



ARCHE VISTA
architecture that changes the future

LET'S SAVE OUR HISTORY AND IDENTITY!

All for the victory!



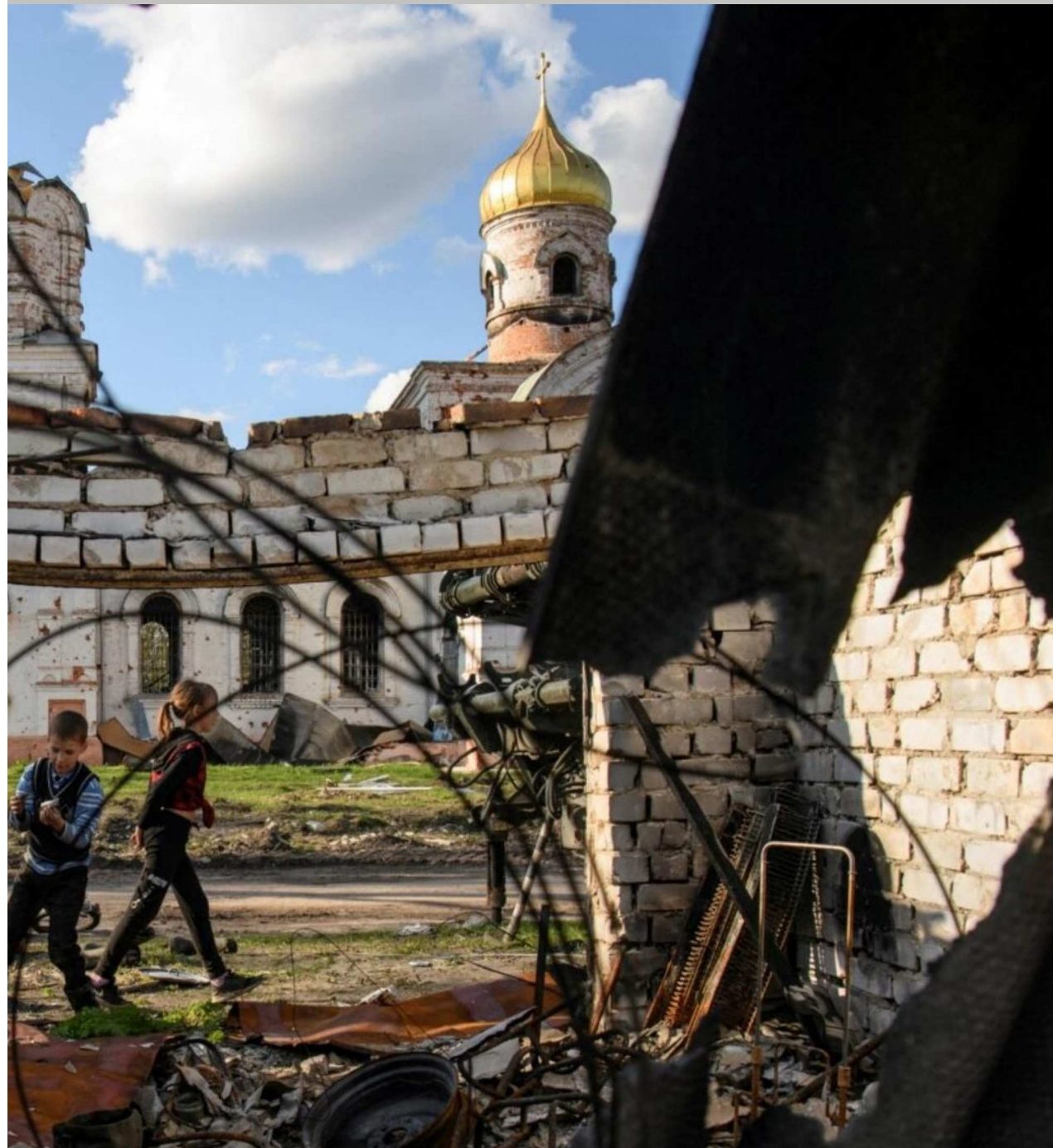
The idea of the project

Since February 24, Ukraine has been constantly subjected to massive attacks and missile strikes by the Russian Federation. Dozens of infrastructure and civilian objects are being destroyed every day, as well as historical buildings and structures.

