PRESS RELEASE

Alysophil launches AlchemDrive, its Edge AI solution for industrial equipment control

Strasbourg, July 3rd, 2025 — Alysophil, an innovative company in the field of artificial intelligence and process chemistry, unveils AlchemDrive, an autonomous Edge AI control solution dedicated to industrial equipment for the production of molecules, polymers and materials. Combining digital twins, embedded intelligence and real-time optimization, AlchemDrive transforms industrial control into a lever for predictive and sustainable performance.

Edge AI applied to industry: a new generation of control

Using deep reinforcement learning techniques, AlchemDrive trains intelligent agents capable of managing complex processes with agility. AI is first trained on a digital twin of the process, then tested and validated in real-world conditions, ensuring robustness and safety.

Once operational, AI acts locally, directly on site, without the need for massive data transfers to the cloud. This Edge AI architecture enables:

- Immediate responsiveness to process variations
- Maximum confidentiality of sensitive data
- Reduction in digital infrastructure, and therefore energy and environmental savings associated with the absence of data centers

Explainable, integrated, secure intelligence

Integrated into existing control environments (DCS, PLC), AlchemDrive acts as an intelligent co-pilot. The AI agent searches in real time for optimized setpoints (temperatures, pressures, flow rates, etc.) and transmits them to the control system typically used in the industry. This model guarantees:

- A double layer of security
- Full explainability of decisions made
- Technical transparency for users and process engineers alike

A wide and flexible range of applications

AlchemDrive can be applied to a wide range of industrial equipment, provided that a specific digital twin and a custom-trained AI agent are developed for each piece of equipment.
This process ensures that control is perfectly tailored to the specific characteristics of each installation. Equipment covered includes:

- Chemical reactors (batch or continuous)
- Separation units (distillation, extraction, crystallization)
- Pumps, compressors, dosing systems
- Complete production units
- Complex control loops
- Autonomous micro-production units (skid or ChemPocket type)

AlchemDrive thus enables existing equipment to be transformed into intelligent systems through a customized approach based on digital modeling and targeted learning.

A customized solution for the 21st century industry

Designed for rapid deployment, AlchemDrive integrates without modifying existing infrastructure. Thanks to its combination of digital twins, explainable AI, and edge logic, the solution offers predictive, lean, and efficient control for a more agile industry.

About Alysophil

Founded in 2018, Alysophil is a French SME that is rethinking industrial chemistry with a frugal, continuous, and digitalized approach. By combining continuous flow chemistry and artificial intelligence, Alysophil accelerates the development of innovative and sustainable solutions. Its goal is to make molecule production faster, more flexible, and with a low environmental impact, for a modern chemistry that meets today's industrial and environmental challenges.

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