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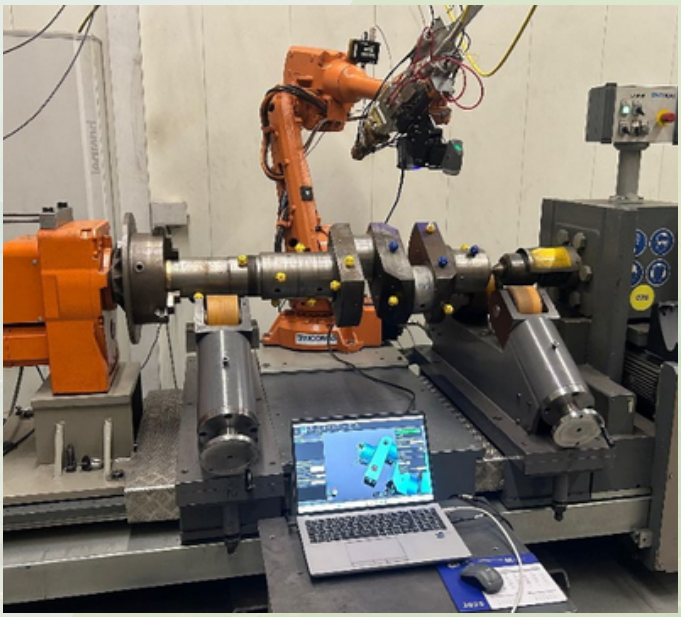
Overcoming the challenge of scanner–robot integration in automated repair

One of the key challenges addressed within the R3-Mydas project is the integration of 3D scanning systems with robotic repair cells, a crucial step towards achieving truly automated and flexible remanufacturing processes.

While both technologies are well established individually, their seamless integration remains a significant technical challenge. R3-Mydas tackles this complexity by developing methods that allow inspection data to be directly transformed into executable robotic repair actions.



Technical challenges behind the integration

One of the most critical and complex aspects addressed in R3-Mydas is the direct integration between the 3D scanning system and the robotic repair cell. In this context, the project relies on the combination of Creaform 3D scanning technologies and ABB industrial robots, connected through an EtherNet/IP communication interface.

Although both scanning systems and industrial robots are mature technologies, their direct connection presents several technical challenges.

Impact on automation and industrial processes

The successful integration of Creaform scanning systems with ABB robotic platforms enabled by the software developed by ZIKNES within the project represents a key enabler for end-to-end automation within the R3-Mydas repair workflow.By establishing a direct digital link between inspection and repair, the project moves beyond isolated automation steps towards a closed-loop, scanner-driven repair process.

This approach significantly reduces manual intervention, shortens setup and programming time, and improves repeatability and traceability. Ultimately, it strengthens the industrial applicability of MYDAS solutions and their potential deployment in real remanufacturing environments.

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Safe and Efficient EV Battery Disassembly

The rapid growth of electric mobility is transforming the automotive industry and accelerating the transition towards more sustainable transport systems. At the same time, this transition introduces new challenges for the circular economy—particularly in managing end-of-life electric vehicle (EV) batteries.

Within the R3-Mydas project, partners are developing innovative technologies that support circular manufacturing, remanufacturing and recycling of energy-intensive products. One of the key technical challenges addressed is the safe and efficient dismantling of EV battery packs, a crucial step in enabling reuse, repurposing and recycling of valuable battery components.

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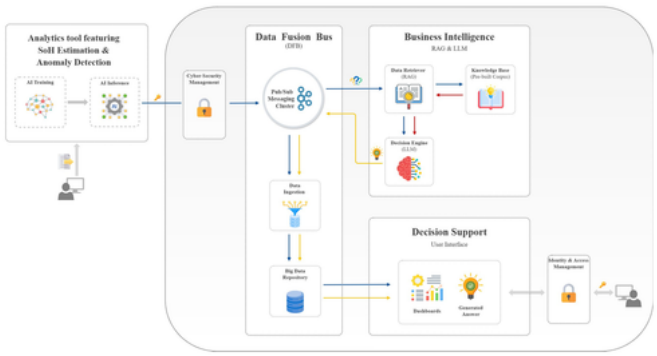
From Battery Data to Circular Decisions

Within the R3-Mydas project, "Analytics-as-a-service for remanufacturing" focuses on transforming complex e-vehicle battery data into clear and actionable insights that support remanufacturing and second-life decisions.



Determining whether batteries that reach their end of life can be safely reused, repurposed, or recycled is fundamentally complex. It requires interpreting large volumes of operational and testing data, understanding battery degradation behaviour, evaluating safety risks, and ensuring compliance with evolving regulatory requirements.

In many industrial settings today, such assessments remain fragmented, manual, and difficult to standardise, limiting the scalability of sustainable battery lifecycle management.

Within the R3-Mydas project, ITML develops an AI-driven decision solution designed to support structured and explainable end-of-life battery management. The platform aims to transform heterogeneous battery data into decision-support outputs that can guide stakeholders in selecting the most appropriate treatment pathway.

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