Since the beginning of the full-scale invasion, more than 464* episodes of Russian war crimes against Ukrainian cultural heritage have been registered. According to the Ministry of Culture and Information Policy of Ukraine, as a result of shelling by the Russian occupiers, 139* objects of cultural heritage of Ukraine were destroyed and damaged. These are monuments of national and local importance, objects of valuable historical buildings, etc.

In addition, 361* art objects and cultural institutions were destroyed or damaged. These are religious buildings, libraries, museums and reserves. Crimes of the Russian occupiers were recorded in 15 regions of Ukraine.

*The number is being specified, as it is increasing every day





How many objects were affected?

Implementation of the project related to the fixation of structures belonging to the list of immovable monuments of cultural heritage of Ukraine.

Close cooperation with the balance holders of such objects, in the process of research and recording, will give the most complete information about the available materials on the monuments of the selected area.

Dnipropetrovsk region

Dnipro House of Organ and Chamber Music, Saint Nicholas Church

Donetsk region

Art Museum named after A. Kuindzhi
Sviatohorsk Holy Dormition Lavra
Christ the Christmas Cathedral of the city of Severodonetsk
Donetsk Academic Regional Drama Theatre
Mariupol Local Lore Museum
Palace of Culture "Youth" in Mariupol
Hamper's House
Mosque of Suleiman and Roksolana
Holy Transfiguration Church in Volnovas
Church of Christ the Savior Evangelical Christian Baptists in Mariupol
Church of St. Oleksandr Nevsky in the village of Oleksandrivka
Church of St. Nicholas the Wonderworker in Avdiivka
Church of the Mother of God of Kazan in Marinka
Steam mill of 1903, village New York
the Artyom Cultural Center in Lyman
Oleksandrovska Male Gymnasium in Mariupol
Church of St. Oleksandr Nevsky in the village of Oleksandrivka
Yuryev's house, kin. 19th century, Mariupol
Estate of A. Tregubov, kin. XIX - beginning 20th century, Mariupol
Central city public library named after V.G. Queen
Mariinsky Girls' Gymnasium with the museum of the history of the gymnasium, 1894, Mariupol
Azovstal stadium in Mariupol
Spartak Hotel in Mariupol
Palace of Culture "Youth" in Mariupol

Chernihiv region

Yeletska Dormition Monastery in Chernihiv
Regional Art Museum named after G. Galagan
Cossack Cathedral of Saint Catherine the Great Martyr
Lyzogubi estate in Sedniv
The house where Hleb Uspensky lived
of Ukrainian antiquities of Vasyl Tarnovsky in Chernihiv
Central city library named after M. Kotsyubynskyi (second half of the 20th century);
Building of the Chernihiv City Council
House of prayer of the Second Chernihiv Christian-Baptist Church
Former District Court House
Military History Museum (building of the late 20th century)
Historical and memorial museum of P. Tychna in the village of Sands
Gazebo on the Boldyn Mountains in Chernihiv
Church of Saint Theodosius

People's school (modern K. D. Ushinsky gymnasium), 1840, Novgorod-Siverskyi

Chernihiv Regional Universal Scientific Library named after V. G. Korolenko, 1910–13.

The building of the cinema named after Shchorsa in Chernihiv
Historical and architectural museum-reserve "Popov Manor"
the memorial stele to the participants of the ATO in Enerhodar;
the building of the railway station "Zaporizhia-druga" (1904);
church of St. Tikhon Zadonskyi (XX-XXI centuries).

Kyiv region

Ivankiv Historical and Local History Museum
Ascension Church in the village Baize
Peter and Paul Church in Bucha
Irpine Bible Seminary
St. George's Church in the village Zavorichi
Ascension Church in the village Lukyanivka
Archive-library of the Vyacheslav Chornovol Foundation
Holy Trinity Church
The National Museum-Reserve "Battle for Kyiv in 1943" in the village of New Petrivtsi
Church of the Nativity of the Holy Mother of God in the village of Victory
Museum of Local History of Borodyanka, Borodyanka village
Makariv historical and local history museum, Makariv village
Theater "Kyiv Small Opera"
The former office of the Jewish cemetery in Kyiv

