MICRODUL			

5.7.63.1 Scope of the event
Three-day trade show in Nürnberg, Germany, mainly aimed at medical companies from Europe but with the participation of companies from outside Europe too.

5.7.63.2 Description of the participation
Microdul prepared a short presentation (90211074) of the AMANDA project, which was continuously presented on a laptop in a prominent position next to our demonstration model during the trade show.

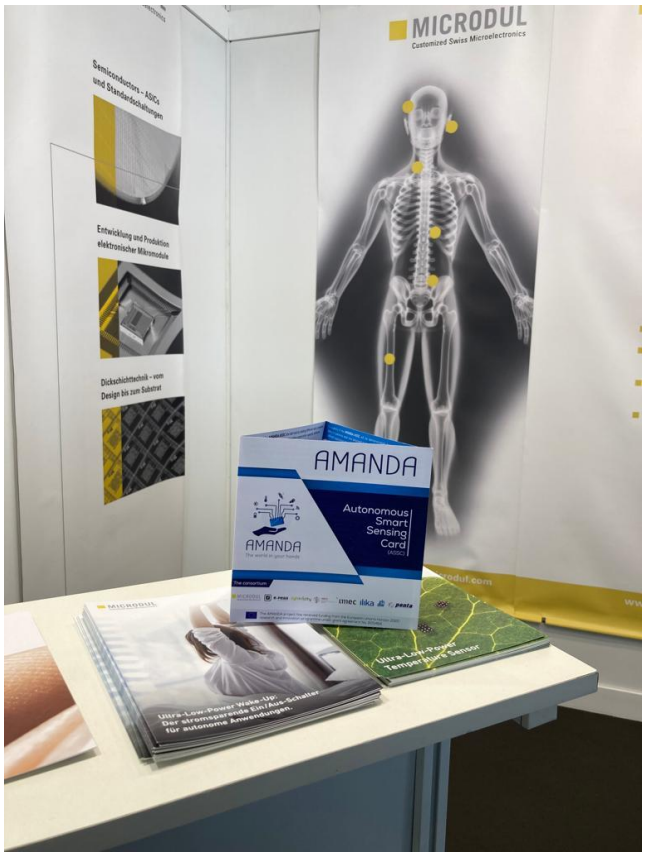
5.7.63.3 Audience reached
There were over 400 exhibitors, but there is no information about attendance available.

5.7.63.4 Feedback and follow-up
There were no direct leads for the AMANDA project, but there were 9/44 leads that Microdul will follow up for possible projects.

5.7.63.5 Business opportunities identified
Microdul had 44 contacts, with 3 possible high-priority project leads. Unfortunately, there were no direct leads for the AMANDA project.

5.7.63.6 Key figures
There were over 400 exhibitors, but there is no information about attendance available. Microdul had 44 contacts but none for AMANDA.

5.7.63.7 Useful links
[Microdul AG - News | Trade Show: MedtecLIVE with T4M May 2022]

5.7.63.8 Photos


5.7.64 Conference on 06 May 2022

Key figures				
Name of event	**Let's Grow Conference**			
Date	**06 May 2022**			
Place	**Pula (Croatia)**			
Type of Activity		Organisation of conference paper reviews, poster presentation	**X**	Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
	X	Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society		Customers
	X	General Public		Other
		Policy markers		
Countries addressed	Croatia			
Partners	PENTA			

5.7.64.1 Scope of the event

"Let's Grow" is a significant gathering of technology companies, STEM educators and influencers to present what's latest and best in the Istrian ICT. Founders and managers at local technology companies, including PENTA d.o.o., welcomed students, engineers, digital nomads, and startup founders to unveil the full potential of the Istrian Peninsula in the future of technology. The conference "Let's Grow", powered by ICT Istria, gathered 20 inspiring and professional lecturers as well as 25 exhibitors in the ICT sector.

5.7.64.2 Description of the participation

PENTA is an active member of ICT Istria, a nonprofit association of software and IT companies, promoting Istria as a global IT hub with opportunities for career growth and fulfilling life - at the same time. Mladen Pamic (CEO), Andrea Mihaljevic Pulic (Marketing Manager) and Melisa

Demarin (Account Manager) were present in the hall at the small Penta's booth and introduced visitors to the company's portfolio and raised awareness of EU projects in implementation, including the AMANDA project.

5.7.64.3 Audience reached

IT sector, the scientific community

5.7.64.4 Feedback and follow-up

The exhibition and conference were not of a sales nature but exclusively a presentation of companies and projects in progress

5.7.64.5 Photos

5.7.65 Trade fair on 10 May 2022

Key figures				
Name of event	**IT-TRANS 2022**			
Date	**10 May - 12 May 2022**			
Place	**Karlsruhe (Germany)**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference

		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
	X	Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media	**X**	Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience		Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
	X	Policy markers		
Countries addressed	European countries, international			
Partners	PENTA			

5.7.65.1 Scope of the event

The world-renowned specialised IT fair and conference IT-TRANS 2022 was held from 10-12 May 2022 in Karlsruhe, Germany. IT-TRANS 2022 gathered experts and leading world companies in information technology with applications in public transport. This year's fair covered more than 28,000 square meters and brought together industry partners who presented their top products, such as IT systems for passenger information, e-ticketing systems, autonomous vehicles and other IT solutions in the public transport sector. The fair also featured a conference on critical issues - how public transport can benefit from new technologies and trends such as artificial intelligence and the Internet of Things, digital transformation, traffic and traffic management, ticketing and payment, and data ownership and control.

