SMARTTECH3D
Virtual Like Real

SMARTTECH 3D METROLOGY

Hybrid System for 3D Digitization of Cultural Heritage!

Revolution – Photogrammetry and 3D Scanning in One System

Virtual Like Real is a hybrid system for creating digital twins of real-world objects, developed based on SMARTTECH's advanced ecosystem of artificial intelligence, devices, and software. The system enables the combination of precise measurements from a 3D scanner with models generated through photogrammetry, as well as high-resolution textures captured by top-tier digital cameras (Fujifilm and PhaseOne 100MP/150MP). Thanks to the integration of photogrammetric data and 3D scans, the system delivers models with unparalleled geometric and visual quality.

A key advantage of the solution is the metrological verification of the SMARTTECH scanner, which serves as a reference point in the photogrammetric scene scaling process. This combination ensures not only ease of use and excellent reproduction quality but also full dimensional reliability. Virtual Like Real is a modular solution that is redefining the rules in the fields of cultural heritage digitization, scientific research, and the creation of digital replicas.

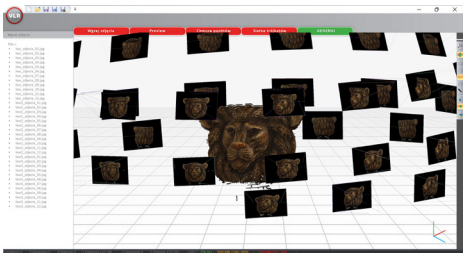
Point cloud combining data from photogrammetry and 3D scanner

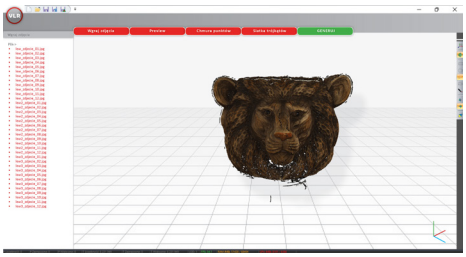
The solution consists of four modules that can be freely configured by the user, while also enabling the use of high-end PhaseOne cameras already available in the museum's inventory:

- **VLR Software** – software for creating 3D models from photographs with resolutions up to 150 MP.
- **VLR Set and VLR Set+** – software bundle with a 100 MP or 150 MP camera, a turntable, and optionally a shadow-free lighting system.
- **VLR Texture Pro Set** – an additional module for SMARTTECH3Dmeasure software that enables capturing high-resolution textures using PhaseOne/Fujifilm cameras during the 3D scanning process with SMARTTECH scanners, and mapping them onto the generated triangle mesh with submillimeter accuracy.
- **Texture Quality Verification Module (FADGI-compliant) –** available for both the VLR software and SMARTTECH3Dmeasure, this module verifies texture quality according to FADGI standards.

SMARTTECH3D
Virtual Like Real

Software for Creating 3D Models from Photographs





Virtual Like Real (VLR) software for creating 3D models from photographs (photogrammetry) enables the transformation of a set of 2D images into realistic 3D models. This type of tool is widely used in archaeology and museology, including for VR/AR applications and virtual museums.

While images for model creation can come from various sources—including popular smartphones—the software is specifically optimized for ultra-high-resolution cameras such as PhaseOne and Fujifilm, delivering an unmatched level of detail precision on the market.

In VLR, the modeling process is intuitive, guiding the user step by step through: automatic image alignment, creation of a preview model, generation of a point cloud, construction of a triangle mesh, and application of high-resolution textures.

Unique Capabilities of the VLR Software:

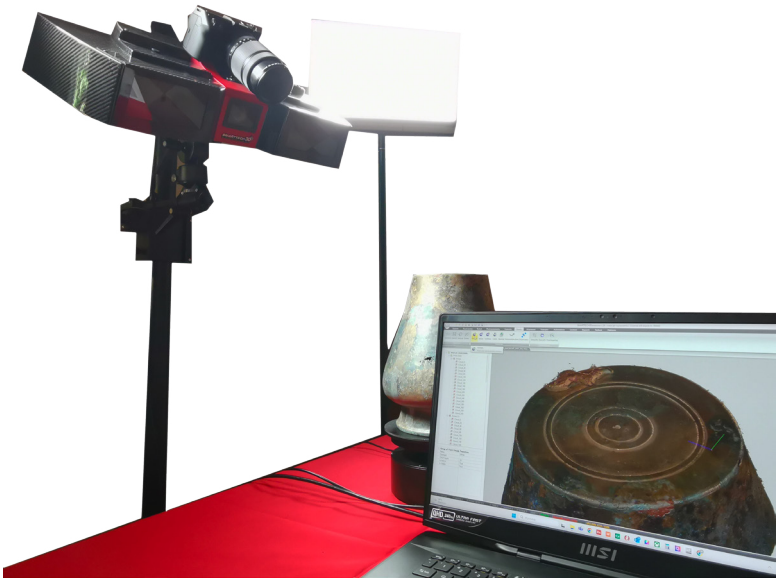
- **Intelligent Automatic Texture Correction:** Unlike users of other photogrammetry tools who often need to manually align textures at image boundaries, VLR offers automated correction functions that significantly reduce manual workload.
- **Texture Editing Directly on the Mesh (Paint Over Mesh):** Allows precise refinement of texture details directly on the 3D model, without the need to edit UV maps.
- **Ultra-High Texture Resolution Over 32K:** The software architecture supports generating textures with resolutions exceeding 32K, enabling extremely detailed visual representation.
- **Source Image Replacement:** Enables texture correction by simply replacing source images—without rebuilding the entire model.
- **Precise Texture Mapping:** VLR algorithms provide subpixel-accurate texture mapping on the 3D model, which is crucial for faithfully reproducing complex surfaces and fine details.
- **Texturing Models from Any 3D Scanner:** VLR supports automatic and direct integration of 3D scans with photographs, allowing models from any 3D scanner to be textured with high-resolution, photo-realistic quality—while maintaining metrological precision and optimized file size.
- **New Standards in 3D Archiving:** The built-in texture verification module evaluates textures according to FADGI standards, allowing certified archival quality (minimum 3-star rating).
- **Simplified Tokenization (NFT):** Direct export of 3D models in GLB/GLTF format enables easy integration into blockchain ecosystems for digital collectibles or archival purposes.

VLR Set and VLR Set+

These complete systems include the VLR software, a high-resolution PhaseOne or Fujifilm camera (minimum 100MP or 150MP), a workstation, an automatic turntable, and a dedicated tripod, providing an instant start and optimal 3D modeling results. The solution is fully mobile and designed to meet air travel transport requirements.

PHASEONE

SMARTTECH3D
Virtual Like Real



Texture Pro Set Module

For existing users of SMARTTECH 3D scanners and for institutions owning PhaseOne or Fujifilm cameras, we offer the Texture Pro Set module, which enables calibration of the 3D scanner with the camera. This solution allows the entire system to be operated within the familiar software used by 3D scanner users, while camera owners can leverage their equipment for professional 3D digitization.

The module enables precise calibration between the camera and the 3D scanner, guaranteeing automatic and accurate texture positioning on the native 3D model.

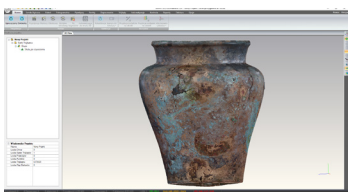
This solution integrates the high geometric precision of 3D scanning with ultra-realistic, high-resolution textures.

MICRON3D color stereo with Integrated PhaseOne Camera

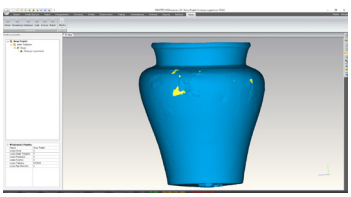
MICRON3D Color Stereo is a 3D scanner designed for precise digitization of colored objects. This unique non-contact measurement system is the ideal tool for creating digital twins of real-world items, whether for archiving valuable museum artifacts or producing virtual prototypes across various industries.