Luhansk region

Catherine's Church
Buildings of the Lysychan soda factory
Church of the Intercession of the Holy Virgin in the village of Triochizbenka;
Church of the Icon of the Mother of God "Joy of All Sorrowful" in Severodonetsk
Church of the Nativity of Christ in Severodonetsk
Saint Nicholas Church in Popasnaya
Second St. Mitrofan Church in Lysychansk
Youth center, Lysychansk
railway station in Popasna,
Monastery of the Holy Prophet Ilya, complex of the 19th-21st centuries, p. Barbarian girl

Mykolaiv region

Chapel of the Immaculate Conception of the Blessed Virgin Mary in the village of Kiselivka
Old Turkish well of the 19th century. in the village Guryevka
Church of the Immaculate Conception of the Blessed Virgin Mary

Sumy region

Sumy Theological Seminary named after His Beatitude Metropolitan Volodymyr (Sabodan)
Okhtyrka museum of local lore
Manor-playground "Round Yard" in Trostyanets
"Cadet Corps" named after I. Kharytonenko (early twentieth century) in Sumy
former People's House in Okhtyrka
House of the estate manager L.E. Koenig in Trostianets
The main house of the estate of L.E. Koenig

Kharkiv region

Kharkiv Museum of Fine Arts
Holy Assumption Cathedral in Kharkiv
Residential building "Slovo" in Kharkiv
Choral synagogue
Kharkiv Regional Philharmonic
Kharkiv National Academic Opera and Ballet Theatre named after M.V. Lysenko
Memorial house of Grigory Skovoroda
Memorial complex of Glory
Kharkiv State Academy of Culture
Building of Kharkiv National University
State Scientific Library named after V. G. Korolenko
Artistic mosaic panel (second half of the twentieth century) on the building at Cosmonauts, 2
Building of the Faculty of Economics of V. N. Karazin Kharkiv National University
Church of the Smolensk Icon of the Mother of God
Church of St. Anthony the Great Church
Chobotar synagogue
Palace of Labor in Kharkiv
Building of the Kharkiv City Council
Memorial complex to the victims of the Holocaust "Drobytskyi Yar" in the village of Mala Rohan
Church of Evangelical Christians-Baptists (XXI century) in Izyum
Church of the Nativity of the Blessed Virgin Mary in Dergachi
Church of St. Demetrius of Thessalonica in Vasysheve
House of "Merchant of Moldova" in Kharkiv
Complex of buildings of the fire station in Kharkiv

Kherson region

Memorial stele in honor of Vyacheslav Chornovil in Antonivka village
Ancient mounds of the II millennium BC - the beginning of the II millennium AD near the village of David's Bridge
Ancient mounds of the II millennium BC.

Zhytomyr region

Military-historical complex "Rock"
Church of the Nativity of the Most Holy Theotokos, 19th century
Zaporizhzhia region
Heinrich Jantzen's house
I - the beginning of the II millennium AD. in the area of the village Druzhbivka

Luhansk region

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Odesa region

Vorontsov Palace in Odesa

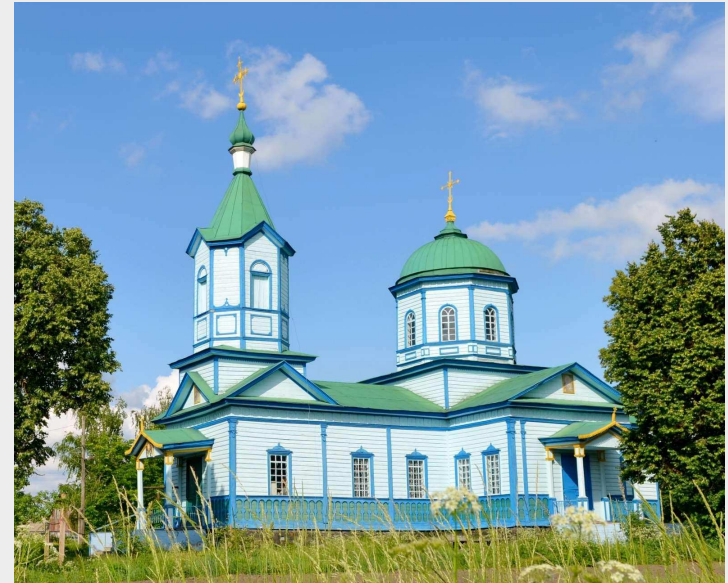
And this is only a part of the sights from the endless list, which, unfortunately, is constantly being added.