5.7.65.2 Description of the participation

PENTA participated as an exhibitor and was represented by Mladen Pamic (CEO), Igor Kolic (Product developer), Andrea Mihaljevic Pulic (Marketing Manager) and Melisa Demarin (Account Manager). It was an excellent opportunity to share novelties related to AMANDA project activities and the development of a miniature version of the Autonomous Smart Sensing Card (ASSC). At this leading international conference and exhibition focused on IT solutions for public transport, PENTA also showcased the BusCARD solution, an integrated system for public transport, fare collection and e-ticketing, as well as CityPASS - City Card solution that allows the use of a wide range public services such as public transport, parking, bicycle rental or visits to museums, libraries and sports facilities, all with just one card/account.

AMANDA brochures were available at Penta's stand (Application Note, Leaflet), while short videos showing the possibilities of using the AMANDA card were shown on 75'' TV.

5.7.65.3 Audience reached
Industry, IT sector, city representatives

5.7.65.4 Feedback and follow-up
After the exhibition, Penta sent a follow-up e-mail to all contacts on 16 May.

5.7.65.5 Key figures
Jointly organised and hosted by UITP and Messe Karlsruhe, the 2022 edition concludes with numbers: 800 conference delegates, 276 exhibitors, 6500 exhibition visitors and delegates from 71 countries.

5.7.65.6 Photos

5.7.66 Trade fair on 10 May 2022

Key figures	
Name of event	**Sensor & Test 20212**
Date	**10-12 May 2022**
Place	**Nürnberg, Germany**

Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media	**X**	Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience		Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
		Policy markers		
Countries addressed	Germany, Europe, Worldwide			
Partners	MICRODUL			

5.7.66.1 Scope of the event

Sensor & Test was held in Nürnberg, Germany in May 2022. There were 370 exhibitors and about 4’500 visitors of which about 1’300 visitors from outside Germany.

5.7.66.2 Description of the participation

Microdul was represented by Phil Poole (Director Semiconductors), Adrian Stalder (Technical Sales), Marian Lancki (Sales, Germany) and Roland Steger (Sales, Germany). Slides about the AMANDA project (M90-21-1074) were shown during the show.

5.7.66.3 Audience reached

Several hundred people walked past the Microdul stand.

5.7.66.4 Feedback and follow-up

There were 48 leads of which 4 were first priority leads and 18 second priority.

5.7.66.5 Business opportunities identified

There were no leads for the AMANDA project.

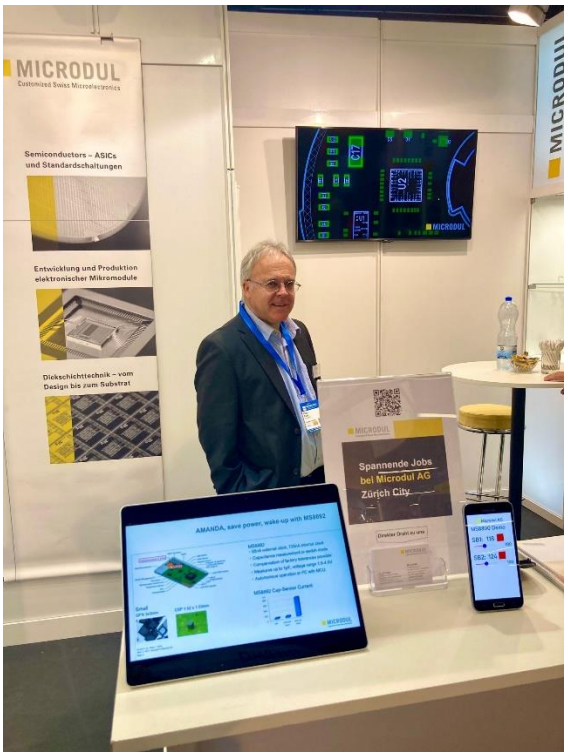
5.7.66.6 Key figures

4’500 visitors, 370 exhibitors, 48 leads.

5.7.66.7 Useful links

https://www.sensor-test.de/sensor-test-2023-for-exhibitors/exhibition-analysis-sensor-test-2022/

5.7.66.8 Photos



5.7.67 Webinar on 01 June 2022

Key figures				
Name of event	**SMART ECO PARKING**			
Date	**01 June 2022**			
Place	**On-line webinar**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release	**X**	Participation to an event other than a conference or workshop (Webinar)
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience		Scientific Community (higher education, Research)		Medias
		Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
	X	Policy markers		
Countries addressed	Croatia and countries in the region			
Partners	PENTA			

5.7.67.1 Scope of the event

PENTA d.o.o., project leader and 3E PROJEKTI d.o.o. and SENSUM d.o.o., project partners in cooperation with the Association of Cities, organised a webinar on Smart Eco Parking. The online workshop/webinar was held on Wednesday, 01 June 2022. It lasted one hour, and it was intended for representatives of local and regional self-government units. There is growing pressure from EU regulations to regulate all forms of transport, including stationary traffic (parking), reducing greenhouse gas emissions, preserving the environment, and the impact of transport on climate change. Dealing with the climate crisis and extreme weather events means developing and expanding solutions for decarbonised urban mobility

5.7.67.2 Description of the participation

The webinar answered the questions on smart mobility and how to digitise stationary traffic. How to increase traffic sustainability, facilitate the business of stationary transport system operators (parking) and satisfy drivers as end users? How to turn stationary traffic into green

oases instead of thermal islands? The webinar brought together leading experts who jointly analysed the following topics:

- Introductory remarks by Integrator - Maja Hranilovic, ECORYS HRVATSKA d.o.o.
- Digital solutions for SMART parking – Oskar Vujicic, PENTA d.o.o.
- Green infrastructure - Nikolina Kreso, 3E PROJEKTI d.o.o.
- Climate change – Daniel Rodik, SENSUM d.o.o.
- Closing remarks – Andrea Mihaljevic Pulic, PENTA d.o.o.

In the presentation "Digital solutions for SMART parking", a few minutes and one slide were dedicated to the AMANDA project and the proposal to use the AMANDA card to preserve private parking spaces.

