



Press release

Platform-ZERO Demonstrates Significant Progress in Achieving Zero Defect Manufacturing for the Photovoltaic Industry

- Platform-ZERO is a project co-funded by the European Commission that aims to substantially reduce production costs for industry in the photovoltaic sector
- The project made substantial progress with notable achievements in process monitoring, sensor technology, and AI integration
- This strategy is currently tested in four different PV industrial pilot plants throughout Europe



The Platform-ZERO project team gathered in Brussels on July 4th, 2024, with the European Commission (HaDEA agency) and an external expert to review and assess the project's progress.

Barcelona, August 26th, 2024. At the 18-month mark, the Platform-ZERO project is making strides in improving production quality and reducing fabrication costs of photovoltaic devices through the development and implementation of innovative monitoring and AI strategies across four pilot plants in Europe.

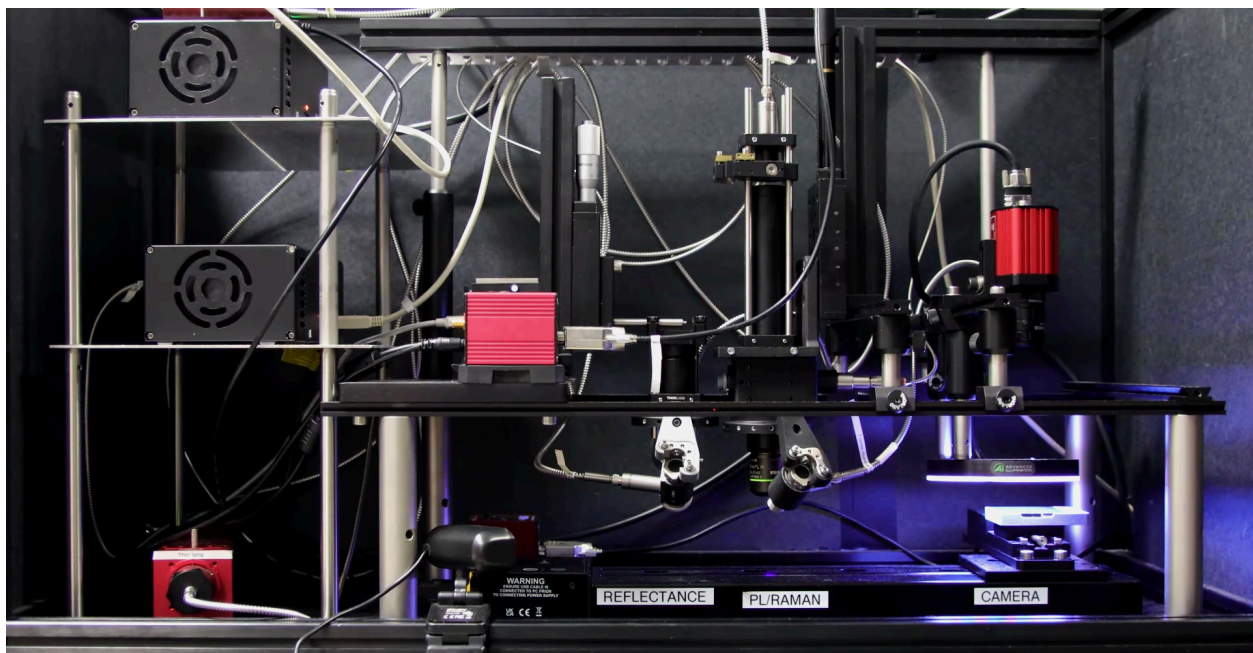
Key Milestones Achieved:

Comprehensive mapping and understanding of **industrial requirements** for the real time production monitoring that allows zero-defects photovoltaic manufacturing have been accomplished. **Advanced sensor stations** have been designed and configured for efficient integration into the production lines, and have significantly enhanced real-time defect detection

capabilities. Robust **big data infrastructure** has been established to support efficient data management and analytics.

Prototype sensors that are semi-automatized and modular have been designed and tested, ensuring flexibility and adaptability in various industrial settings. Integration of these sensors in highly customizable monitoring stations has been designed. The implementation of this station will facilitate comprehensive process monitoring and quality control. A detailed list of components necessary for the seamless integration of modular sensors has also been developed.