The wooden church of St. George in the village of Zavorichi, Brovar district, Kyiv region



Shchors cinema in Chernihiv



Wooden Ascension Church in the Lukyanivka village



Palace of Culture "Molodezhny" in Mariupol

It is very difficult to protect cultural heritage sites during the war, because we are dealing with particularly cynical barbarians - the Russian military, for whom our cultural monuments are one of the most important targets on the way to the destruction of the Ukrainian nation.



House of the estate manager L.E. Koenig in Trostyanets

Our mission



Sviatohirsk Lavra destroyed by occupants in Donetsk region



Yelets Monastery, Chernihiv



Church of the Nativity of the Blessed Virgin Mary, Zhytomyr region

Ukraine has been under almost constant bombardment. And during this hard times brave citizens have put themselves at great risk trying to physically remove Ukrainian artifacts from dangerous locations. In many cases, these objects are very large or completely immobile, making them vulnerable to destruction.

We watched along with the rest of the world as Ukraine suffered senseless destruction. We, as a company, would like to offer our experience to the citizens of Ukraine to digitally preserve any artifact, monument, structure or building and to help this important initiative in any way we can.

Project purpose

We can move works of art, scientific and movable cultural heritage, even monuments of monumental art to safer places or protect them, but the situation with buildings is much more complicated.

Everything that can be done to be able to pass on to the next generations information about the architecture of our country, with the help of innovative 3D scanning technologies, to capture the current state of the historic building as carefully as possible, with all the details of architectural plasticity. With the participation of specialists-restorers of our workshop, we have the opportunity to create working groups to analyze, compile a register and fix the objects of immovable cultural heritage.



The destroyed Chernihiv City Library named after M. M. Kotsiubynskyi



Strengthening of the monument to Duke



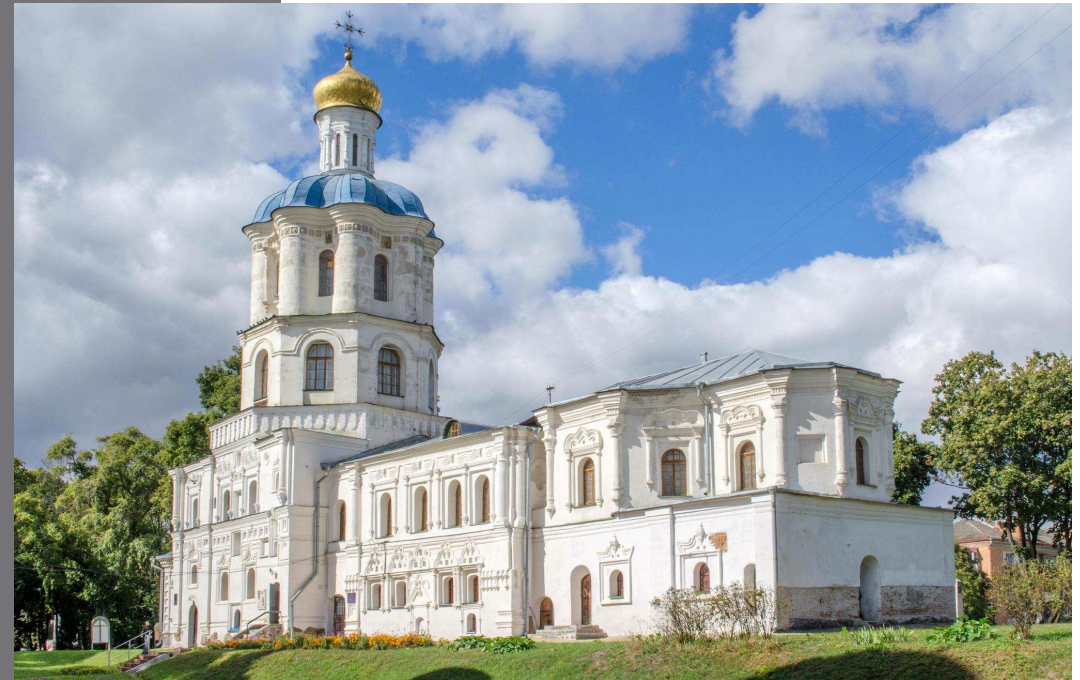
Monument to Hrushevsky in Kyiv

Sights of cultural heritage

According to the analysis of information from open sources and with the help of own research, in the territory of one of the border regions of Ukraine, which is currently under constant fire from enemy troops, there are almost a hundred objects included in the list of cultural heritage monuments of national importance. About 40 of them are monuments of history and architecture of the XVI-XVIII centuries.