5.7.67.3 Audience reached

Local and regional self-government units (cities, municipalities)

5.7.67.4 Feedback and follow-up

After the webinar, all registered received a follow-up e-mail with a link to download the presentations and a link to a recording of the webinar.

5.7.67.5 Key figures

35 people registered for the webinar, but 27 attended

5.7.67.6 Photos

SEP & AMANDA Project

AMANDA
The world in your hands

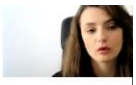
AMANDA ASSC (Autonomous Smart Sensing Card)
kao rješenje konrole zauzetosti parkirnog mjesta

- AMANDA project –znanstveno istraživački projekt financiran iz HORIZON 2020 fonda-sudjeluju znanstveno istraživačke institucije i tvrtke iz 8 EU država
- AMANDA kartica sadrži 9 senzora (temperatura, vlažnost, tlak zraka, magnetni senzor, akcelerometar, CO2 senzor, kapacitivni senzor, senzor slike, VOC senzor, senzor svijetla
- Prijenos podataka putem BLE, LoRa ili NFC
- Sadrži foto naponske elemente (min osvjetljenje 20 Luxa) i baterije koje osiguravaju potpunu autonomiju

U procesu detekcije prisutnosti (dolaska i odlaska vozila s parkirnog mjesta) sudjeluju senzor svijetla, magnetni senzor, akcelerometar i senzor slike.

SMART ECO PARKING

PRIMJERI DOBRE PRAKSE



Ozelenjavanje parkirališta

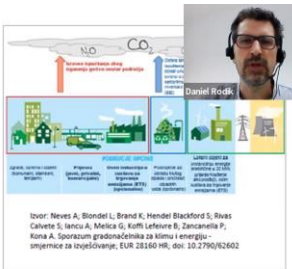
- Osiguravanje zasjene
- Prostorno planska dokumentacija

Izvor: Toronto and Region Conservation Authority (TRCA)

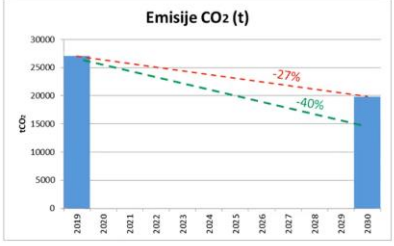
SMART ECO PARKING

SECAP

- Akcijski plan energetski održivog razvoja i prilagodbe na klimatske promjene u Gradovima i Općinama
- Europski Sporazum gradonačelnika za klimu i energiju od 2008.
- Određuje viziju i cilj smanjenja emisija u 2030.
- Analizira potrošnju energije i prateće emisije CO_2 u 4-godišnjim periodima (zgradarstvo, **promet** i javna rasvjeta)
- Donosi plan mjera za **ublažavanje** klimatskih promjena i mjere za **prilagodbu** na klimatske promjene – ZELENA RJEŠENJA
- Lokalne mjere koji doprinose globalnim i EU ciljevima (50% smanjenje emisije do 2030.)
- http://www.covenantofmayors.eu



Izvor: Neves A; Blondel L; Brand K; Hendel Blackford S; Rivas Calvete S; Iancu A; Melica G; Koffi Lefeivre B; Zancanella P; Kona A. Sporazum gradonačelnika za klimu i energiju - smjernice za izvješćivanje; EUR 28160 HR; doi: 10.2790/62602



SMART ECO PARKING

5.7.68 Conference on 07 June 2022

Key figures				
Name of event	**MECO&CPSIoT 2022**			
Date	**07-10 June 2022**			
Place	**Budva, Montenegro**			
Type of Activity		Organisation of conference paper reviews, poster presentation	**X**	Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
	X	Civil Society		Customers
	X	General Public		Other
	X	Policy markers		
Countries addressed	All (It was a virtual event)			
Partners	CERTH			

5.7.68.1 Scope of the event

MECO&CPSIoT 2022 is an International Scientific Forum aimed to present and discuss the leading achievements in the modelling, analysis, design, validation and application of embedded computing systems, as well as in the broader sense of complete computer systems with applications and related fields. MECO is one of the most referenced conferences in Embedded Computing, Cyber-physical Systems and the Internet of Things.

5.7.68.2 Description of the participation

Chrisa Oikonomou from CERTH attended the event (online), presenting the paper “An Encryption Scheme using Dynamic Keys and Stream Ciphers for Embedded Devices”. That paper is related to all of the scenarios of the Amanda Project.

5.7.68.3 Audience reached

Scientific Community

5.7.68.4 Key figures

On-site and online attending choices are available

5.7.68.5 Useful links

https://mecoconference.me/
https://amanda-project.eu/documents/dissemination-materials/send/5-dissemination-materials/61-cpsiot-2022-an-encryption-scheme-using-dynamic-keys-and-stream-ciphers-for-embedded-devices

5.7.68.6 Photos

5.7.69 Conference on 14 June 2022

Key figures				
Name of event	**Swiss Medtech-Day 2022**			
Date	**14 June 2022**			
Place	**Bern, Switzerland**			
Type of Activity		Organisation of conference paper reviews, poster presentation	**X**	Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
		Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other

Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
		Policy markers		
Countries addressed	Switzerland and German speaking European companies			
Partners	MICRODUL as a member of Swiss Medtech			

5.7.69.1 Scope of the event

One-day conference for education and promotion in Switzerland, Bern aimed at medical companies.

5.7.69.2 Description of the participation

Microdul prepared a short presentation (90211074) of the AMANDA project, which was continuously presented on a laptop in a prominent position next to our demonstration model during the trade show. AMANDA brochures were on hand.

5.7.69.3 Audience reached

14 visitors with potential interest and discussion for Microdul products or services.