The architecture of the **AI system** has been meticulously designed, forming the backbone of **intelligent monitoring and control**. Additionally, algorithms for efficient data management, ingestion, and extraction have been developed, ensuring accurate and timely data handling. Effective interfaces for data communication and control are being designed, its implementation will enable seamless integration and interaction between system components. To validate these innovations, samples have been produced to test Platform-ZERO technologies in real-world conditions.

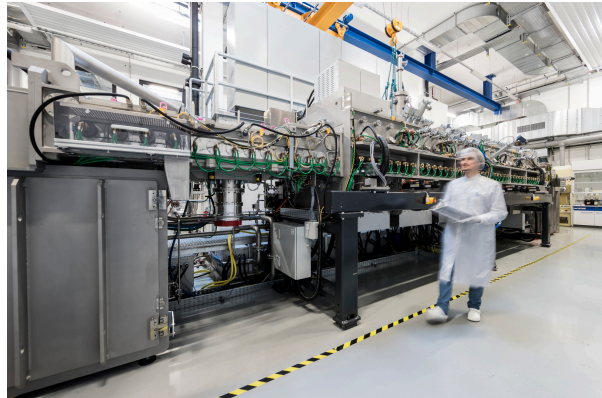


Concept test PV solar cells monitoring platform for Platform-ZERO, hosted at IREC laboratories.”

Platform-ZERO's innovative approach is being tested in four pilot plants in Spain, Germany, Austria, and Poland, focusing on smart coatings, high-efficiency solar modules, and flexible solar foils. Each pilot plant is showcasing the progress with a dedicated demonstrator illustrated below.



Smart coating line-flow powder production line, Lurederra, Spain



Sheet-to-sheet pilot-line system for high efficiency CIGS PV cells and modules, ZSW, Germany



Roll-to-roll line for the production of flexible CIGS foil for customized PV, SunPlugged, Austria



Perovskite PV modules pilot production line, SAULE, Poland

“We are proud to witness the significant progress made in the first 18 months of the Platform-ZERO project. Our collaborative efforts are paving the way towards zero defect manufacturing in the photovoltaic industry, enhancing the quality and reducing the costs of next-generation PV devices” said Dr. Victor Izquierdo, scientific researcher at IREC and coordinator of the Platform-ZERO project.

The project's focus on third generation PV technologies, such as CIGS and perovskites, promises higher efficiency, lower costs, and additional functionalities compared to standard silicon-based PV. These materials are well-suited for automated manufacturing and Industry 4.0 approaches, driving Europe towards climate-neutral energy generation.

This €10M innovation project, co-funded by the European Commission, aims to bolster the competitiveness of the EU's PV industry and support the transition to sustainable energy sources, contributing significantly to Europe's climate goals.

A multidisciplinary team formed by experts from both academia and industry

The project has a total budget above 10M€ and will run for 4 years. The consortium is formed by 12 European partners and is coordinated by Victor Izquierdo, from the Solar Energy Materials and Systems group at [IREC](https://www.irec.cat) (Catalonia Institute for Energy Research). This includes four research centers and one university with a strong knowledge in the development of spectroscopic methodologies ([IREC](https://www.irec.cat), [HZB](https://www.hzb.de)), imaging ([AIT](https://www.ait.ac.at)), device optoelectronic assessment ([UPO](https://www.upo.es)), AI analysis ([AIT](https://www.ait.ac.at), [IREC](https://www.irec.cat), [RISC](https://www.risc.com)) and data management ([RISC](https://www.risc.com)). Additionally, the consortium includes two research centers with strong know-how in advanced PV technologies and with industrial pilot lines facilities to validate concepts (two demo-sites) based on high efficiency CIGS devices ([ZSW](https://www.zsw.de)) and smart nano-based surface processes and coatings ([Lurederra](https://www.lurederra.com)). Finally, the consortium is complemented by a metrology SMEs with strong knowhow in the implementation of industrial process monitoring applications ([LENZ](https://www.lenz.com)) and by two third-generation PV manufacturing SMEs ([SUNPLUGGED](https://www.sunplugged.com) and [SAULE](https://www.saule.com)), both providing their production lines for demonstrating the Platform-ZERO technology (two demo-sites). Additionally, two other SME partners, [R2M Solution](https://www.r2msolution.com) France and R2M Solution SRL Italy, are in charge of dissemination, exploitation and communication actions.

Project website: <https://www.platform-zero-project.eu/>

LinkedIn: <https://www.linkedin.com/company/platform-zero-eu>

X: https://x.com/PlatformZero_EU

Project Partners



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