Hlebova estate. Institute of Microbiology in Chernihiv



Chernihiv Collegium, a monument of the 17th century.



St. George's Church in Sednev, Chernihiv region

What is it about?

Laser 3D scanning



3D laser scanning of a building is a modern method of fixing the building and its parts. This method is maximally automated and does not require a large group of specialists and a long time of field work, as it was in the classical measurement of objects. The whole process of fixing a monument with an average complexity of architectural elements lasts only a few days. But, despite the speed and high level of automatic process, only highly qualified specialists are able to carry out the adjustment and further processing. To achieve the maximum quality of the result with minimal costs for field work, we involve only experienced specialists with relevant certificates and many years of experience.

Scanning of architectural objects allows to create their reduced 3D copies qualitatively and accurately. Geodetic devices help to fix in detail the monument in space and time. The digital format allows you to save information about literally every element: its color, size, texture. All this data is converted into a 3D model. This information becomes the basis for the reconstruction or restoration of the monument.

Measuring equipment such as laser scanners, cameras, drones and other geodetic devices are used. The scanning process is coordinated with local authorities.



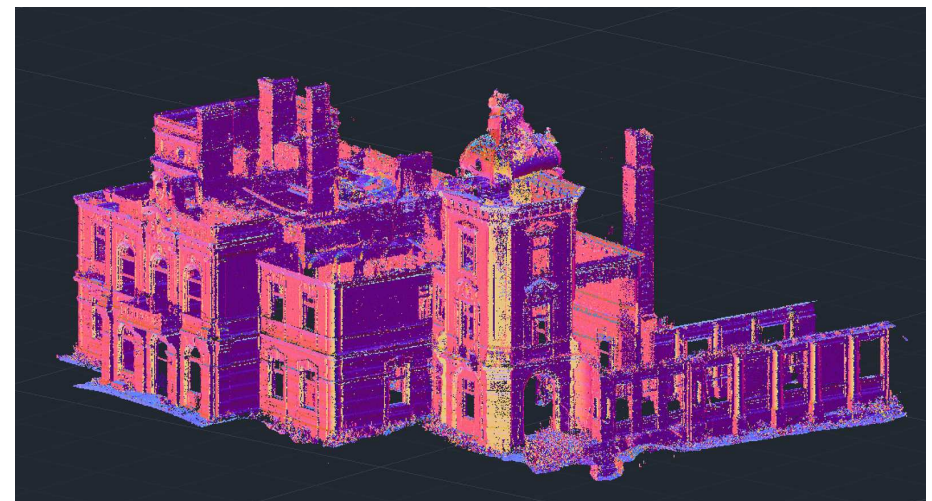
Example of work of "ARCHE VISTA" LLC
Tartakiv Castle - the pearl of the Sokal region