5.7.69.4 Feedback and follow-up

About 14 leads for Microdul and 1 priority lead but none for AMANDA. However, 10 brochures for capacitive switch products and 10 brochures for temperature sensor products were taken.

5.7.69.5 Key figures

Participation of about 100 companies and about 600 people. About 200 people walked past the Microdul booth.

5.7.69.6 Useful links

https://www.swissmedtechday.ch/

5.7.69.7 Photos

5.7.70 Conference on 23 June 2022

Key figures

Name of event	**Embedded world 2022**			
Date	**23 June 2022**			
Place	**Nuremberg, Germany**			
Type of Activity		Organisation of conference paper reviews, poster presentation	**X**	Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
	X	Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media		Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience	**X**	Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society		Customers
		General Public		Other
		Policy markers		
Countries addressed	International			
Partners	ZHAW			

5.7.70.1 Scope of the event

Every year, experienced developers come together in Nuremberg to share their knowledge and help others turn ideas and innovations into real products. The international embedded community met for the 20th time in the exhibition halls in Nuremberg and again impressively demonstrated that it is rightly the leading exhibition of the international embedded community.

5.7.70.2 Description of the participation

On 23 June 2022, ZHAW (Marcel Meli, Stefan Kunz) had a presentation at Embedded World Conference related to energy harvesting and new memory types and energy harvesting.

5.7.70.3 Audience reached

Industry, academia (30 people were in the room listening the presentation)

5.7.70.4 Key figures

More than 720 exhibitors from 39 countries, 18,000 international embedded experts, 75 exhibitor presentations, 7 expert panel discussions in the three exhibitor forums, 196 presentations, 10 classes and 3 keynotes in the conferences

5.7.70.5 Useful links

https://www.embedded-world.de/en
https://amanda-project.eu/documents/dissemination-materials/send/5-dissemination-materials/67-embedded-world-2022-using-new-memory-technologies-to-reduce-the-energy-requirements-of-lpwan-nodes-zhaw

5.7.70.6 Photos

5.7.71 Trade show on 28 June 2022

Key figures	
Name of event	**Sensors Converge**
Date	**28-29 June 2022**
Place	**San Jose, USA**

Type of Activity		Organisation of conference paper reviews, poster presentation	**X**	Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
	X	Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media	**X**	Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience		Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
		Policy markers		
Countries addressed	USA, International			
Partners	ILIKA			

5.7.71.1 Scope of the event

Description from event's own website: "Discover the future at the only event where the building blocks of IoT converge. Sensors, processing, and connectivity. Hear real stories and see the latest technology applications. Join the sensors and electronics community June 27-29 at the ONLY event covering the biggest design engineering trends. From sensors and chips to the cloud, Sensors Converge covers the technolo-gies and applications driving innovation of the future."

5.7.71.2 Description of the participation

ILIKA participated in this event in two ways:

- ILIKA had its own booth #1013, manned by Denis Pasero and Gary Johnson. In addition to promoting Ilika's solid state batteries, brochures from the AMANDA project were displayed
- Oral presentation: this slide was shown

5.7.71.3 Audience reached

Industry, academia

5.7.71.4 Feedback and follow-up

After the exhibition, ILIKA sent a follow-up e-mail to all contacts.

5.7.71.5 Key figures

200 exhibitors, 100 speakers, 5000 attendees.

5.7.71.6 Useful links

https://www.sensorsconverge.com/

5.7.71.7 Photos


Solid State Battery Technology
Miniature Dies
Customisable Shapes and Performance
Stereax solid state micro batteries:
Fast charge
High energy
Mm-size
Ultra-thin
High cycle life
AMANDA
Autonomous Smart Sensing Card


ilika | stereax
Miniature Solid State Batteries for the Connected World
Stereax® M300 – Stacked, High Density, Millimetre-scale Solid State Battery
AMANDA
ilika
Ultra-low Power Electronics Ecosystem
ilika stereax
www.ilika.com

5.7.72 Trade fair on 20 September 2022

Key figures				
Name of event	**InnoTrans 2022**			
Date	**20-23 September 2022**			
Place	**Berlin (Germany)**			
Type of Activity		Organisation of conference paper reviews, poster presentation		Participation to a conference
		Organisation of a workshop		Participation to a workshop
		Press release		Participation to an event other than a conference or workshop
	X	Exhibition		Brokerage event
		Flyers training		Pitch event
		Social media	**X**	Trade fair
		Web-site		Participation in activities organised jointly with other H2020 project(s)
		Communication campaign (e.g radio, TV))		Other
Type of Audience		Scientific Community (higher education, Research)		Medias
	X	Industry		Investor
		Civil Society	**X**	Customers
		General Public		Other
	X	Policy markers		
Countries addressed	European countries, international			
Partners	PENTA			

5.7.72.1 Scope of the event

InnoTrans is the world's leading trade fair for transport technology and takes place every two years in Berlin. The five segments at InnoTrans are Railway Technology, Railway Infrastructure, Public Transport, Interiors and Tunnel Construction. InnoTrans is organised by Messe Berlin. The thirteenth edition of InnoTrans took place on the Berlin Exhibition Grounds from 20 to 23 September 2022. A total of 57.3 per cent of visitors come from abroad. The high rate confirms InnoTrans' status as the world's leading trade fair. Trade visitors are primarily interested in rail transport technology, rail transport infrastructure and the 3.5-kilometre track and outdoor exhibition area. This is followed by the new Mobility+ exhibition area, a platform for services and products relating to Mobility complementary to public transport.

