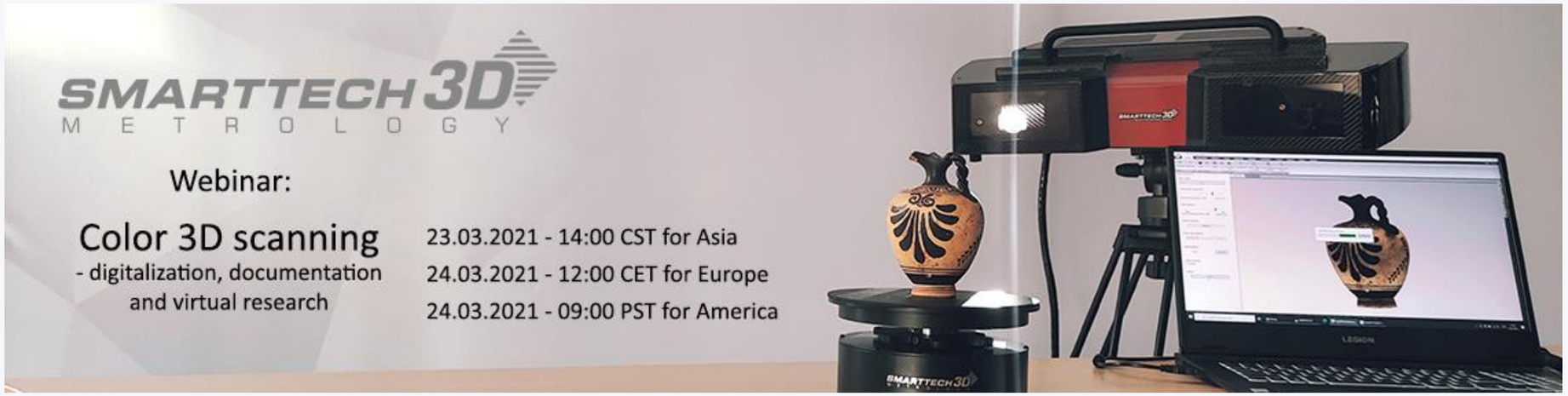
Welcome to our webinar



SMARTTECH3D for precise color #DigitalTwin

SMARTTECH 3D
METROLOGY

... from passion to 3D innovation!

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About company

SMARTTECH is a Polish manufacturer of contactless 3D optical scanners

- Company founded in year 2000
- Highest parameters for optimal price
- Focus on 3D data obtaining using structured light measurement method
- Metrologically verified accuracy

- Cooperation with universities and institutes of technology in Poland and all over the world
- Our distribution network covers almost all continents
- Constantly improving our devices and launching new products to the market, delivering the most accurate and reliable results

Some of our customers in museology and archaeology

MUZEUM GÓRNICTWA WĘGLOWEGO W ZABRZU

CD PROJEKT®

The Malbork Castle Museum

MUZEUM WOJSKA POLSKIEGO

MUZEUM AZJI I PACYFIKU

MOZK
Muzeum Okręgowe Ziemi Kaliskiej

INSTYTUT ARCHEOLOGII UW

WROCŁAW UNIVERSITY OF ENVIRONMENTAL AND LIFE SCIENCES

MUZEUM POCZĄTKÓW PAŃSTWA POLSKIEGO W GNIEŹNIE

NARODOWE MUZEUM MORSKIE w Gdańsku

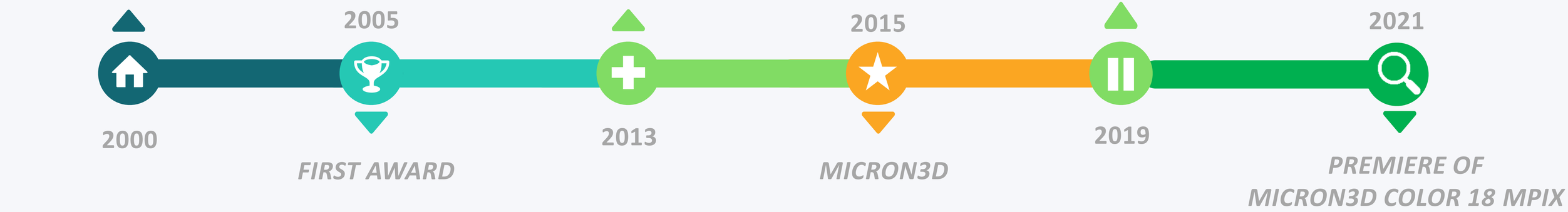
Centrum Sztuki Współczesnej Zamek Ujazdowski

MUZEUM GAZOWNICTWA W PACZKOWIE

UNIVERSITEIT GENT

國立臺灣史前文化博物館
NATIONAL MUSEUM OF PREHISTORY

Company history



OUR TEAM

Board of Directors

ANNA GEBARSKA

Managing Director

- Company founder
- A graduate in Production Management
  at the Faculty of Production Engineering
  at the University of Technology

KRIS GEBARSKI

CEO

- Experienced Metrologist
- A graduate of the Faculty of Metrology and Quality Engineering
  at the Faculty of Mechatronics at the University of Technology

PROF. MALGORZATA KUJAWINSKA

Technology Advisor

- Professor of Applied Optics specialized in optical metrology and image processing.
- First female president of SPIE – the International Society for Optics And Photonics
- Author of over 400 scientific papers, including books and journals.

Meet our international team

More than 120 people involved in company activity worldwide

What makes us unique?

- High resolution 3d scanners (detectors from 1.4 Mpix up to 24 Mpix)
- Efficient SMARTTECH3D software which can handle huge amount of data
- 3D scanning with texture (color cloud of points)
- Metrologically certified accuracy which guarantees repeatability of the scanning result

Worldwide distribution

OUR DISTRIBUTION NETWORK COVERS ALMOST ALL CONTINENTS

We are looking for distributors specializing in digitizing for archaeology and museology!

3D SCANNING IN ARCHEOLOGY

Digitization, Archiving, Visualization

It is a conservation support process both in museology and archeology. It is used both for basic conservation documentation and for carrying out all research works using appropriate software giving the possibility of performing comprehensive measurements and tests such as shape and geometry analysis, extremely accurate measurements and cross-sections, conducting virtual reconstructions, etc.

DIGITIZATION

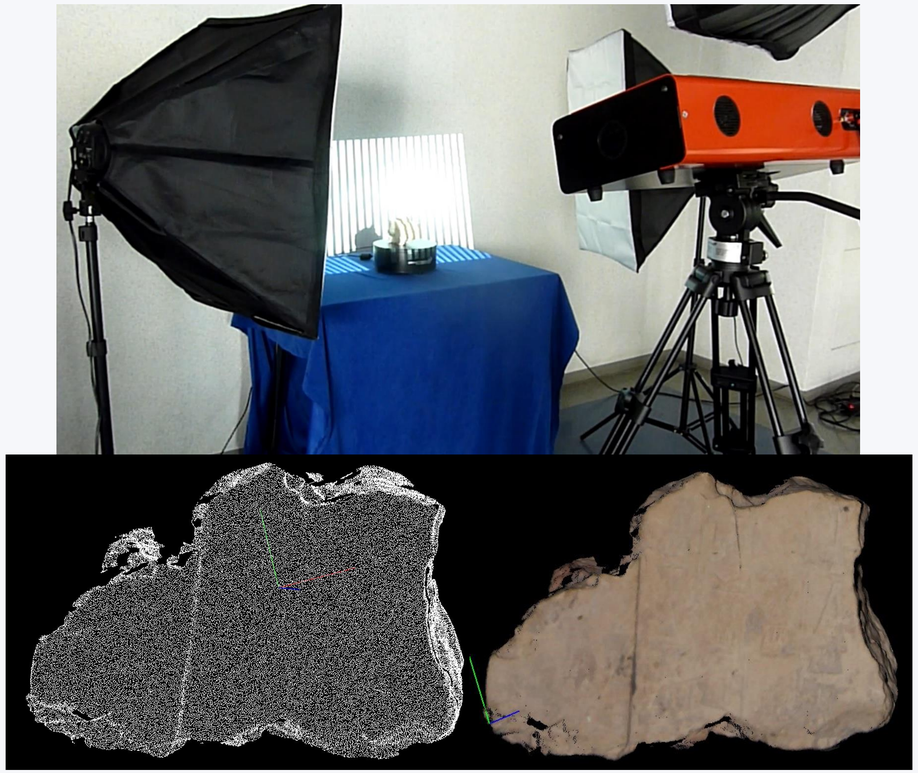
Acquiring geometric data and information about the color of the museum object with quality that allows to create an identical (with the highest possible accuracy) digital model. The digital model can be used to make a copy of the object, restore it in the event of destruction of the original, determine aging over time, renovations, archaeological research, 3D visualization

ARCHIVING

Acquiring images of a real object from many angles of view or obtaining geometric data to create visualizations, for example for the needs of a film, website, giving the impression of watching a 3D model or a simplified model, the accuracy of which is irrelevant.