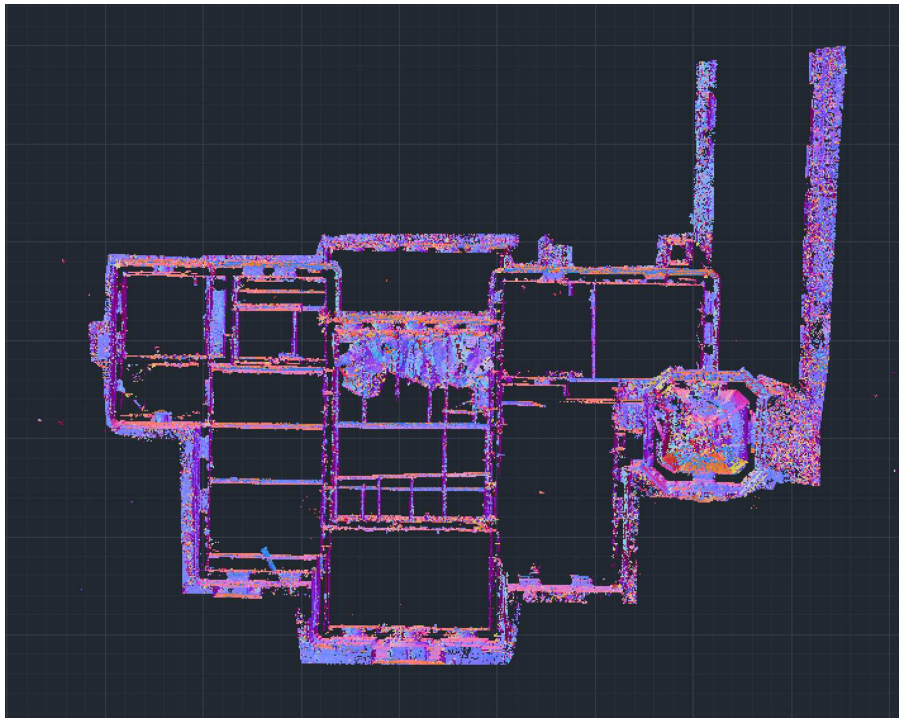


As a result of the work on the primary processing of point clouds, a single point model of the object should be created, which consists of measurements taken from different scanning stations.

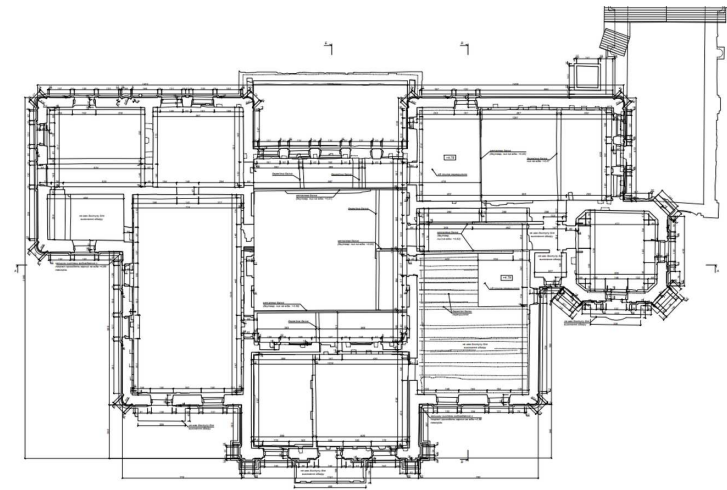
Ground laser scanning works are divided into three stages:

- field measurement work;
- chamber work on the primary processing of point clouds;
- chamber works on preparation of relevant documentation and projects based on laser scanning data





Scanning of architectural and cultural heritage objects is the latest and revolutionary technology. It will allow fixing with maximum detail all the features of the monument. But the resulting point cloud is only the basis for further work of restoration specialists, archaeologists, sculptors. In order for the balance holder to prepare a real archive of materials on the object, after the fixation, on the basis of the received materials, it is necessary to prepare a set of measuring drawings. It is the measurement drawings, in accordance with the current legislation (DBN A.2.2-14: 2016 Composition and content of scientific and design documentation for the restoration of architectural and urban planning monuments), in the future will be included in the pre-project work as the basis for restoration reconstruction work for the design team.



An example of the work of LLC "ARCHE VISTA"
Tartakiv Castle - the pearl of the Sokal region

So, usually, only three specialists of the company are involved to organize the on-site fixation of the object:

1. The chief architect of the project

is a specialist who previously studies the object, forms the terms of reference for the fixation, so that the visit is as efficient as possible and goes without delay. It is the chief architect of the project who manages the process of fixation, with further processing of the results. He supervises the creation and formation of dimensional drawings based on the results of the obtained three-dimensional models. After completion of the project fixation and preparation of materials for storage, the chief architect of the project forms archives for proper storage of information.

2. Engineer-geodesist. This specialist is the best able to correctly determine all the features of the object of fixation, choose the best places to install the equipment, taking into account the complexity of the architectural features of the building, and ensure the maximum level of detail of the resulting models. It depends on this specialist. Whether the team will receive enough information to process the materials and will not have to return for re-fixation.

3. Architect (assistant chief architect of the project) - a specialist who is entrusted with the main task in the preparation of materials. Based on the results of the received models, the formation of dimensional drawings, the formation of graphic materials and the compilation of the archive based on the results of the visit to the object of fixation. That is why this specialist should always be present at the fixation and thoroughly study the features of the object directly on the spot. Depending on the complexity of the object of study, another architect of the company may be additionally involved in the processing of the received recording materials.



