

Łukasiewicz Research Network – Industrial Research Institute for Automation and Measurements PIAP (Ł-PIAP), is one of the top ten Polish Research Institutes. Our specialists have wide, interdisciplinary experience in realization of research, **development of experiments and pilots** for unique solutions in the fields of **information and communication technologies (ICT)**, mechatronics, production control systems, robotics, microsystem integration, telemetry, as well as **big data** and advanced material applications.

Main area of the Institute activity is implementation of **specialized tasks for INDUSTRY 4.0** within the scope of widely understood **automation, robotization and industrial test equipment for advanced maintenance and predictive monitoring of systems. We are especially oriented on implementation of IT solutions in non-IT enterprises and processes.** Scope of PIAP competence includes: development, implementation and pilots of: automated and robotized work centres and production lines, new generations of control systems and drives for modernized production installations, industrial measurement systems, stations for visual inspection, monitoring and telemetry systems, intelligent systems and mobile robots for special applications, specialized test equipment installations for recycling of cars and household appliances (mechatronics, automation and IT solutions).

PIAP as a **Digital Innovation Hub (DIH)** actively develops, demonstrates and facilitates early adoption of technological breakthroughs such as advanced robotics, Internet of Things (IoT), Artificial intelligence (AI), and 3D printing in order to help industry to respond to customers' demand for personalised products & services, safety and comfort as well as improved energy and resource efficiency in an effort to implement National Smart Specialization "Automation and Robotics of technological processes". PIAP HUB focuses on critical growth sectors ready for adoption of automation and robotics like manufacturing, automotive, electronics, agrifood, healthcare.

Based on the principles of agility and business effectiveness PIAP HUB is an open extensible environment. It allows various technology partners like KUKA, Comau, Universal Robots, Siemens, Balluff, Schunk, Universities and RTOs, solution providers and integrators like Astor, Renex, Pro-control to join this initiative committed to widespread adoption of more efficient industrial solutions, improved processes and development of innovative products and services, especially among SMEs and midcaps.

DIH is deeply engaged with local SMEs and innovation organizations. Provides access to a competence centre, research infrastructure, rapid prototyping and small series production facilities. Offers consulting services.

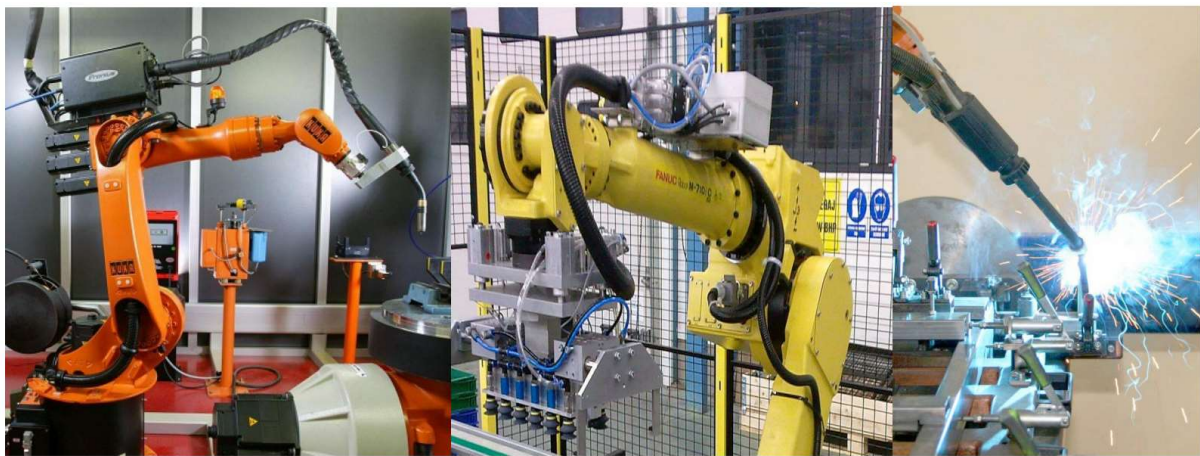
Basing on the experience from multiple services provided within Horizon 2020 projects (e.g.: **RobotUnion, DIH², RIMA, ADMA TranS4MErs, APRIL, VOJEXT, EIT-Manufacturing**) PIAP HUB - as the mature hub - will be directly involved in the technology transfer program within cross-border collaboration.

Examples of our infrastructure, experience and achievements:

Robotics applications for manufacturing SMEs

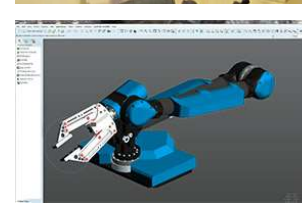
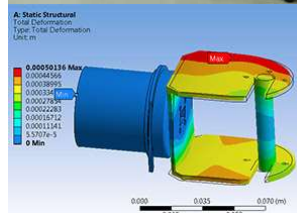
PIAP provides the technical capabilities to complete the most demanding automation and robotisation projects optimise the manufacturing processes in following applications:

- palletising, depalletising,
- welding, bevelling (including plasma bevelling),
- assembly, handling,
- transport between stations,
- packaging,
- weighing out and batching,
- coating, grinding and others.

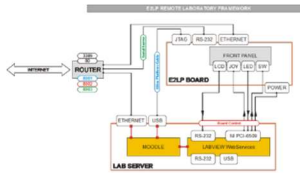


Industrial test sites for 3D printing and CNC production enabling experiments and pilots:

- **unique test sites for verification of technologies oriented on advanced materials and manufacturing covering e.g.:**
- **Low scale CNC production** centre for industrial verification and proof-of-concepts for new technologies and processes,
- **Industrial 3D printing facility** for advanced design, modelling and production.
- providing large volume of process data focused on **3D printing** and other advanced technologies as well as for cognitive diagnostics and process control.
- cooperation with polish SMEs in the area of practical implementation of new technologies, data exchange and big data in industrial processes and systems



ICT PRODUCTION EXPERIMENTS AND PILOTS



Involvement in pilot and experiment development in advanced ICT solution and embedded engineering domain, including:

- Interactive, multi-touch user interface design for multimedia data exchange
- Universal interface design platform for Medical supporting technologies and control command purposes.
- Multimodal integrated platform for any kind of media exchange
- Remote Laboratory services solution for Embedded Engineering education
- Distance Learning performance and exploitation in Digital System Design curriculum at University level
- Advanced learning and booking platform with real time access and control of remote real PCBs
- Low cost solution and web-services solution - no hardware requirements
- Unified framework, easily customize to academic course needs
- **augmented reality** coupled with **multimodal interaction** tools solutions