Key Benefits of MICRON3D Color Stereo Combined with the VLR Texture Pro Set Module:

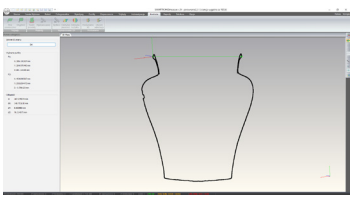
- **Highest 3D Scanning Resolution:** Market-leading 3D scanning resolution (20MP) enables capturing objects with the finest details, such as ceramic decorations, canvas damage, or tiny cracks.
- **Ultra-Realistic Color:** The sensitive 3D scanner detector allows easy scanning of shiny and dark objects. Integration of dedicated cameras and professional shadow-free lighting enables capturing high-quality color information of real objects with resolutions up to 150 MP.
- **Hybrid Use Combined with Photogrammetry:** The software allows merging data from photogrammetry and 3D scanning, enabling the combination of datasets with different levels of detail.
- **FADGI Photo Verification:** Camera calibration and the ability to capture sharp textures regardless of object distance enable obtaining FADGI certification for the 3D object's texture atlas.
- **Ease of Use and Automation Capability:** The 3D scanner requires no recalibration before each use and can be operated immediately after connection thanks to the "plug & scan" system. Intuitive controls and process automation via integration with a robotic arm and dedicated measurement plans allow efficient operation by users without specialized technical knowledge.
- **Mobility and Durability:** With a carbon fiber housing resistant to temperature fluctuations and replaceable dustproof filters, the system is well-suited for fieldwork and archaeological digs.
- **Non-Invasive Technology:** The 3D scanning technology uses white light, ensuring the safety of measured artifacts (no lasers are used in the system).



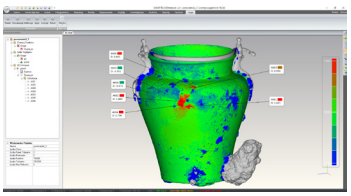
Colored point cloud



Triangle mesh



Virtual cross-sections enabling measurements



Model Comparison – colored surface deviation map

Experience and Trust – Our Clients:

Thanks to meeting rigorous safety standards for artifacts and producing models that fulfill the requirements of permanent digital documentation, MICRON3D color systems have been implemented in numerous cultural institutions and museums both in Poland and abroad. Our trusted clients include: National Museum of Prehistory in Taiwan, National Maritime Museum, Museum of the City of Łódź, Regional Museum in Toruń, Museum of the Origins of the Polish State Gas Industry, Museum Center for Contemporary Art, Polish Sculpture Museum, Coal Mining Museum and many others.

Software for viewing and analyzing 3D models

SMARTTECH3Dviewer – your tool for 3D model analysis

Committed to delivering high-quality digitization results and supporting the mission of promoting new technologies in cultural heritage preservation, we provide free software that allows evaluation of work outcomes and remote viewing of 3D models. It's ideal for distributed research and collaboration between institutions. Available at: www.smarttech3d.com/smarttech3dviever

Scan and download SMARTTECH3Dviewer

Features of SMARTTECH3Dviewer:

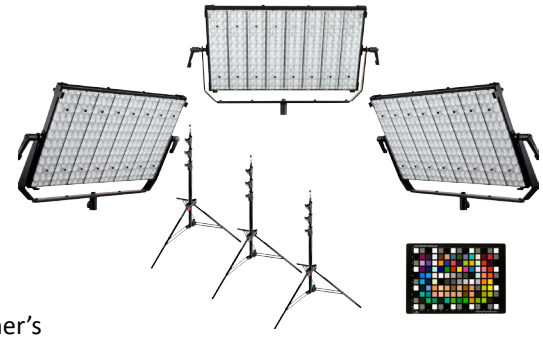
- Free 3D navigation — rotate, zoom in/out on models
- Virtual measurements on the 3D model
- Toggle textured and non-textured views for an accurate assessment of the model's measurement precision
- Supports popular formats OBJ and GLB

Additional Accessories:

Automatic Turntables:
Load capacity: 15 kg, Diameter: 200 mm
Load capacity: 80 kg, Diameter: 500 mm
Load capacity: 300 kg, Diameter: 500 mm

Collaborative Robot
Accelerates work on series of objects

Easy and fast adjustment of the 3D scanner's measurement volume
thanks to interchangeable optics



Automatic shadowless lighting system

Technical specifications of 3d scanner MICRON3D color stereo:

Resolution	6-6 MP / 12-12 MP / 20-20 MP			
Scanning technology	Structured white LED light			
Field of viev* [mm²]	200x135	300x200	400x260	600x400
Measurement depth* [mm]	60	120	180	240
Sampling* [pkt/mm²]	230 / 402 / 755	100 / 178 / 335	60 / 100 / 189	25 / 45 / 84
Accuracy [µm]	21	30	43	63

The VLR solution will be available starting from the second quarter of 2026.