5.7.72.2 Description of the participation

PENTA participated as an exhibitor in hall 6.1 (Public transport and Mobility), stand 380 and was represented by Mladen Pamic (CEO), Igor Kolic (Product developer), Andrea Mihaljevic

Pulic (Marketing Manager) and Melisa Demarin (Account Manager). At our stand PENTA showcased BusCARD, CityPASS, Go2Bike and Go2Charge solutions that create smarter Mobility. Furthermore, Innotrans was the right place to present several EU projects, including the AMANDA. Given that the AMANDA project is ending, we took the opportunity to invite potential users of the AMANDA card to the fair. We held meetings where the main goals of the project were presented to them, what we achieved in the development of hardware and software. Most importantly, we explained the AMANDA use cases and possible scenarios. Meetings were held with the companies NOVATRONIC doo (Novi Sad, Serbia) and New Line Technologies Kft - DELTA Group (Budapest, Hungary).
AMANDA brochures were available at Penta's stand (Application Note, Leaflet), while short videos showing the possibilities of using the AMANDA card were shown on 75'' TV.

5.7.72.3 Audience reached
Industry, IT sector, city representatives

5.7.72.4 Feedback and follow-up
After the exhibition, Penta sent a follow-up e-mail to all contacts on 28 September

5.7.72.5 Feedback and follow-up
Around 140,000 visitors from over 131 countries came to the world's leading trade fair. 2,834 exhibitors from 56 countries were present.

5.7.72.6 Photos



BusCARD
CityPass
www.penta.hr
AMANDA
penta
imec
e-peas
MICRODUL
lightricity
ilika
BusCARD
systems
GO2BIKE


penta
ID SYSTEMS
AMANDA

5.8 Scientific papers and other publications

AMANDA has been actively looking for high-profile academic and industrial events within the project's domain of interest. The following Table presents scientific publications on project-related topics that were produced and published up to M45 and publications planned in 2022. All published scientific publications are accessible and comply with the open access obligations. Publications are available on Zenodo and the AMANDA project website, including a direct link to the paper:

- https://amanda-project.eu/documents/scientific-papers-and-publications

No.	Title	Leading author	Title of the journal or series	Publisher	Year of publication
Published					
1.	AMANDA: An Autonomous Self-Powered Miniaturized Smart Sensing Embedded System	CERTH	2019 IEEE International Conference of Consumer Electronics	IEEE	2019
2.	Powering Sigfox nodes with harvested energy	ZHAW	Embedded World 2020	Weka Medien	2020
3.	Low power LoRaWAN node based on FRAM microcontroller	ZHAW	2020 IEEE 5th International Symposium on Smart and Wireless Systems	IEEE	2020

4.	Low light energy autonomous LoRaWAN node	ZHAW	2020 IEEE 5th International Symposium on Smart and Wireless Systems	IEEE	2020
5.	A low-power fire monitoring and detection system on embedded systems using a multilayer perceptron	CERTH	IEEE Sensors Applications Symposium 2021	IEEE	2021
6.	An encryption scheme using dynamic keys and stream ciphers for embedded devices	CERTH	CPS&IoT 2022 - the 10th International Conference on Cyber-Physical Systems and IoT	IEEE	2022
7.	Using New Memory technologies to Reduce the Energy Requirements of LPWAN Nodes	ZHAW	Embedded World 2022	Weka Medien	2022
8.	Facilely Fabricated Single-Use Impedimetric Carbon Dioxide Sensor Employing a Room Temperature Ionic Liquid (RTIL)/Polymer Gel	IMEC	Journal of the American Chemical Society (Submitted in September 2022)	ACS	2022
9.	Water quality sensors network - from transducer technology to environmental application	IMEC	IEEE Internet of Things Journal (Submitted in September 2022)	IEEE	2022
10.	An Ultra-Low-Power Embedded AI Fire Detection and Crowd Counting System for User Alertness	CERTH	Transactions on Embedded Computing Systems	ACM	2022
Foreseen					
1.	Solar Cell used to power a LoRaWAN node (COTS) working down to 10 lux	ZHAW	TBD (Journal publication)	TBD	2022
2.	LPWAN CO_2 sensor for Office Environment	ZHAW	TBD (Journal publication)	TBD	2022

3.	Low-power touch and RTC component	CERTH, ZHAW, MICRODUL	TBD (Journal publication)	TBD	2022
4.	Implementation and evaluation of the Edge Intelligence module of the ASSC	CERTH	TBD (Journal publication)	TBD	2022
5.	An embedded intrusion detection system using a multivariable multi-layer perceptron for Man in the Middle attacks in BLE communications	CERTH	TBD (Journal publication)	TBD	2022

Table 67 Scientific papers and other publication

5.9 Cooperation with other EC funded projects and initiatives

During the second and third years of the project, online research on projects with similar thematic interests was conducted, and an initial invitation for an exchange of knowledge was sent. The intention is to cooperate with existing initiatives, projects, and associations by establishing effective communication to ensure that all dissemination activities, including the promotion and follow-up of project results, will reach a wider audience of targeted stakeholders. The following Table shows projects that accepted the invitation and provides concrete options for professional knowledge exchange. Cooperation with listed projects and initiatives continues until the end of the project but also after its completion.

Project name, website, logo if available	**Funding body**	**Project description**	**Link with AMANDA project**
5E Project https://5e-project.eu/ eeeee	Horizon 2020	5E project provides the Digital Showcase, an online platform that aims to increase the visibility of innovative European electronics products, particularly products whose innovative character builds on Nano-Electronics, Flexible & Wearable Electronics and Electronic Smart Systems.	AMANDA ASSC was added in the Digital Showcase of 5E (https://5e-project.eu/portfolio/amanda-project/), which creates new opportunities for visibility, promotion, and networking to European actors, from industry and academia to advanced technologies. Registration of AMANDA to the 5E Digital Showcase

