



AutonoMous self-powered miniAturized iNtelligent environmental sensing anD asset tracking in smArt IoT

The AMANDA project aims to stretch the limits of Electronic Smart Systems' (ESS) autonomy (in terms of energy, decision making & maintenance-free lifetime extension) and miniaturization (by applying high aspect ratio design architecture). Its ultimate goal is to develop and validate a cost-attractive next generation Autonomous Smart Sensing. Card (ASSC) that will serve multi-sensorial IoT applications for smart living and working environments.

Centre for Research and

Technology-Hellas

technological achievements in

many areas including: Energy,

Mechatronics, Information &

biotechnology, Smart farming,

Safety & Security, as well as

ZHAW

Sciences

areas.

Communication, Transportation &

Sustainable Mobility, Health, Agro-

several cross-disciplinary scientific

One of the leading universities of

applied sciences in Switzerland.

Teaching, research, continuing

both scientifically-based and

education and other services are

Zurich University of Applied

Environment, Industry,

CERTH has important scientific and

environments

AMANDA seeks ambitiously further to strengthen partners' technological excellence by delivering the ASSC's: energy autonomy booster (PV energy harvester, power management electronics and rechargeable storage); connectivity and tracking sub-system; processing unit (built-in intelligence); multi-sensing adaptable sub-(CO2 sensor, imaging system sensor, capacitive sensor, temperature sensor as well off-the-self/ additional close-to as commercialization sensors); and encapsulation & packaging sub-system for high manufacturability.

AMANDA's ASSC validated at versatile use scenarios for applications in the context of smart cities (air quality monitoring through fleets of vehicles and asset tracking and surveillance/ object and people detection), smart homes, intelligent workplaces and industrial environments. Eight partners (3 research & 5 industry) from 6 European countries will jointly undertake the proposed research and will deliver the envisaged technological breakthroughs to strengthen European leaderships in ESS. Find out more: https://amanda-project.eu/.

Consortium

Imec

electronics and digital technologies
Imec is the world-leading
R&D and innovation hub in nanoelectronics and digital technologies.

Microdul

MICRODUL Microdul was founded in 1991 by a management buyout of the FaselecAG(Philips Semiconductors)Hybrid Department. Microdul is a contract manufacturer for customised, miniaturised, mainly medical modules. Microdul Semiconductors develops and supplies ultralow-power (nA, nW) ASICs and standard products.

Lightricity

team has developed the world best photovoltaic energy harvester for indoor light environments. Under artificial light such as white LED or Fluorescent bulbs, Lightricity PV technology achieves a conversion efficiency over 35% in the lab, and over 30% in production.

Penta

penta PENTA d.o.o., a Croatian IT company was founded in 1990. with primary goal to position itself among the leading companies which are developing people and goods Auto ID systems

Ilika

is a pioneer in materials innovation and has been inventing new materials for energy and electronics applications for over a decade, including in automotive, aeronautical and electronic components sectors.

E-peas

Portable Energy Autonomous Systems. The company was founded in 2014 on the conviction that the trillions of connected nodes of the IoT to be deployed in the next few years will require disruptive solutions to extend batteries life-time.

www.amanda-project.eu/



practice-oriented.

The AMANDA project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 825464



Follow us on:



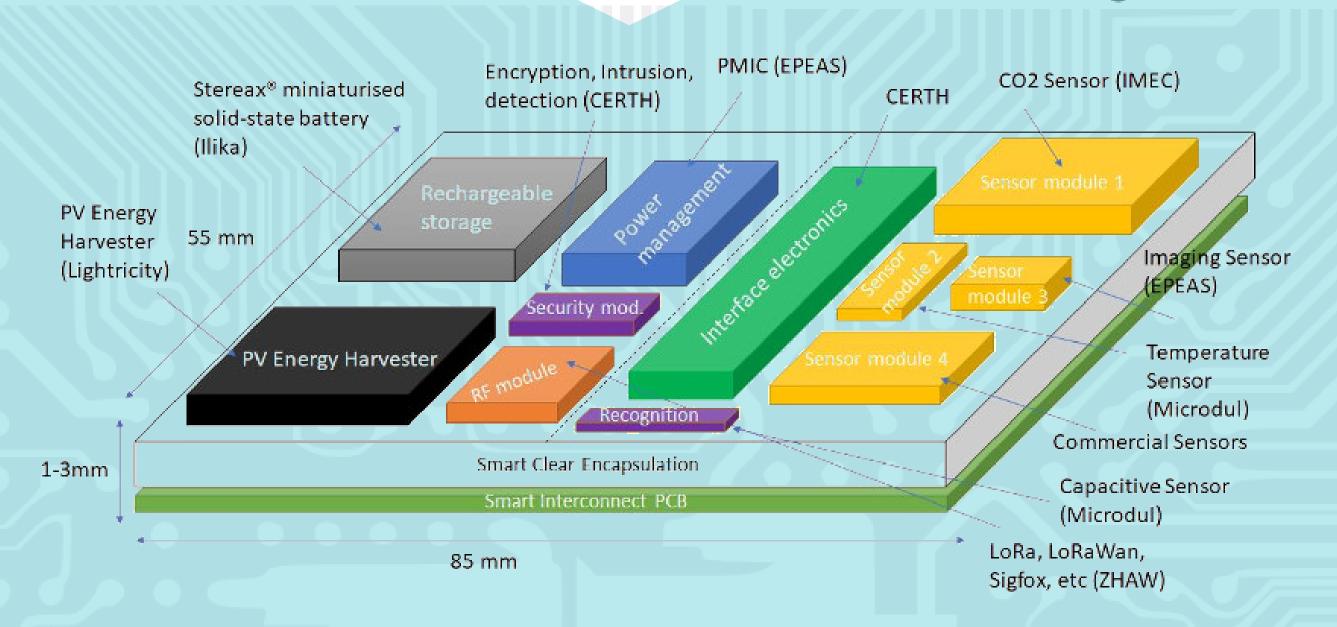






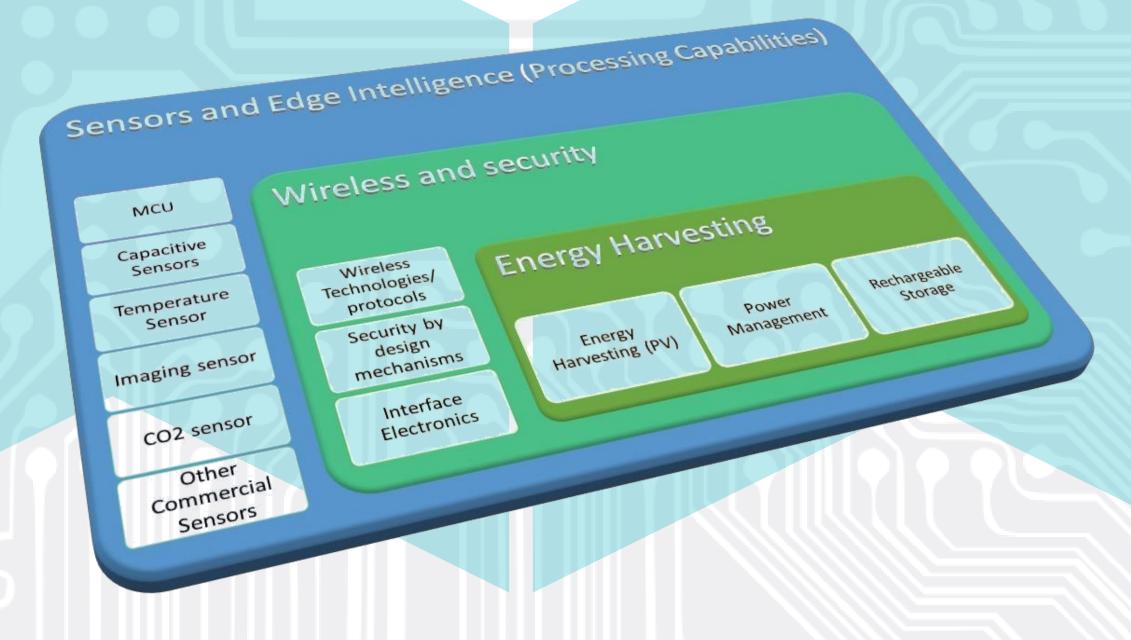


AMANDA The world in your hands



AMANDA is an ambitious project aiming to develop a unique Autonomous Smart Sensing Card (ASSC) which has the size, feel and look of a credit card, ideal for easy deployment in buildings(smart living environments) or as wearables(bikes, valuable assets, people). This project covers the triangle of experimentation, development and standardization to optimize the applied material's behaviours connectivity, miniaturization, power consumption, security, intelligence, design and cost. AMANDA's partners combine the expertise of world-class manufacturing infrastructures and know-how, using Micro-and nanotechnology, new composite, innovative architectures and advanced software.