VISUALIZATION

What is a 3D scan?



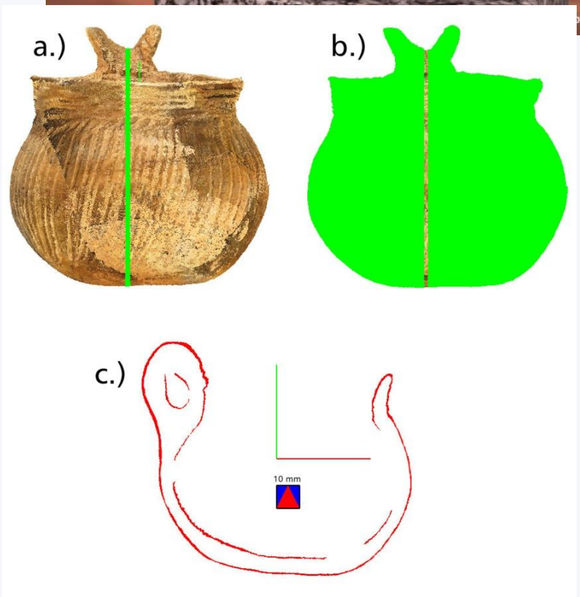
Non-contact reproduction of the real object in digital form, allowing to obtain a virtual model of the measured object.

The result of the measurement is:

- a cloud of points describing the surface of the object,
- optionally also with color components at each measuring point

Why are we scanning?

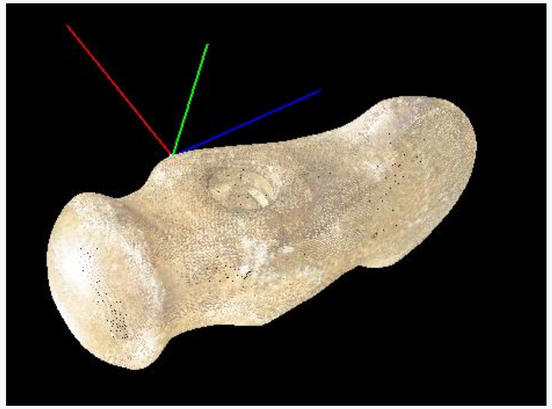
1. Accurate documentation of the object's dimensions - collected several million measuring points in 10 seconds
2. Accurate color documentation of the object
3. Research conducted on virtual models - cross-section creation, surface area and volume calculation, comparative research.
4. Condition monitoring, e.g. before and after maintenance
5. Creating virtual museums, bringing visitors closer to particularly valuable objects through their digital image
6. Creating copies of museum objects, e.g. by 3D printing



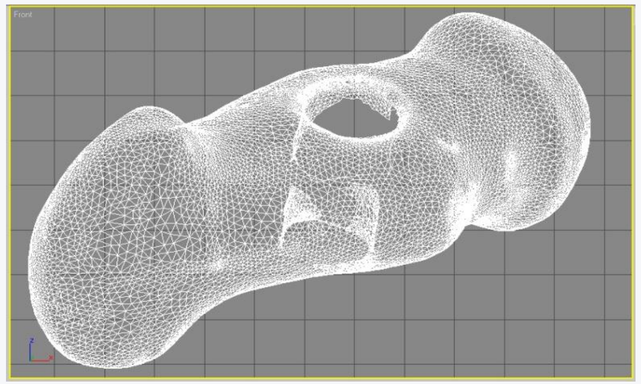
3D scanning stages

Museum facility

Measurement



Cloud of points



Triangle mesh

Model with color reproduction

Advantages of 3D scanning

PRECISION
Extremely precise measurements. Accuracy of metrological measurements up to 0.007mm impossible with traditional methods.

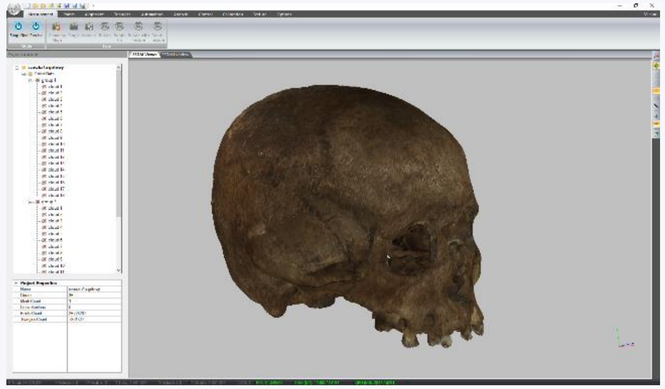
SPEED
NON-CONTACT, quick measurement and full automation - rotary model of the object in approx. 30 minutes.

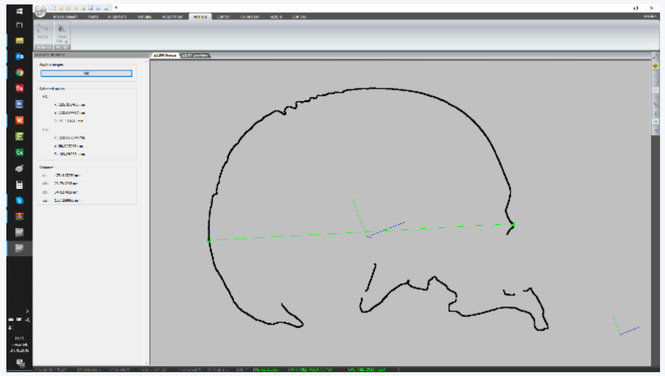
CONVENIENCE
The ability to quickly share results and work at any time.

EASE OF USE
No need to self-calibrate the device and specialized knowledge - 3D plug & scan scanners

QUALITY
Object measurement with realistic color reproduction.

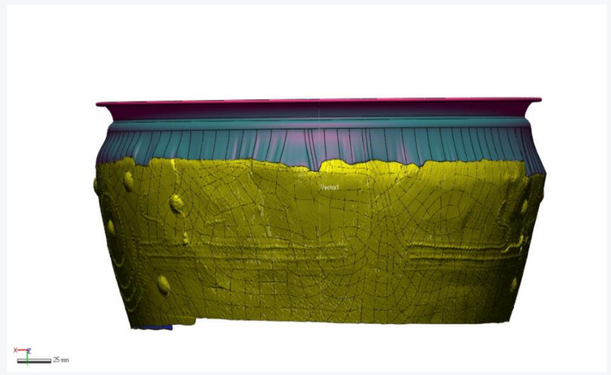
Advantages of SMARTTECH3Dmeasure software





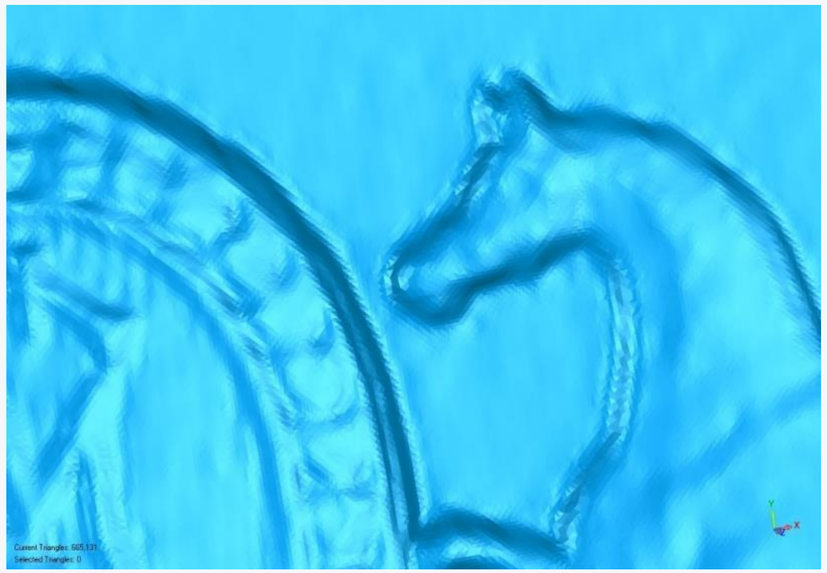
Virtual cross-section on the example of 3D scans of the skull