			opened the door to the 5E contest, and the application is submitted on 19 March 2021. The 5E Contest was organised in the framework of the 5E Project and intended to highlight the importance of outstanding electronics products in Europe and celebrate their excellence in the areas of nano-electronics (NE), flexible-organic and printed electronics (FOPE) and electronic smart systems (ESS). The 5E Consortium received in total 33 applications from 10 different countries. All the applications have been evaluated by 8 external evaluators representing the European Electronics Industrial Associations.
SPARK Sense https://sparksense.eu/	European Regional Development Fund (ERDF)	The goal of the project is to find and establish an adequate solution/system that will reduce the traffic jam and at the same time make it easier for drivers to carry out their daily duties by providing parking space reservation in the city centre; development of the mobile application,	There is a possibility to test AMANDA ASSC for the operational scenario “Continuous occupancy monitoring in a parking lot”. Instead of using SPARK Sense's parking sensors, ASSC

		parking sensor, parking barriers, new forms of payment	could provide information about a parking spot's occupancy status and detect vehicles. The project has a similar user group and field of application.
SMART ECO PARKING 	European Regional Development Fund (ERDF)	Development of innovative service "SMART ECO PARKING" and innovative product "SMART PARKING" offering intelligent transport solutions intended for urban and stationary traffic (parking) and the development of green infrastructure, reducing the impact on climate change in urban areas	The project has a similar user group and field of application (Continuous occupancy monitoring in a parking lot). Within the SMART ECO PARKING project, a Consortium consisting of three partners has the opportunity to promote the AMANDA project and offer the ASSC as one of the solutions for the sustainable development of stationary traffic (parking). Meetings with the Smart Eco Parking Consortium are held regularly (DAR in section 5.7.39, 5.7.59), and a brochure has been prepared in which a section is dedicated to the AMANDA project. AMANDA and SMART ECO PARKING projects jointly attended the Smart City Expo World Con-

			gress 2021 in Barcelona (DAR in Section 5.7.54) and Intertraffic Amsterdam 2022 (DAR in Section 5.7.60). Also, SMART ECO PARKING organized a webinar on June 1, 2022 (DAR in section 5.7.67), and one of the sessions was dedicated to the presentation of results and use cases of the ASSC.
SUNSAFE IoT 	European Regional Development Fund (ERDF)	The aim of the project is the development of SUNSAFE IoT product (smart umbrella) as a result of the implementation of research, development and innovation activities that meet the needs of the tourism sector and are in line with the thematic priority area S3, energy and sustainable environment. It is based on innovative technologies, development of advanced sensor networks in the Internet of Things, management of large amounts of data and cloud solutions	Similar technologies are being used in both projects (LoRa IoT communication, BLE, sensor technology), so an exchange in knowledge and evaluation techniques is expected. The first meeting was held in January 2021 (DAR in section 5.7.41).
ESAIRQ (Environmental Sensors for Air Quality) 	PENTA	Design an electrochemical sensor for CO_2 based on ionic liquid electrolytes, including a readout and data algorithms for data quality improvement.	The ESAIRQ project deals with the investigation of ionic liquid-based sensors for air quality analysis. The sensor developed for the AMANDA project has stricter requirements (size,

			energy consumption), but the sensing principle is equivalent. Also, insights in electronics developments, algorithms and sensor limitations can be exchanged between projects.
Flexible, self-powered and modular E-textile platform for sport, health and safety applications	Innovate UK	The project will develop disruptive e-textiles for sport and healthcare markets and the capability to greatly reduce the dependence on battery systems for these wearable technologies by using Lightricity's energy harvesting technology.	The wearable versions of the AMANDA will benefit from this project outcome (lightweight, flexible PV device, low-power electronics for activity tracking/monitoring)
PETS (PErpetual Track Sensors)	Innovate UK	Development of self-powered sensors for monitoring key parameters affecting the performance of the railway infrastructure (load, temperature, shock, etc.)	Uses similar technologies (miniaturised battery, PMIC, some sensors) and circuit design knowledge could help in AMANDA; It Also uses different technologies (vibration harvesting) in a completely different but relevant environment

Table 68 Interaction with other EU funded projects

The Consortium also identified the need to liaise with operational Digital Innovation Hubs (DIH) related to AMANDA objectives, take advantage of one-stop-shops, access technology testing, financing advice, market intelligence and networking opportunities. An initial list of DIHs has been drafted and summarised below. Also, the updated status of cooperation with each DIH is listed.

Country	**Name**	**Status**
The Netherlands	TechMed Innovation Hub	Added contact to the internal list of stakeholders; delivered 2nd, 3rd, 4th, 5th and 6th

		Newsletter; initial reach-out email sent in M24 (cooperation proposal)
Greece	Foundation for Research and Technology – Hellas (FORTH) / PRAXI Network	Added contact to the internal list of stakeholders; delivered 2nd, 3rd, 4th, 5th and 6th Newsletters; initial reach-out email sent in M24 (cooperation proposal). Praxi Network suggested membership in EEN, connected the Consortium with contact persons and helped prepare a profile in the largest online database of business opportunities
Croatia	CROBOHUB Croatian Robotics Digital Innovation Hub	Added contact to the internal list of stakeholders; delivered 2nd, 3rd, 4th, 5th and 6th Newsletter; initial reach-out email sent in M24 (cooperation proposal)
Croatia	CybersecRDI: Cybersecurity Research, Development and Innovation Hub	Added contact to the internal list of stakeholders; delivered 2nd, 3rd, 4th, 5th and 6th Newsletter; initial reach-out email sent in M24 (cooperation proposal)
Germany	DIGIHUB Südbaden	Added contact to the internal list of stakeholders; delivered 2nd, 3rd, 4th, 5th and 6th Newsletter; initial reach-out email sent in M24 (cooperation proposal)
UK	DigiCat (London Digital Catapult)	Added contact to the internal list of stakeholders; delivered 2nd, 3rd, 4th, 5th and 6th Newsletter; initial reach-out email sent in M24 (cooperation proposal); 1st introduction meeting held online in M25 (DAR in Section 5.7.40). They also received invitations to the AMANDA webinars and responded and attended the 1st and 3rd webinars

Table 69 List of relevant Digital Innovation Hubs

Furthermore, the AMANDA project identified initiatives and networks that can help in our effort to raise the project's positive reputation and attract potential clients and customers.