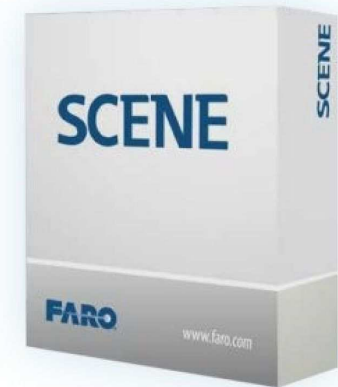
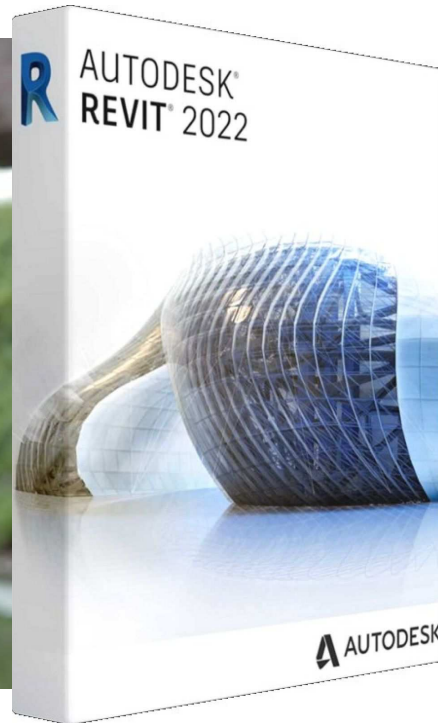
To obtain the maximum quality of materials, it is preferable to use only high-quality equipment from market leaders. At the moment it is **FARO TECHNOLOGIES INC** - the world leader, manufacturer of portable measuring devices of various types. The line of FARO equipment allows you to solve most of the production tasks of measuring and controlling accuracy.

Using the devices of this company, we have the opportunity to obtain all the necessary data of the highest quality and informativeness for further processing, without additional equipment and the involvement of a large group of specialists:

- High level of detail of the received object scanning data;
- The ability to get not only a gray point cloud, specialized FARO plug-ins allow you to use filters and textures;
 - Creation of polygonal models of the object;
 - Viewing the point cloud obtained as a result of scanning the object in virtual reality mode.

High efficiency of data processing is achieved only through the use of professional licensed software, such as:

AutoCAD, Autodesk Revit, Faro SCENE, BuildIT Construction, As-Built for AutoCAD, As-Built for Autodesk Revit.



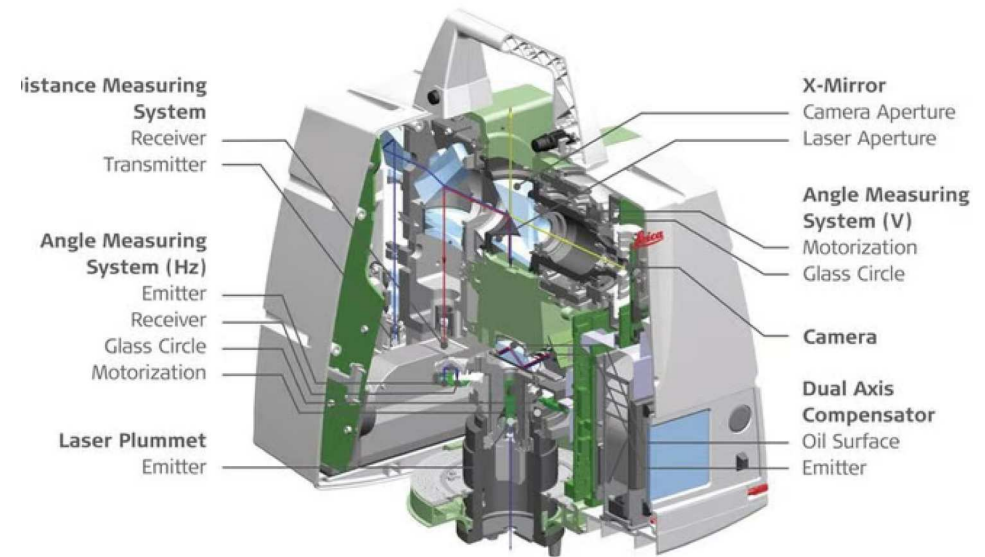
Technical information

Ground laser scanning technology is the best way to get accurate information about the dimensions of the object and its elements.