3D printout of the ceramic vessel with lifelike colors

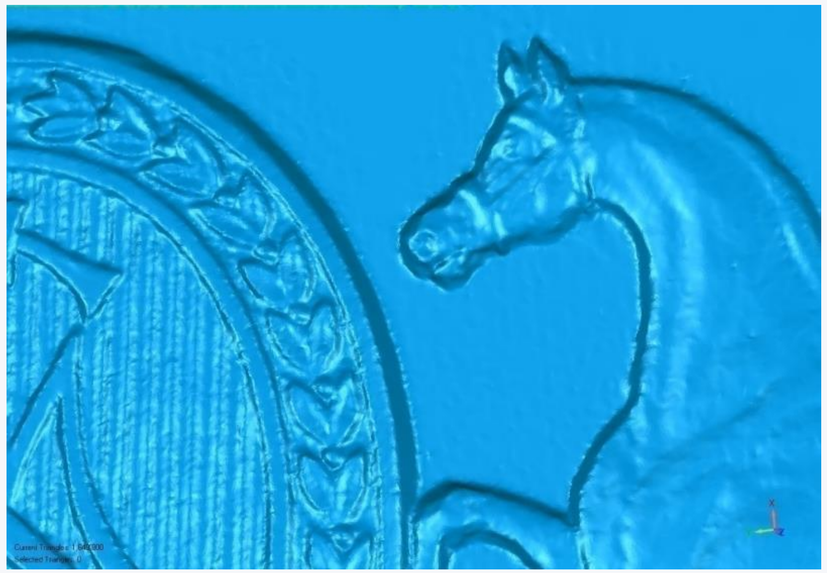


3D reconstructions of the chipped fragments of the artifacts

Measurement resolution (mapping)



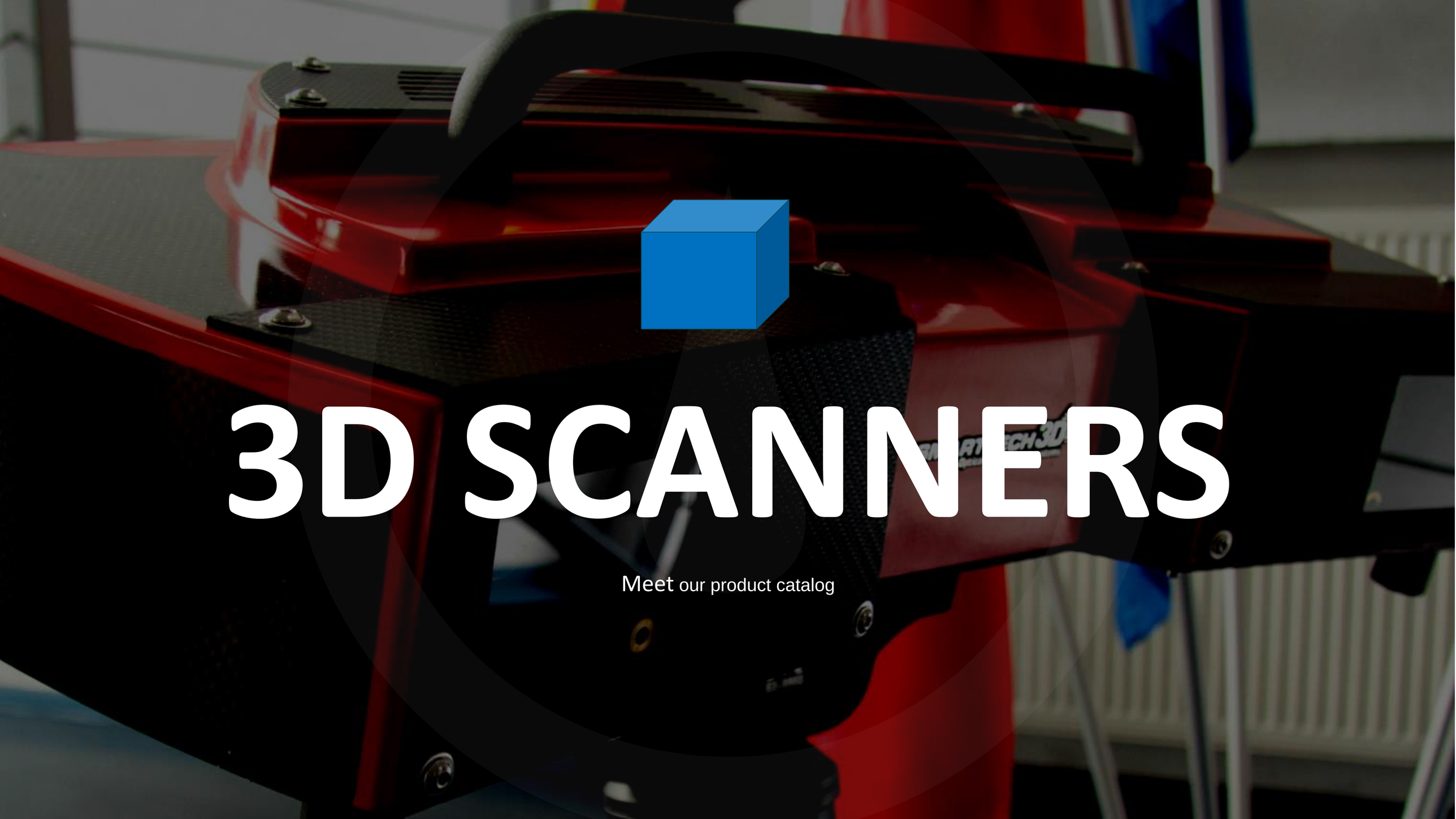
The results of scanning with a 3D scanner with a resolution of 2MPix, mapping accuracy 0.05mm.



The results of scanning with a 3D scanner with a resolution of 18MPix, mapping accuracy 0.05mm.

Despite the same mapping accuracy of both 3D scanners, there are clearly differences in the quality of mapped details.

With a scanner with a lower resolution, the number of points representing the surface is not enough



3D SCANNERS

Meet our product catalog

Industry and technical applications

MICRON3D
color 10 Mpix

SMARTTECH3D
UNIVERSE

MICRON3D
green stereo

Non technical applications– archeology, medicine, 3D printing

MICRON3D
color 24 Mpix

SMARTTECH3D
UNIVERSE LITE

SMARTTECH3D
med

3D SCANNERS

MICRON3D color 18 MPix

A new 3D optical scanner dedicated to archaeology and museology!

Full carbon fiber housing with replaceable dustproof HEPA filters for the best measurement results

Applications

3D digitalization with color, 3D printing with color, museolgy, virtual museum, eternal archiving

