



WP2 - Digital Stone | aiStone4.0



aiStone4.0 – Transforming Natural Stone with AI-Driven Digitalization

aiStone4.0 revolutionizes natural stone processing through AI-driven digitalization. Our deep learning system analyzes high-quality images to predict interior patterns before cutting, enhancing marble selection while reducing waste. By visualizing internal textures accurately, our solution meets modern demands for sustainability and aesthetics. Tailored imaging and autonomous capture techniques boost operational efficiency and value, enabling companies to optimize stone inventory. This innovative approach not only improves market competitiveness but also fosters eco-friendly practices in the industry.

Our objectives focus on delivering precise visualization, customized digital solutions, and automated stock management using drones and 3D modeling. This comprehensive system drives exceptional customer satisfaction, efficiency, and a sustainable future for the natural stone market across the global industry.

01 AI-DRIVEN VIRTUAL STONE INVENTORIES

02 AUTONOMOUS STONE DIGITAL INVENTORY

The image features a close-up, slightly blurred photograph of several parallel stone slabs or tiles. The slabs are light-colored, possibly white or light grey, with a visible grain and some minor surface imperfections. A dark blue, semi-transparent rectangular overlay covers the right portion of the image, creating a modern, design-oriented background for the text.

01

AI-Driven Virtual Stone Inventories

AI Unlocking Marble's Hidden Visuals

Driven by the need to enhance stone block valuation, our commercial application utilizes AI to deliver high-quality imaging and precise predictions of aesthetic characteristics. By accurately forecasting internal patterns before cutting, the system optimizes marble selection, reduces material waste, and enhances customer satisfaction.

This innovative solution positions businesses at the forefront of operational efficiency and sustainability, offering a robust competitive advantage in today's market. In doing so, it aligns with modern environmental demands and evolving consumer trends.



AI Precision Elevating Stone Value



Composition of four AI-generated marble textures

Our deep learning algorithms analyze images of natural stone blocks to predict internal structures with remarkable precision. This AI-driven process enables pre-cutting visualization and supports customized marble selection.

The system aims to be integrated seamlessly into production workflows, capturing detailed imagery to guide decision-making in stone processing. Its precision and efficiency are targeted to transform raw stone into a refined asset, ready for modern applications.



AI-generated marble texture

The image shows a close-up of several stone slabs, likely marble or granite, with a light beige or cream color and subtle veining. The slabs are arranged in a slightly overlapping, diagonal pattern. On the right side of the image, there is a dark blue, semi-transparent overlay that covers a portion of the stone texture. This overlay contains the text '02 Autonomous Stone Digital Inventory'.

02

Autonomous Stone Digital Inventory

Autonomous Drone-Driven Stone Inventory

This project automates the high-quality image capture of natural stone blocks using autonomous aerial systems. It aims to provide precise 3D reconstructions and accurate measurements to optimize stock management and operational efficiency. By integrating drone technology with cloud-based processing, the solution reduces labor costs and minimizes errors.

This approach not only streamlines inventory monitoring but also delivers a significant competitive advantage in terms of efficiency and sustainability.



Smart Stone Digitalization



Autonomous drones capture high-resolution images to create detailed 3D models of stone blocks. These models facilitate precise measurement and analysis, ensuring optimal resource allocation and inventory management. The system integrates with the aiStone4.0 platform, providing real-time monitoring and cloud storage of image data.

This comprehensive digitalization process transforms raw stone into actionable data, supporting efficient production workflows and advanced stock management strategies.





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