SoA Analysis, feasibility study & benchmarking of best practices, the result of a thorough investigation of different scientific and commercial resources. The recent advances in the research and development of the technologies used in the AMANDA ASSC including PV Energy Harvesters, Sensors, Batteries, MCUs and wireless communication components is performed, focusing on cutting edge technologies and solutions available today on the market, both under the pilot phase as well as under the development phase. In-Depth GAP analysis was conducted to specify in detail the technological innovation potential for the AMANDA hardware and to introduce new, innovative features. More on the link (https://amanda-project.eu/documents/public-deliverables/send/6-public-deliverables/7-amanda-d1-1)

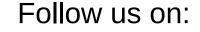


www.amanda-project.eu/



The AMANDA project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 825464













The Consortium members participated in several conferences and tech talk's where they successfully presented AMANDA project and project objectives.



ZHAW-InES: BLE node powered using LEDs as harvesters

Prof. Dr. Marcel Meli (of the Amanda Consortium) was one of the speakers at the Tech Talk Event of 28th May 2019, organised by the CSEM in Lausanne, Switzerland. The theme of his presentation was: "IoT Everywhere? Energy Harvesting for Future IoT Nodes". Marcel Meli introduced the issues associated with powering IoT nodes using batteries and the importance of energy harvesting as in the case of Amanda.



Dr. Charis Kouzinopoulos presenting the AMANDA project at the IEEE ICCE conference, hosted as part of IFA Berlin, the world's leading trade show for consumer electronics and home appliances. The title of Dr. Charis Kouzinopoulos presentation was "An Autonomous Self-Powered Miniaturized Smart Sensing Embedded System"(https://edas.info/p25749). The complete document is free to download at the link.



In cooperation with the Croatian Chamber of Economy and the Faculty of Computer Science of Pula Croatia, Penta held a lecture on the application of IoT technology in smart cities. During his lecture, Oskar Vujičić presented 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.



Sponsored by the Ministry of Culture of the Republic of Montenegro in Cetinje, Montenegro, from 03-06. September 2019, was held the presentation of the project "National Cultural Card". As a participant in the project, Penta and project manager Oskar Vujičić introduced the AMANDA project, AMANDA's partners and the implementation of the Autonomous Smart Sensing Card (ASSC) in the smart cities.

www.amanda-project.eu/



The AMANDA project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 825464



Follow us on:













The Consortium members attended meetings to share knowledge, review and define future steps in the AMANDA project. The kick-off meeting was held in Thessaloniki (Greece), the first plenary meeting was held in Zurich (Switzerland) and the first review meeting was held in Brussels.



Thessaloniki (Greece) - kick-off meeting: The meeting was divided into two days and was attended by all members of the Consortium. Project Coordinator CERTH was a kind host of the meeting. The members presented their companies, and everyone held a presentation of their work packages as well as their tasks. In a very interesting discussion, all the following tasks, milestones and deliverables were defined. The term plan was also defined.



Zurich (Switzerland) - first plenary meeting: It was attended by representatives of all members of the Consortium and the whole event was divided into 2 days. This meeting was also a great opportunity for partners to share their opinions and experiences. Each member of the Consortium presented its current results and future plans for the implementation of the project and its tasks. The basic discussion was focused on the architecture of the AMANDA card and its technical specifications. A significant part of the discussion took the area of future application and exploitation of the card.





Brussels (Belgium) - first review: The meeting were attended by all project partners. A project officer and two reviewers in a very constructive and substantive atmosphere were briefed on the current project status and achievements of the project. All work packages are presented as well as the current status of each working tasks. The opinion is that the meeting was extremely successful, which is expressed in conclusions.

A special part of the meeting was reserved for the demonstration of particular segments of the project, both hardware and applications. Attractive and extraordinary demonstrations delighted and showcase to review the full breadth of future use of the ASSC.

www.amanda-project.eu/



The AMANDA project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 825464



Follow us on:











AMANDA The world in your hands

AMANDA

The world in your hands

Open your mind for new ideas





AutonoMous self powered miniAturized Mtelligent sensor. for environmental sensing anD asset tracking in smart.loT environments.

Concept

The project will focus on designing and developing a maintenance-free, miniaturised and easily deployable Autonomous Smart Sensing Card (ASSC) for environmental sensing and asset & people tracking/ monitoring in smart living and working environments.

Impact

AMANDA stretches the limits of ESS autonomy (in terms of energy, decision making, and maintenance-free lifetime extension) and miniaturization with the ultimate goal to develop and successfully validate a cost-attractive next generation Autonomous Smart Sensing Card (ASSC) that will serve multi-sensorial loT applications for smart living and working environments.

Implementation

The project activities are broken down into 8 WPs and are implemented within 36 months (3 years); a duration which is considered appropriate taking into account the time required for the design, development, validation and evaluation of the AMANDA device.

www.amanda-project.eu

The consortium



















The AMANDA project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 825464

AMANDA POSTER

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



The AMANDA project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 825464