Dedicated sector

Archaelogy, museology, anthropology

Light source type

White LED

Watch our video!
https://youtu.be/9afaf3XSRNU

Accuracy

From 15 to 80 µm

Resolution

18 Mpix

Field of view

From 80x60 mm to 400x600 mm

SMARTTECH 3D METROLOGY

SOFTWARE

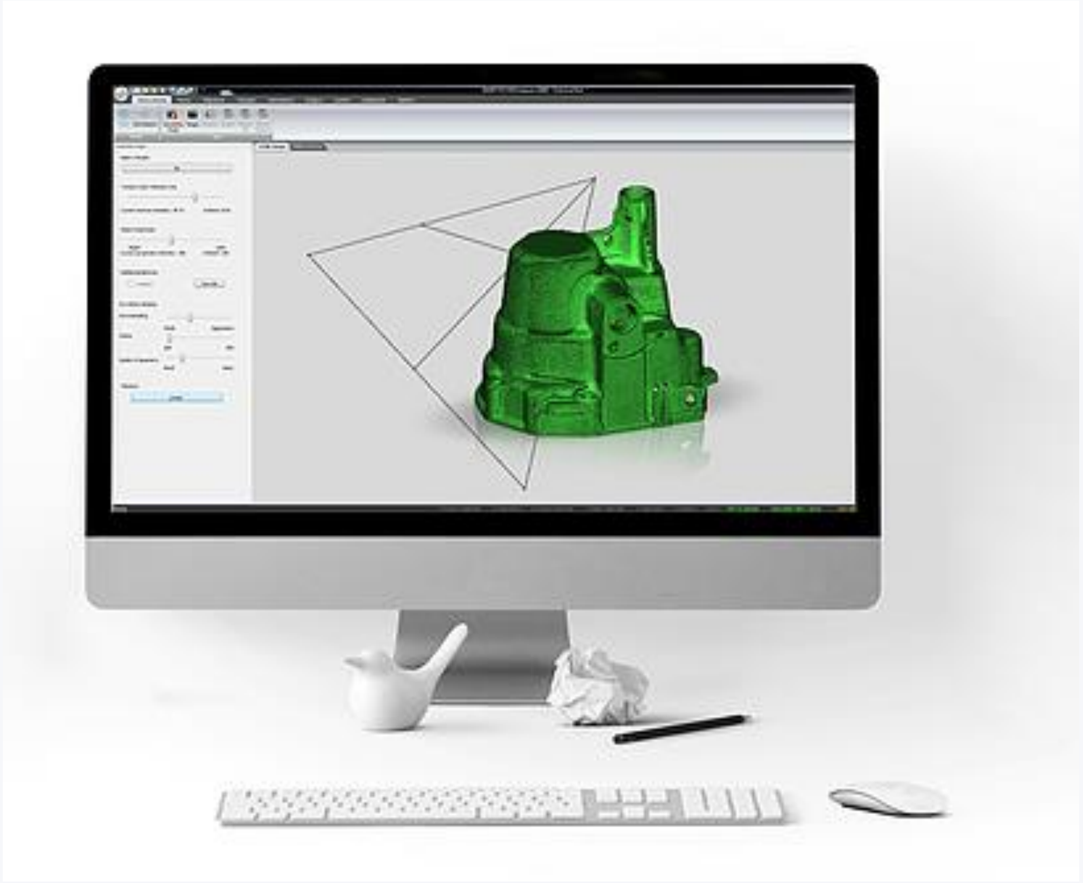
SMARTTECH3Dmeasure

Software - the heart of our 3D scanners, enabling both control over the scanner and user-friendly work with scanned data. The only software that seamlessly deals with millions of colored scans points.

Best efficiency – fluent work with millions of points scanned on a simple laptop workstation

Advanced functions for cloud of points and mesh edition including color addition options and fully customizable automatization of data processing for single product lineup.

ONE CLICK BUTTON from raw cloud of points to STL model with texture.



PORTFOLIO

National Museum of Prehistory in Taiwan

INTRODUCING 3D OPTICAL MEASUREMENT AT CULTURAL HERITAGE CONFERENCE IN NMP, TAIWAN

Aims:

- Advantages of usage 3D optical scanners in archaeology
- Presentation of SMARTTECH 3D technology over largest museums in Taiwan
- Digitalization of artifacts from museum

Equipment used:

- 3 sets of MICRON3D color 24 Mpix with shadeless lighting system

Watch recent activities of the museum!
https://www.youtube.com/watch?v=kixfIE48D2o

Museum in Kalisz and Gniezno

Ceramic Vessel
Gniezno, 10th Century A.D.

Antler comb,
Gniezno, 11th Century A.D.

DIGITALIZATION OF THE ARTIFACTS FROM MUSEUM IN GNIEZNO AND KALISZ, POLAND

Aims:

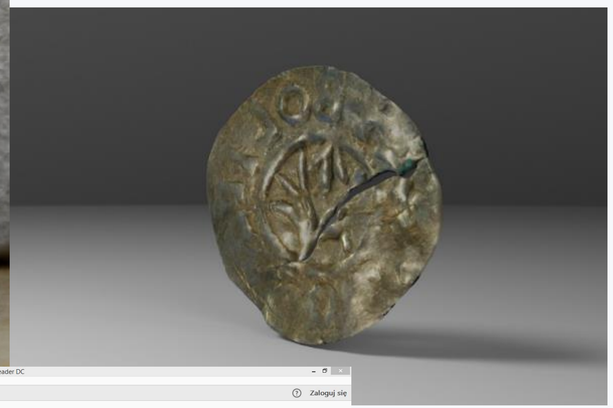
- Digitization of museum collections
- Digitalization of the artifacts from the early Middle Ages
- Archive and visualization

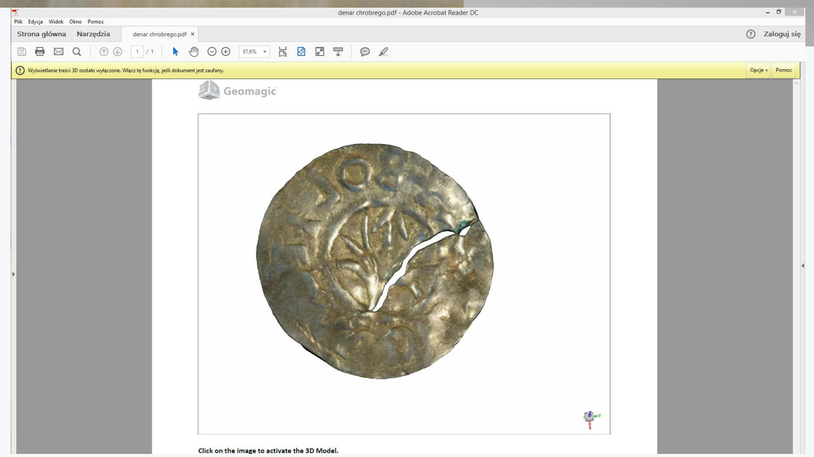
Equipment used:

- MICRON3D color 24 MPix

Watch our video!
https://www.youtube.com/watch?v=xpHddrHY_LU&t=37s

Museum in Kalisz





VISUALIZATION AND ARCHIVING BRAVE DENAR

Aims:

- Creating a faithful copy of the museum facility

Equipment used:

- MICRON3D color 24MPix

Watch our video!
https://youtu.be/qLvw_7Qx1Zw

Malbork Castle Museum

CREATING REPLICA BASED ON 3D SCANS OF UNIQUE CANNON FROM 15TH CENTURY A.D.

Aims:

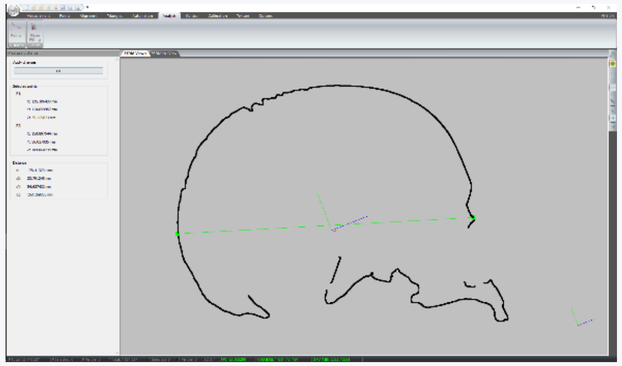
- Digitalization of unique cannon from Medieval period
- Creating replica based on 3D scans

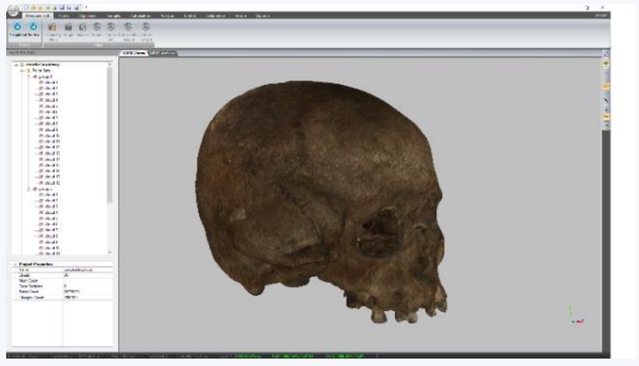
Equipment used:

- MICRON3D color 24MPix

SMARTTECH 3D METROLOGY

Biobank Laboratory of the Department of Molecular Biophysics of the University of Lodz





ARCHIVING REALISTIC DIMENSIONS OF HUMAN SKULL

CHECKING THE VARIABILITY OF THE HUMAN BODY AND DIGITALIZATION OF SKULLS

Aims:

- Archiving skull with realistic texture
- Dimensional analysis

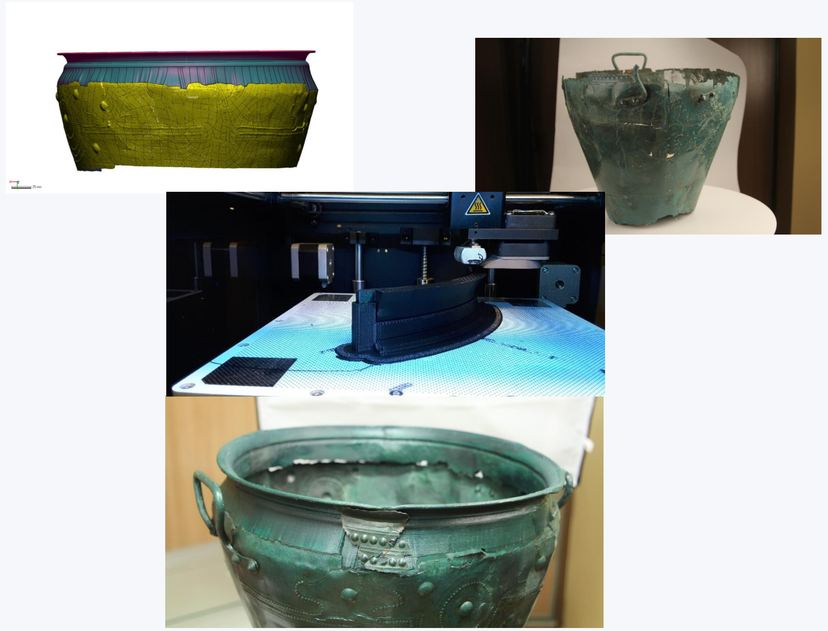
Equipment used:

- SMARTTECH3D UNIVERSE 10 Mpix

Watch our video!
https://youtu.be/Bb0_C8GhAKw

DIGITALIZATION AND RECONSTRUCTION OF ARTIFACTS WITH 3D TECHNOLOGY

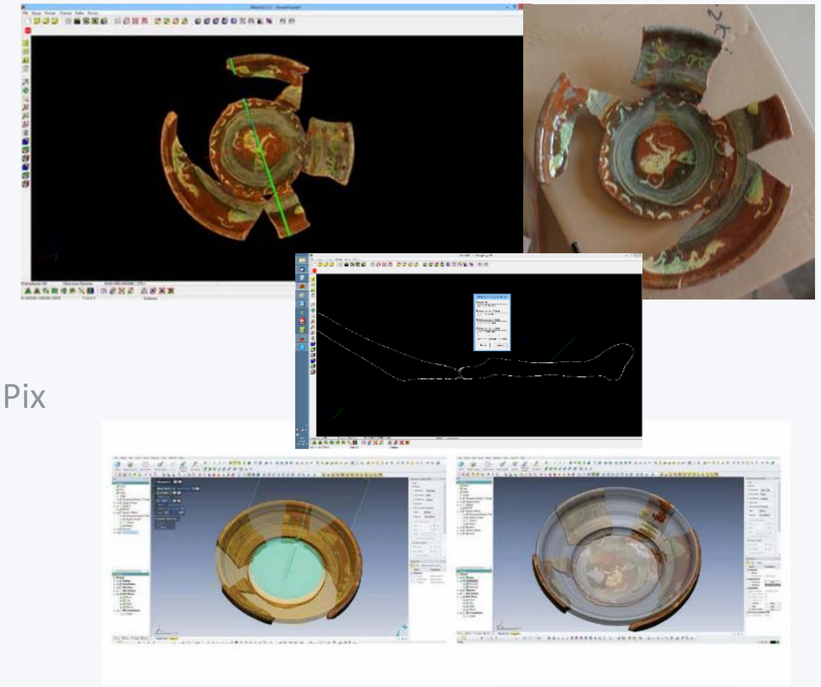
Institute of Archeology



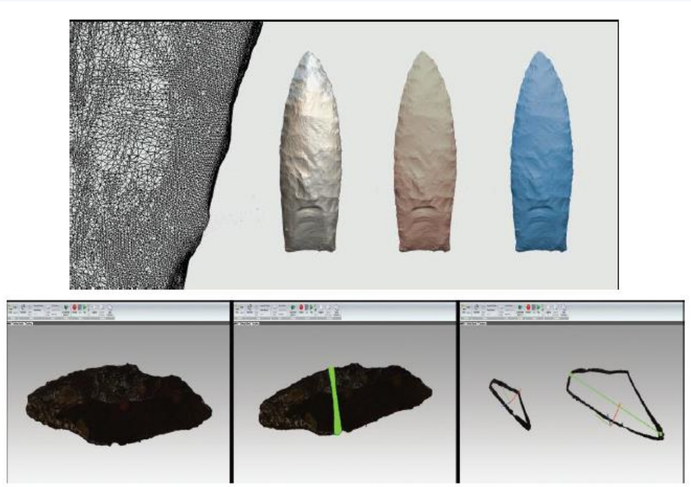
Aims:
- Digitalization
- Visualization
- Reconstruction

Equipment used:
- 3D Scanner MICRON3D color 24MPix

Wisłoujście Fortress



Gvardjilas Klde Cave, Georgia



Scanning of the flint tools with virtual cross-sections

Obsidian tools that has been scanned

3D SCANNING OF RESIDUES OF PALEOLITHIC INDUSTRY CENTER IN GVARDJILAS KLDE CAVE, GEORGIA

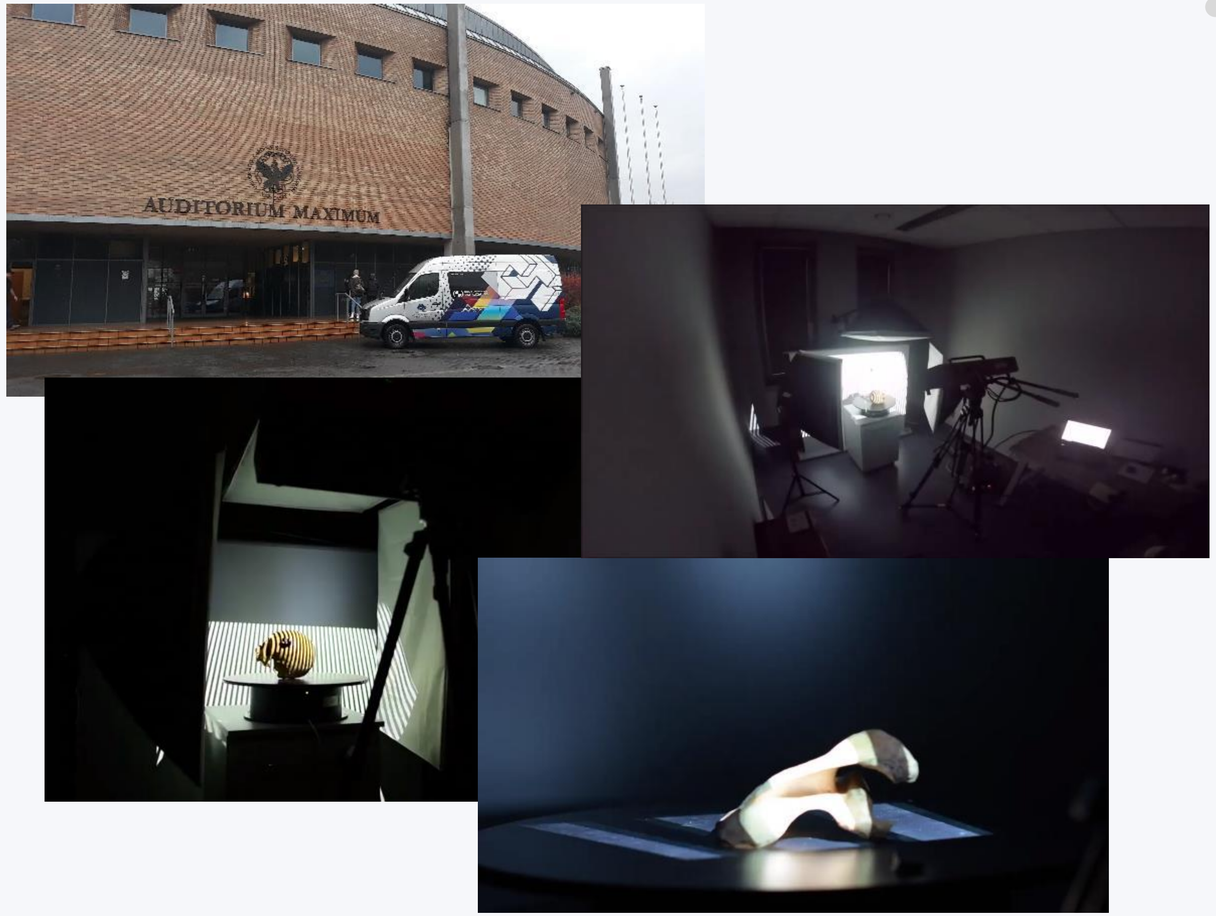
Aims:

- Digitalization of the artifacts from paleolithic era
- Archive and visualization
- Virtual exhibition at National Museum in Warsaw

Equipment used:

- SMARTTECH3D UNIVERSE 10 Mpix

Cardinal Stefan Wyszynski University of Warsaw



DIGITALIZATION OF THE ARTIFACTS AT THE MOBILE CENTER OF DIGITAL SCIENCE AND TECHNOLOGY

Aims:

- Digitalization of the artifacts
- Popularization of the 3D technologies over academic environment

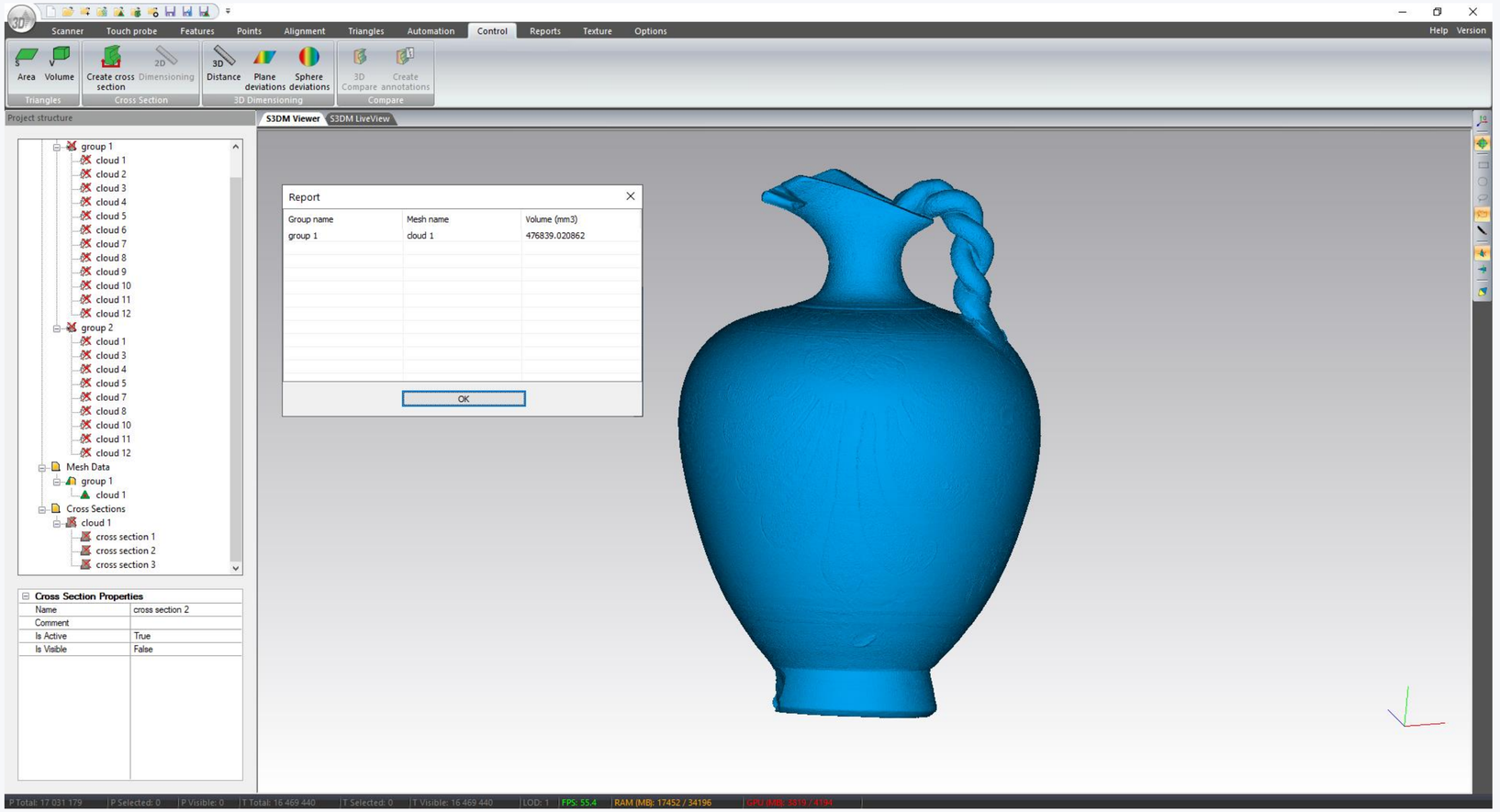
Equipment used:

- MICRON3D color 24 Mpix

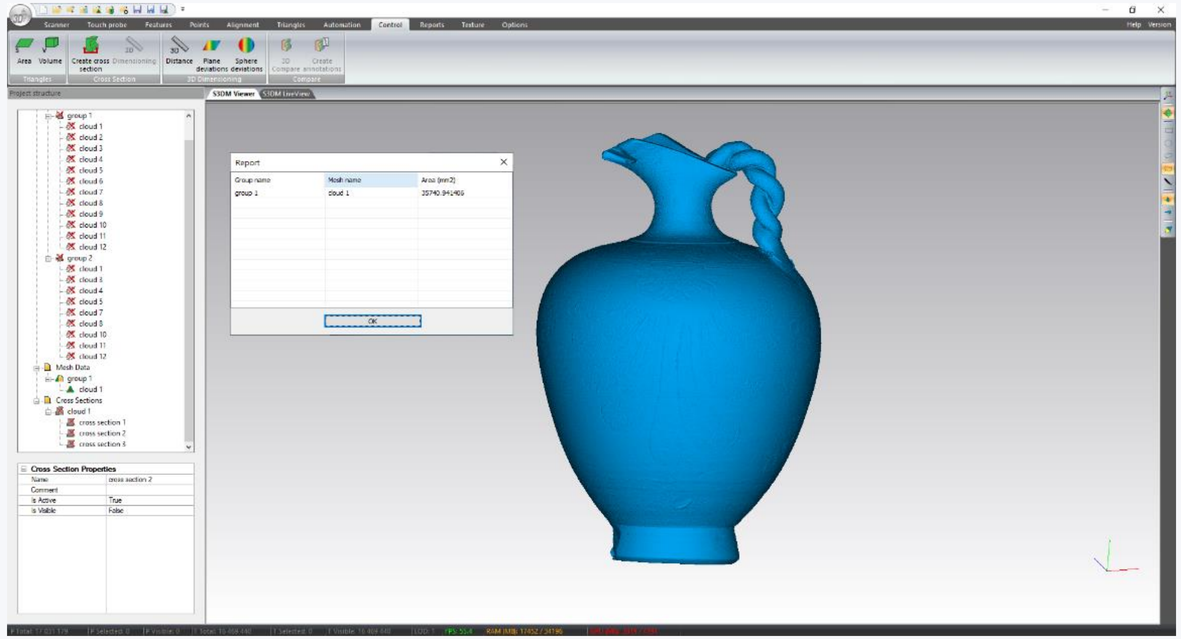
Watch our video!
https://youtu.be/1LoaYUnkY6o

