



Ansys + ACWA Robotics

“What we do with Ansys simulation is reduce the time we are taking for testing by reducing the number of physical tests and improving them. Cloud computing is a must-have. We probably wouldn't be able to use Ansys — or it would be very complicated — if we didn't have the cloud computing approach because it gives us a reduction in the economies of scale.”

— **Jean François Guiderdoni**

Cofounder and Business Development Director / ACWA Robotics

/ ACWA Robotics: at the Heart of Water Pipes with Ansys

ACWA Robotics, a French-based startup company located in Corsica, France, recognizes the importance of reducing operational costs and environmental impact in water supply systems and addresses critical water supply challenges with its innovative Pathfinder, the first autonomous robotic solution that's able to evolve in a water supply network in operation. ACWA Robotics was founded in 2017 by Jean-François Rossi and Jean-François Guiderdoni. The French startup was highlighted at CES 2023.

The Pathfinder employs advanced robotic technology to navigate through pipelines, offering a comprehensive and real-time assessment of the pipeline's condition. This enables water supply authorities to proactively address potential problems, minimizing water losses and ensuring the reliability of the water distribution network.

/ Challenges

ACWA Robotics' mission is "regaining control of the water network." One key challenge in water supply management is the need for efficient and accurate inspection of pipelines to detect issues such as leaks, corrosion, or blockages. Another significant challenge is the necessity for sustainable and cost-effective solutions to maintain infrastructure.

ACWA Robotics is building autonomous robotic solutions aimed at helping water utilities improve the performance of water supply networks. The Pathfinder is designed to revolutionize the inspection and maintenance of water supply infrastructure, particularly in challenging environments.

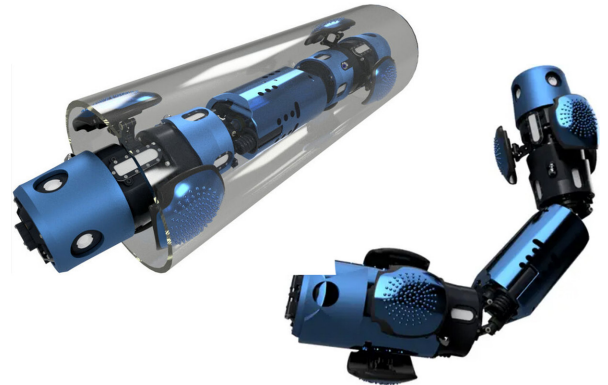
/ Technology Used

- Ansys Discovery
- Ansys Fluent
- Ansys Gateway powered by AWS

/ Engineering Solutions

ACWA Robotics looked to Ansys Discovery, a rapid design exploration software, to create 3D models of its robotic solution. They sent their heavy CFD simulation files to Ansys Fluent using Ansys Gateway powered by AWS. The cloud helped ACWA Robotics engineers run large and complex CFD simulations faster in a high-performance computing environment while removing previously existing hardware barriers.

To quickly ramp up all aspects of CAE, cloud, and HPC, ACWA Robotics is supported by **4CAD Group**, a French-based **Ansys Elite Channel partner**. ACWA Robotics is also using the **Ansys Startup Program** to access affordable, industry-leading simulation tools and support, as well as the **AWS (Amazon Web Services)** startup program to have almost unlimited access to simulations and on-demand cores to scale up and down very quickly.



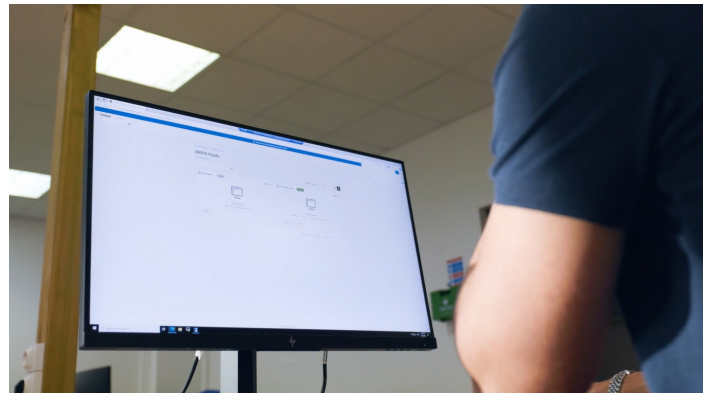
ACWA Robotics' Pathfinder technology.



ACWA Robotics employees work with the Pathfinder robot on a water pipe.



Robin Persiaux, a mechanical engineer, works on a computer-aided engineering (CAE) model in Ansys Discovery.



The ACWA Robotics team leverages the cloud via Ansys Gateway powered by AWS to quickly launch virtual machines and HPC clusters.

/ Benefits

“We are transferring our 3D model on Ansys tools. Beginning with Ansys Discovery, we are building the 3D information that will go through the simulations. Then we send this file to Ansys Fluent in the cloud with the help of Ansys Gateway powered by AWS. Because we can run the simulations directly in the cloud, we don’t need to buy heavy hardware to run them. We are using a virtual machine in the cloud with AWS to run our large and complex CFD simulations,” says Robin Persiaux, mechanical engineer at ACWA Robotics.

Ansys Gateway powered by AWS enables a large computational infrastructure defined by virtual machines and configured to support large CFD simulations. Thanks to higher computation capabilities available on AWS, ACWA Robotics can access powerful Ansys software, reducing development cycles and economies of scale.

/ Company Description

ACWA Robotics develops revolutionary in-line solutions aimed at helping water utilities obtain accurate knowledge of their infrastructure, improve efficiency, and drastically reduce water loss.

Support provided by



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