The final scanning materials are a detailed point cloud on the basis of which you can perform detailed working drawings and calculations.

Scanning in construction

Allows to fix in detail all elements of the building at different stages of its construction. Based on this scan, you can perform the necessary calculations and drawings. Scanning objects can be individual rooms, floors or buildings, as well as large warehouses and factories.



This technology is implemented with the help of special devices - ground laser scanners that measure horizontal and vertical directions of laser radiation propagation and inclined distances to the points of the object.

In addition to the coordinates of the object points, during laser scanning, RGB color characteristics are also recorded. Color is obtained as a result of photographing the object with a digital camera.

Thus, the result of ground laser scanning is an array or cloud of points of the scanned object, which have the following parameters: X, Y, Z coordinates in the spatial coordinate system and RGB color parameters.



Objects of cultural heritage of Ukraine in modern VR and AR technologies

Modern computer technologies can be an excellent tool for popularizing Ukrainian culture and attracting citizens of the whole world to the architectural traditions of our country. After all, modern museums created by VR and AR technologies erase all boundaries and borders, make it possible to "touch" any object without leaving your home.

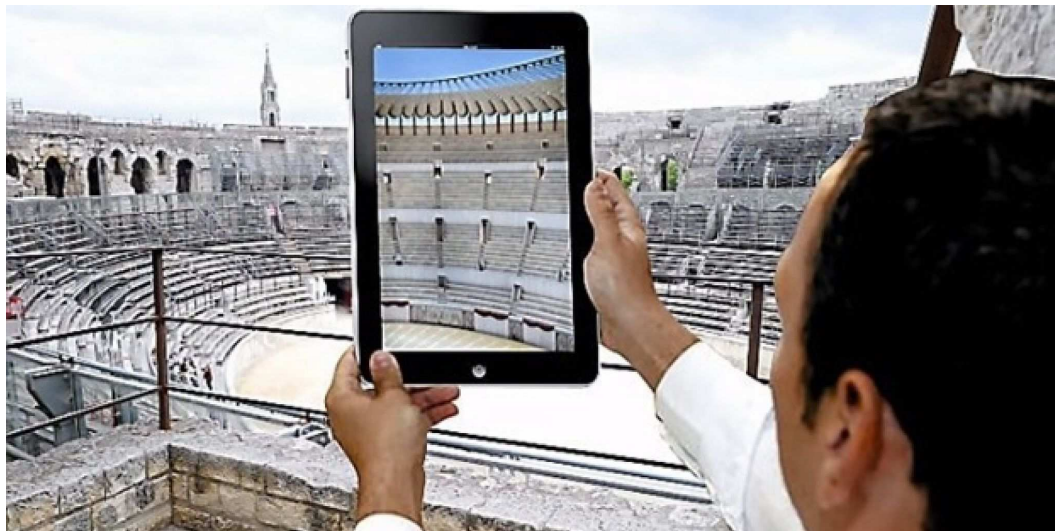
Due to the use of professional equipment, such as FARO Premium 150, the specialists of the architectural workshop "ARCHE VISTA" during the fixation of objects, have the opportunity to create special 3D models of buildings that are scanned and studied. Thanks to the specialized software FARO Scene and the use of additional plug-ins, our specialists can prepare the obtained fixation materials for further use in the VR segment.



As a result

This means not just to fix, preserve all the geometric parameters and image of the historical architectural object. And not just to create an archive of three-dimensional models of architectural monuments of our cultural heritage. It is something much more. Specially prepared 3D models of historical objects are a real basis for unlimited possibilities for further development:

1. Having systematized and supplemented 3D models with historical information, we can create our own modern VR museum (virtual reality museum) of objects belonging to the cultural heritage of our country.
2. The obtained models can be used for the development of training programs, not only for specialized architectural universities in our country and abroad.
3. Through the use of modern VR and AR technologies, the materials of the formed archive can be used to create content in the cinematographic and even gaming industry, developing and popularizing the historical heritage of our country among young people.



**Architectural workshop
"ARCHE VISTA" (LLC "ARCHE VISTA")
was officially registered in December 2009
in Kyiv.**

**Head of the workshop:
Proshchenko Artem**



ARCHE VISTA
architecture that changes the future

Architectural design is a responsible and important process, which requires reliable support of professionals.
We offer our experience, creativity and responsibility for the implementation of any ideas.