LIVE DEMONSTRATION

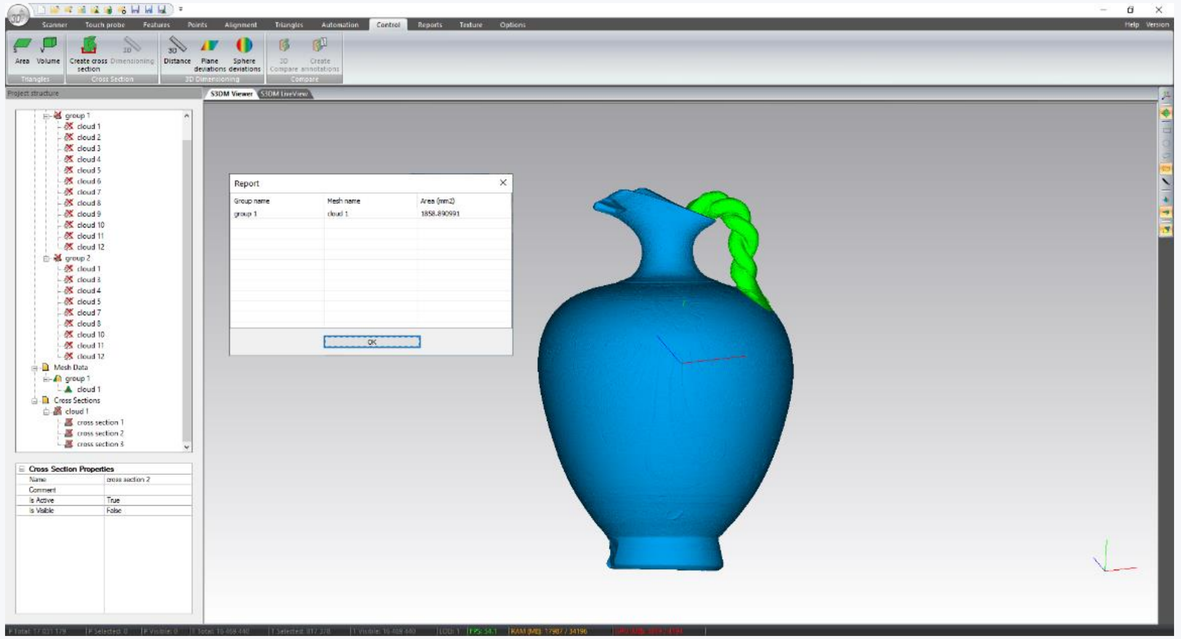
Automatic volume calculation



Automatic calculation of the area

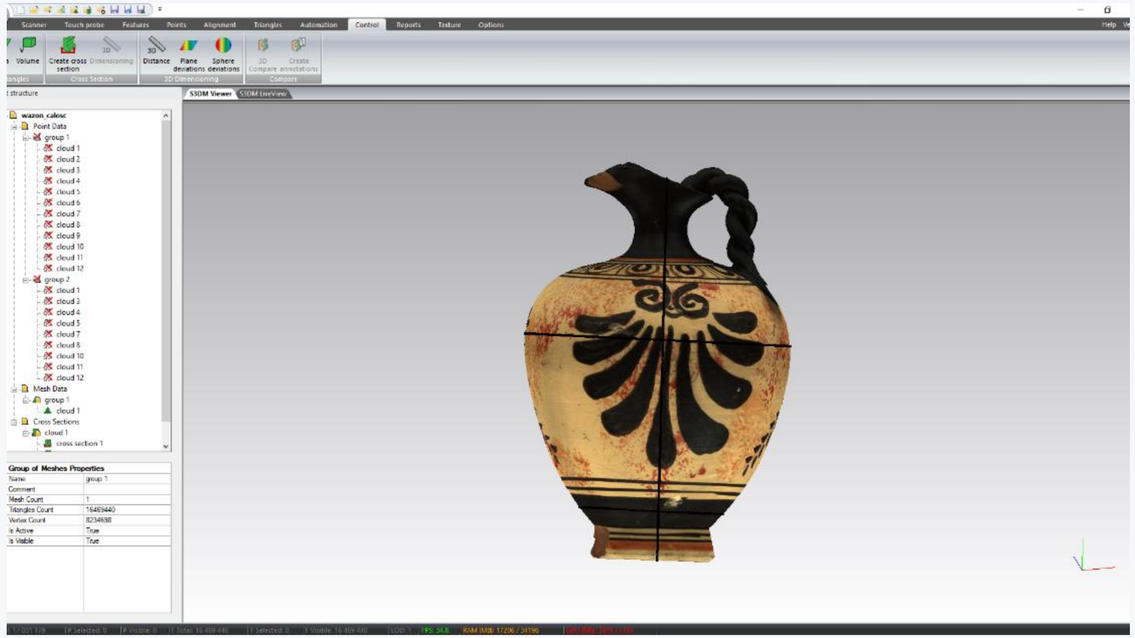


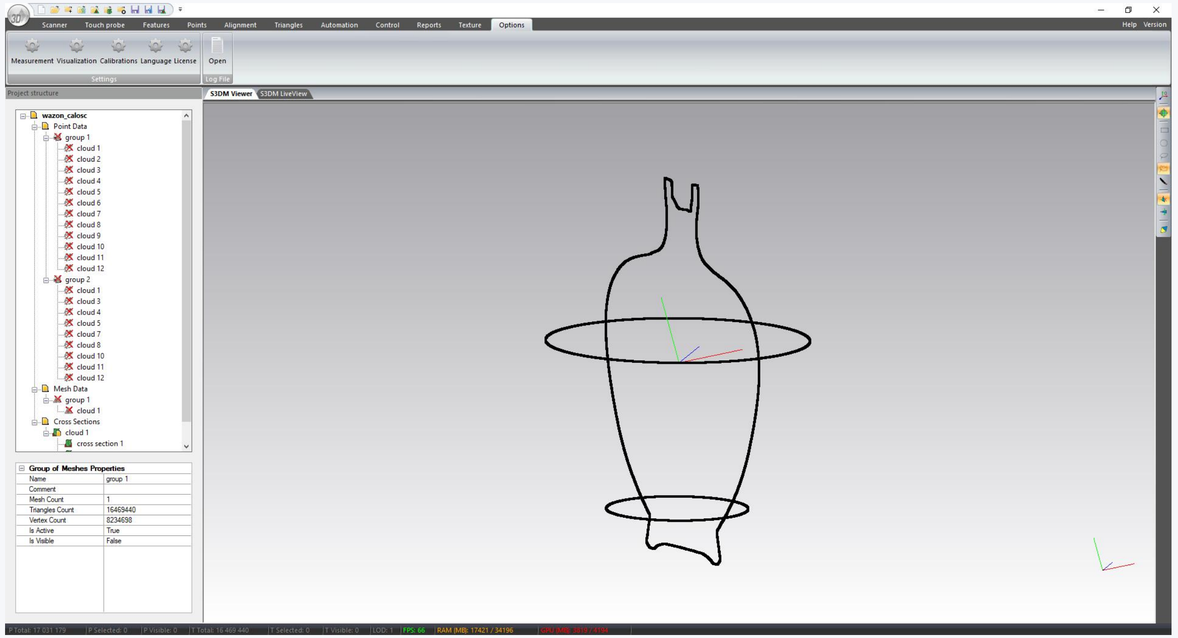
The entire surface area



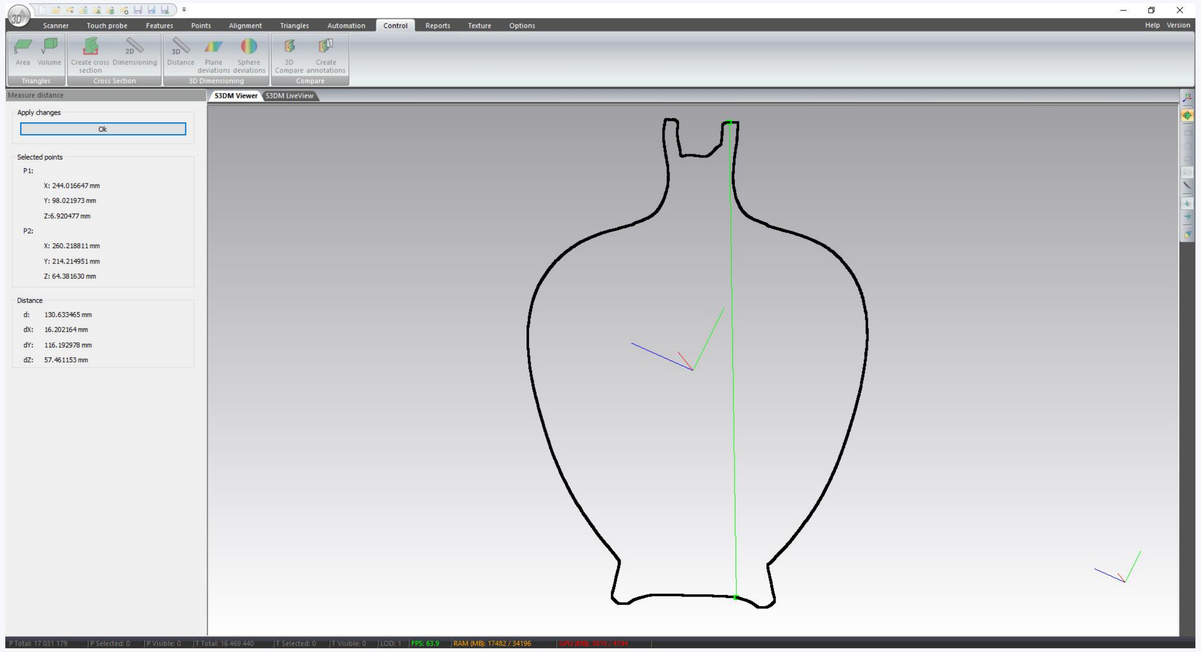
The selected surface area

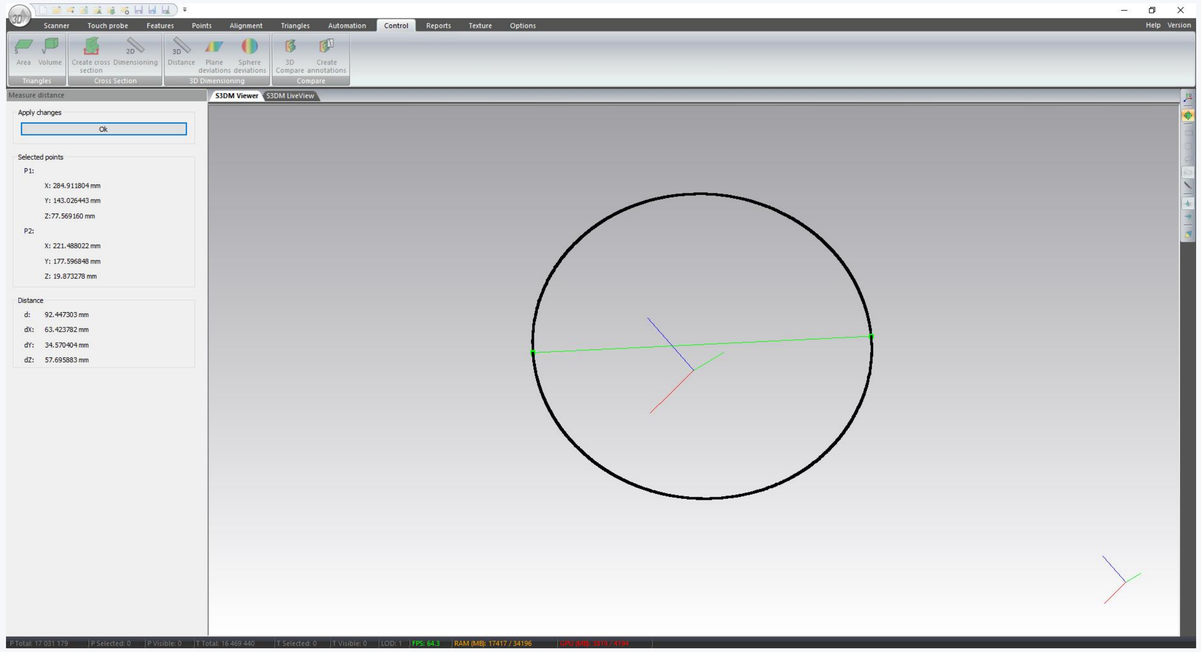
