

# DIG DEEPER IN MINING WITH **AUTOMATION AND SIMULATION**

**SoftServe** and **Algoryx** have teamed up to improve mining operations with autonomous robotics and simulation-first development. By combining Algoryx's AGX Dynamics physics engine, Unity's high-definition render pipeline (HDRP), and ROS2-based control and multi-robot coordination, we create realistic, interactive digital twins that support XR integration and scalable automation.

SoftServe's robotics and automation pairs perfectly with Algoryx's robust simulations to deliver big solutions for big challenges in the industry.



## CHALLENGES



### Operational Inefficiencies

Traditional processes are outdated, hampering productivity and increasing costs.



### High Fuel Consumption

Inefficient systems lead to excessive fuel use, impacting profitability.



### Safety Concerns

Reliance on manual operations exposes workers to hazardous environments.

## SOLUTION

SoftServe's **autonomous mining solutions** combine Algoryx's AGX Dynamics-based physical simulation, advanced robotics, and real-time data analytics. They help cut costs, enhance efficiency, and keep workers safer — all while supporting more sustainable mining practices.

## SOFTSERVE'S APPROACH

- **Algoryx's AGX Dynamics for Unity** simulates vehicle dynamics, terrain deformation, combustion engines, and material interactions with high physical accuracy.
- **ROS2-based multi-robot coordination, autonomous vehicle control, and multi-modal SLAM** incorporation for synchronized fleet behavior, real-time localization, and dynamic path planning.
- **Unity's HDRP render pipeline** for high-fidelity visualization, environmental effects, and XR integration.
- **WARA-PS platform** integration allows for real-time monitoring to enhance decision-making.

## KEY FEATURES

1

**AUTONOMOUS  
EXCAVATION, LOADING,  
AND NAVIGATION**

2

**TERRAIN & MINING  
VEHICLES  
SIMULATION**

3

**HIGH-QUALITY  
VISUALIZATION**

4

**SIMULATION  
USER INTERFACE**

# BUSINESS VALUE



**Cost Reduction:** Simplified operations help lower direct and indirect expenses, such as fuel and labor.



**Improved Safety:** Reducing human involvement in hazardous tasks minimizes the risk of accidents.



**Prolonged Equipment Life:** Autonomous systems optimize mining equipment use, reducing wear and tear while extending their lifespan.



**Enhanced Productivity:** Higher output through coordinated autonomous systems improves workflows.

# SIMULATION SHOWCASE



## EXPLORE HOW SIMULATION-FIRST AUTONOMY IS RESHAPING MINING OPERATIONS

**CONTACT US**

## WANT TO LEARN MORE? READ THE WHITE PAPER AND CHECK OUT THE INTERACTIVE DEMO

**[WHITE PAPER](#)**

**[DEMO](#)**

## WHY SOFTSERVE

### STABILITY

**31 YEARS**

Award-winning service, across multiple industries

### EXPERTISE

**30%**

of the team are Sc.D. & Ph.D. holders in robotics & advanced automation

### EXPERIENCE

**50+**

Successful automation projects across more than 10 industries worldwide

### VALUE

**30%**

Project delivery acceleration with a simulation-first approach

### NORTH AMERICAN HQ

+1 866 687 3588 (USA)  
+1 647 948 7638 (Canada)

### EUROPEAN HQ

United Kingdom  
+44 333 006 4341

Poland  
+48 713 822 800

info@softserveinc.com  
[www.softserveinc.com](http://www.softserveinc.com)

**softserve**