Name, website, logo if available	Status
Enterprise Europe Network (EEN) https://een.ec.europa.eu/	Link to the AMANDA project profile in EEN: https://een.ec.europa.eu/tools/services/PRO/Profile/Detail/0747f023-3971-4ce1-bcf9-19767c11bf1b. EEN is the largest online database of business opportunities that helps businesses innovate and grow on an international scale. It is the world's largest support network for small and medium-sized enterprises (SMEs) with global ambitions. The EEN helps AMANDA find the right international partners to grow, access new markets and distribute the proposed solution. The cooperation with the EEN organisation continues, and the project gained new business contacts added to the stakeholder list.
ICT Istria Association https://ict-istra.hr/en	ICT Istria Association is a nonprofit association of software and IT people and companies, promoting Istria/Croatia as a global IT hub with opportunities for career growth and business opportunities. PENTA is an active member of ICT Istria and will promote the AMANDA project at various events that will also be held in the period after the end of the project, which the ICT Istria Association will organize. In May 2022, ICT Istria organized the "Let's Grow" conference (DAR in section 5.7.64), a significant gathering of technology companies, STEM educators and influencers to present what's latest and best in the Istrian ICT. The exhibition and conference were not of a sales nature but exclusively a presentation of companies and projects in progress.
microTEC Südwest https://www.microtec-suedwest.de/en/	microTEC Südwest is a grown technology cluster in one of the strongest scientific and industrial regions in Europe. The nonprofit association microTEC Südwest e.V. focus on health (Smart Health) and production (Smart Production). Further activities address topics such as Smart Home, Smart Energy or the Internet of Things. AMANDA connected with microTEC through its partner MICRODUL, and the news about the successful completion of the development of the capacitive and temperature sensor was published on the official website of microTEC: https://www.microtec-suedwest.de/news-termine/newsuebersicht/item/2456-amanda-erfolgreicher-abschluss-der-sensorentwicklung

Table 70 List of identified networks and initiatives

6 Advisory board

The Advisory board helps keep AMANDA directly oriented toward the societal and economic needs for energy-autonomous measurement devices by evaluating AMANDA outputs and advising the Consortium about the market needs. Its main role is to provide expertise outside the Consortium's members, leading to the augmentation of knowledge and strategic thinking. Furthermore, it will review selected reports of the project related to use cases, standardisation, business models, etc.

The Advisory Board members are permanent for the project duration, except if they wish to leave the Board voluntarily. The Advisory Board is comprised of experts from the scientific community. All Board members have wide recognition in their respective fields at different backgrounds and areas of expertise, including needs/requirements of the market, technological trends and standards. This Group will meet at least once per annum to monitor the project achievements and help and advise the Consortium about the market's needs to enhance the project's impact. The members of the Advisory Board are summarised in Table 71.

Title	Name	University	Department
Professor	Vedran Bilas	University of Zagreb	Electronic Systems and Information Processing
Associate Professor	Ioannis Papaefstathiou	Aristotle University of Thessaloniki	Electronic and Computer Engineering
Professor	Des Gibson	The University of the West of Scotland	Institute of Thin Films, Sensors & Imaging School of Engineering & Computing
Project Manager	Angelos Papadopoulos	KLEEMANN HELLAS S.A)	Group Health, Safety, Environmental, Technical Services and Research Projects

Table 71 External Advisory Board members

The first external Advisory Board meeting was held online in June 2020 (M18). Members of the Advisory Board provided advice and guidance for developing the project to ensure its high quality and excellence. As a general remark, the experts commented that the project is very well set up and innovative with a lot of potential in the research and industry sectors. Some insights of the experts included:

- Efforts should be taken on the profiling of the firmware to avoid a bottleneck from all the data from all the sensors
- The short- and long-range communications should be made efficient enough. Because it's going to be easy to reach a bottleneck
- The Consortium should keep in mind the way the power management will operate for the whole of the card (especially during the prototyping phase)
- From the partners' presentations and the EAB discussion, it's not obvious what the project's goal is. So, apart from the miniaturization of the card, could you summarize the key characteristics of the ASSC? You could create a compact presentation of technical capabilities. sensors & sensing quantities, basic parameters (e.g. sensitivities and ranges) to figure out the power consumption of each sensing unit to realize which units can be used at the same time (due to different constraints such as size and power consumption) -can all of them be used at the same time?-, what the MCU can do and

how many devices can be used at the same time, sampling rate? Refresh rate? Different UCs need different rates. The most interesting part is the power consumption part; more details are needed in this presentation (power budgets, what will happen if the card is in the dark, etc.)

The second external Advisory Board meeting was held online in October 2021 (M34). Regarding the dissemination of the project results, the members of the Advisory Board requested a short overview of the project's dissemination results compared to the KPIs and the overview of the scientific papers that have been prepared so far. They emphasized that by the end of the project, it is necessary to put greater effort into preparing additional papers, considering that a project of this scale requires a large number of conference and journal publications. The experts wanted to check a few more details related to the components of the AMANDA card, as follows:

- The Consortium should look at the cross-sensitivity of the CO_2 sensor. For example, if you measure CO_2 and introduce other gases. There is a US company that works with photoacoustics based on a MEMS-type structure with a very good performance, and they seem to have resolved some of the noise pickup issues as well. The experts could provide the Consortium with additional information on this supplier
- With the CMOS detector, on the near-IR radiation (700nm – 1μm) how is that aspect of the signal from that spectral region minimized? It might be worth considering bringing this filtering to the chip
- Concerning the energy harvester component, what wavelength ranges does the simulator box cover? Is it possible to select ranges?
- How can the system wake up apart from the capacitive sensor? It would be good if additional sensors could wake up the system
- Concerns were expressed about the evaluation of the miniaturized prototype if it is due at the end of the project

In general, members of the External Advisory Board expressed their strong support of AMANDA and expressed their satisfaction with the progress made regarding most activities. Their feedback for the AMANDA project was significant in providing technical, legal, and ethical support and encouraging AMANDA's potential cooperation with other initiatives and projects.