Virtual cross- sections



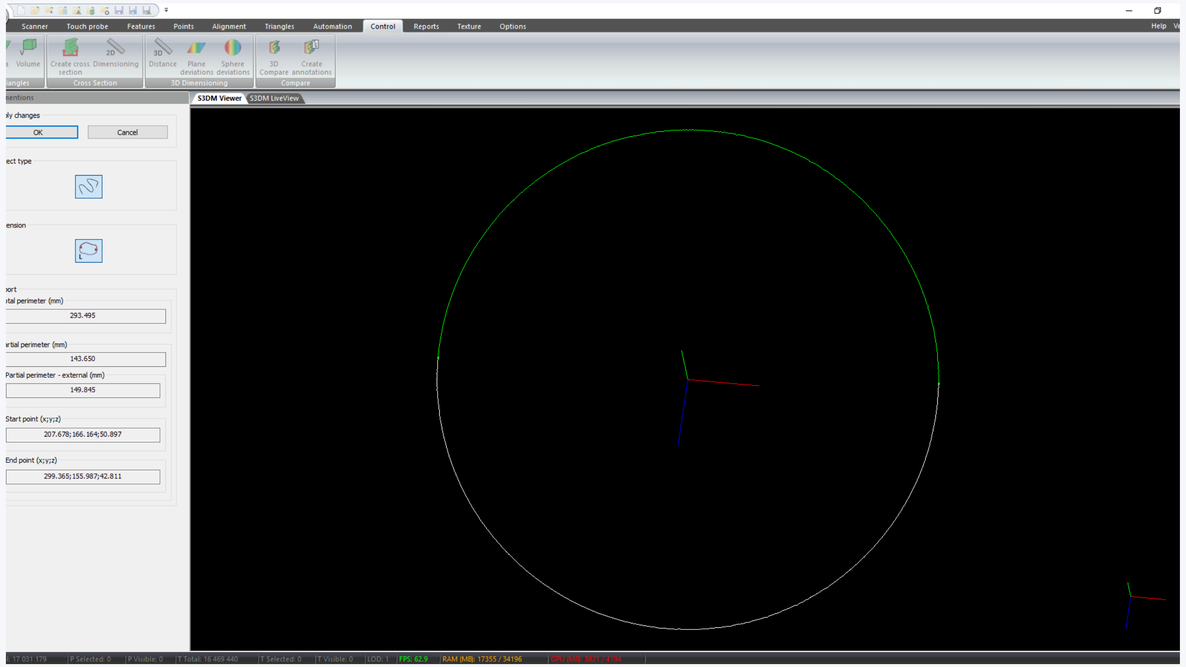


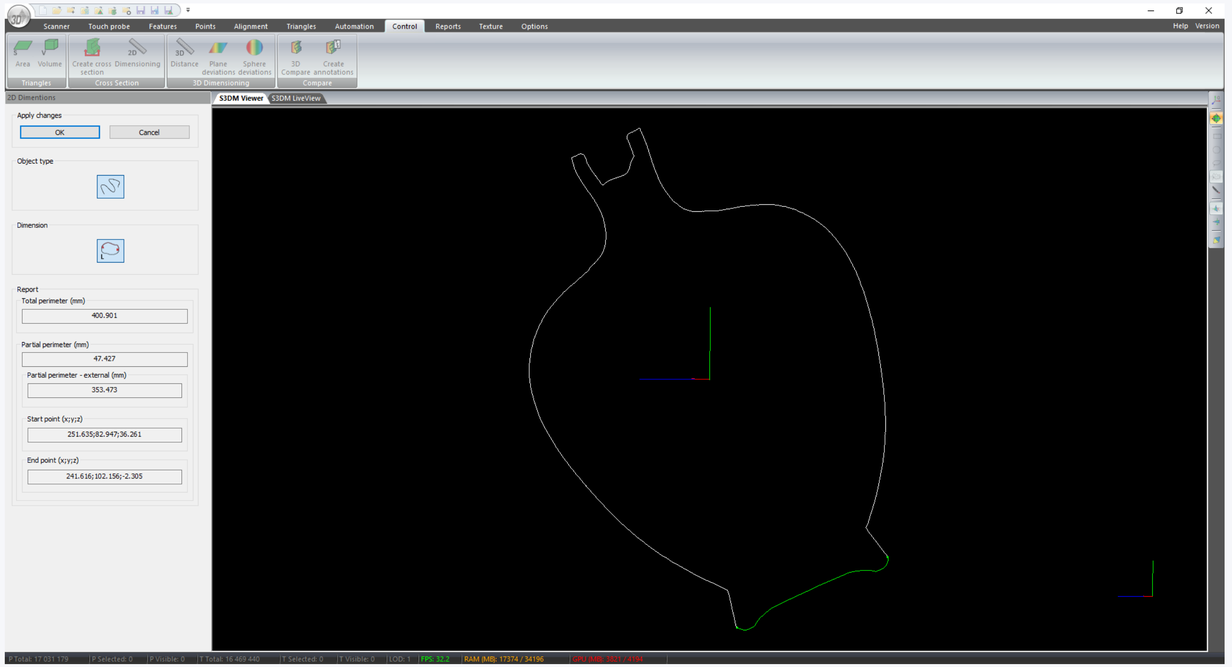
Dimensioning of virtual cross-sections





Dimensioning of virtual cross-sections





SMARTTECH 3D
METROLOGY

... from passion to 3D innovation!

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