The third and last External Advisory Board meeting was held online in September 2022 (M45). The experts expressed their satisfaction with the innovations resulting from the project, as well as with the cooperation between SMEs and the institutes, and they believe that the collaboration will be successful even after the end of the project, especially if the Consortium continues with dissemination and exploitation activities, as planned. They confirmed that the technology is awe-inspiring. It is a product in multiple markets. However, the problem in integrating the image sensor is impacting the project. Following are general comments and remarks:

- What is the TRL for each component? It looks like 5-7. ASSC looks to be in pre-production status; it should move to production level and mass volume pricing as soon as possible.
- There is a low number of patents. We are talking of a global market. Without patents, you risk losing it.
- Licensing is a massive opportunity for commercialization. Multiple companies can take the ASSC into big-scale production.
- How is the ASSC performing in terms of temperature or humidity requirements against the usual standards? These cards will go into very hostile environments. This will impact the acceptance of the card from the market. This needs strengthening, and a lot of markets will want to see it.

- The building control market is enormous, together with the current energy situation. AMANDA could be deployed into buildings as a way to conserve energy. Carbon-neutral buildings. The big players are: Honeywell, Azbil/Yamatake, Siemens, Johnson controls

7 Conclusions and future activities

Deliverable D7.8 - Dissemination and Communication with Relevant Activities Reports v2 provided an overview of the dissemination, communication, and other activities carried out during the M1-M27 period of the AMANDA project. It was an update over **Deliverable D7.4 - Dissemination and Communication with Relevant Activities Reports v1** that reported on the M1-M12 dissemination and communication activities of the project. The M1-M45 dissemination and communication activities of AMANDA are reported in this **Deliverable D7.11 - Dissemination and Communication with Relevant Activities Reports v3.** The main objective was to keep the interested parties engaged with the project and its results but also to conduct a clear communication campaign about the innovation brought by AMANDA. The project partners participated in various events such as conferences, tradeshows, webinars, and presentations. Great importance is attached to the presence of the project on social networks. The partners have successfully built a network of contacts interested in the goals of the AMANDA project. Table 1 presents the aims pursued in **Deliverable D7.3 - Dissemination and Communication Plan v1** and updated in **Deliverable D7.6 - Dissemination and Communication Plan v2 and Deliverable D7.9 - Dissemination and Communication Plan v3.** Undertaken activities were evaluated and compared with the planned actions, and we can declare that the set goals of T7.2 have been met.

- Six project newsletters, three posters, one application note and two leaflets were issued
- Fifteen PowerPoint presentations were published on the AMANDA project website
- Twelve project videos were produced and published on the AMANDA YouTube channel
- Ten scientific papers were produced (Seven conference and three journal publications)
- The AMANDA project website is up-to-date and well maintained
- The Deliverables provided are submitted and published within the deadline
- The news related to the project and partner activities is regularly posted on social networks (LinkedIn, Twitter)
- The partners have participated in many events (70+) where they actively promoted the AMANDA project
- Three “AMANDA – Autonomous Smart Sensing Card” webinars were performed
- Two training sessions were held towards the end of the project

During the project, the partners emphasized their activities in connection with other EU projects, participation in various events, fairs, international conferences and publication of papers. All actions led today to a significant improvement in the visibility of the AMANDA project. By analysing and evaluating presented dissemination activities from M1 to M45, the AMANDA project has received positive feedback and raised significant interest from various audiences, such as industrial and IT companies, scientific and research communities, policy makers, end users, etc. As detailed in this Deliverable, a number of conferences and events were cancelled due to the COVID-19 pandemic and its impact on travel. Given that a coronavirus pandemic marked 2020 and 2021, the Consortium succeeded in maintaining and increasing the digital presence in the mentioned period. A series of three webinars were held, and the first one was focused on the COVID-19 scenarios. Two training sessions were performed to start the phase of introduction to the market and present the final achievements in developing the miniaturised version of the ASSC. The Consortium keeps an internal list of stakeholders, which has been maintained throughout the whole project's lifetime. Six newsletters were issued at the end of the project, intended to keep stakeholders informed on the project's implementation progress and dissemination activities. The project website and social media profiles are regularly updated with the latest news on the project's current status. Concerning scientific dis-

semination and exploitation to the research community, the Consortium made noticeable progress and prepared a clear plan for scientific journal publications. Seven conference publications were presented, and three journal publications were submitted in order to disseminate research results. Six project results with a high potential value to be exploited were published on the Horizon Results Platform, a repository of Key Exploitable Results (KER) of EU-funded research and innovation projects, in order to promote results to targeted audiences such as policy makers, investors, entrepreneurs, researchers and experts. Cooperation with other EU projects is successful and shows the benefits and expected results. Such liaisons, including collaboration with Digital Innovation Hubs, initiatives and networks, help in Consortium's effort to raise the project's positive reputation in the long term. Cooperation with projects and initiatives will continue after the project ends. Namely, section 4, Dissemination actions beyond the project lifetime, highlighted the main future dissemination and communication activities that will be carried out in the period up to four years after the end of the project (Articles 28 and 29 of the Model Grant Agreement). Finally, during the project, three (3) External Advisory Board meetings were held, in which project partners and four advisory board members participated, i.e. experts whose feedback and advice are significant and provide technical, legal and ethical support to the project.