



Fangyu Technologies GmbH

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About Us

Fangyu Technologies GmbH is a technical consultant engaged in engineering survey and supporting services for historical building renovation, old city renewal, cultural relics restoration etc.

By delivering professional services with advanced technology, we are committed to providing effective and reliable data support and archives for urban development, and exploring innovative spatial design based on reverse engineering for our clients.



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LiDAR 3D laser scanning technology we use is currently the most up-todate, accurate and efficient architectural surveying & mapping technology in the world.By capturing nearly a million data points with coordinate information per second,we are able to accomplish the surveying& mapping of various complex buildingsand components in a very short time. Point cloud models created with these datapoints can visually present highly complex 3D configurations and details, including building inclination, deformation, damages etc. as well as subtle changes on curved surfaces.With unique point cloud model processing technology, we analyze models in slice figures or convert them into solid forms, and, at the request of our clients, generate 2D vectographs or 3D model documents compatible with most widely used software on the market. Our customized interior and exterior multi-purpose mobile measuring system works faster and better in interior and field work for historical street blocks or large-volume buildings.

UAV Aerial Photography and Photographic Modeling Technology

Using UAV aerial technology to acquire data of building roofs and the industryleading Altizure TM photographic modeling technology to generate 3D models, we allow our clients to directly browse the high-definition real-scene dioramas online via PC or mobile phone and to experience the most authentic visual reality without the trouble of returning to the site to double-check the details.We can also help our clients to embed dynamic 3D models into specific multi-media platforms for exhibition, presentation or advertisement purposes etc.



Core Technologies

3D Laser Mapping and Point Cloud Processing



Professional Background in Architecture

Our core team members all have professional background in architecture. Besides, they have been long engaged in the protection of historical and cultural cities and building in China, accumulating abundant on-site surveying experiences. With 3D laser surveying & mapping and photographical modeling technology, we have participated in more than a hundred historical protection projects since 2007, ranging from individual buildings to traditional villages, from urban street blocks to natural landscapes.

Architecture-based Standardization

Emphasizing the understanding of surveying from an architectural perspective, we organize architecture teams to perform the on-site surveying and data processing, prepares drawings in strict accordance with architectural standards, and produce site survey reports as detailed as possible.

Efficient Way of Working

Compared with the conventional ways of surveying and mapping, our services can significantly cut the time for field work and on-site preparation, greatly improving survey accuracy and overall work efficiency.

Extensive Clientele

Our clients include architects, planners, individual owners, government agencies, educational and cultural institutions, animation studios as well as non-architectural survey companies.

Rongzhuangdai, Kanton Tempel



Our Strengths

Deliverables

Mapping Drawings and Surveying Report

The deliverables include status quo mapping drawings and sitesurveying report developed according to relevant architectural codesand standards, which can be archived or applied to variousengineering projects.



Online Browsing of 3D Model / Digital Landscape

Clients can browse high-definition realscene dioramas online accessing various information including notes on various locations, site photos or point cloud models etc.We can also generate online digital landscape for the purpose of advertising or displaying protected historical buildings, traditional street blocks or tourist attractions.



GIS Integrated Archiving

The deliverables include detailed GIS data information of the surveyed object, which will be incorporated into the client' s overall GIS data base with our assistance.



3D Model

The deliverables include high-precision point cloud model and 3D model documents (with chartlet) compatible with popular software.

2D Photograph

The deliverables include screen shots of plan, elevation, section, perspective and isometric point cloud figures as well as high-definition photographs with real coordinates based on clients' request, which can be directly used in the preparation of vector drawings.

Mock-up

Using 3D printing technology, we can generate 3D mock-up in proportion as a high-precision miniature replica of the existing surveyed object for archiving or exhibition.







Complex point cloud model

- 360 ° view and flexible measurement

For buildings with complicated constructions and numerous details, site surveys often fail to capture all the information required. But repeated on-site examinations undoubtedly increase the duration of the project, not to mention labor and travel costs.

Fangyu Technologies combines photography modeling with point cloud data to enable accurate replication and surveying of the building on the Web environment. In this way the work efficiency is improved and data errors and additional costs are avoided.

With the complex point cloud model from Fangyu Technologies, users can capture three-dimensional information of the building at anytime, anywhere, orbit the building both indoors and outdoors from a panoramic perspective and retrieve real-time information about each component of the building.



point cloud model

Panoramic Model

Online slicing tool for point clouds model

High-resolution 3D laser mapping is often dependent on expensive instruments and professional point cloud processing tools. With the online slicing tool, it is possible to quickly access extensive 3D point cloud data in the browser. One can easily specify levels, heights, and sections, generate building model slicing, and then measure and manipulate with AutoCAD or other common software.

In the near future, architects will not necessarily need highly-configured computers, expensive software licenses and complicated point-cloud operations for the use of high-resolution 3D models efficiently and conveniently.





Surveying & Mapping for Historical Buildings and Cultural Relics

This service is primarily intended for cultural relics renovation design companies and cultural relics admi-nistrative departments.With a galaxy of professional talents in archi-tecture, surveying & mapping, and information technology, as well as a series of integrated cutting-edge technologies including the internet, cloud computing,automated 3D measurement etc., we offer cost-effective, efficient,accurate and reliable surveying& mapping of historical and cultural buildings.

Case 1. The Cathedral of Sacred Heart of Jesus Kanton, PR China

Project size : 3800 m²

Work duration : 5 days of field work + 12 days of interior work

Technologies : 3D laser scanning +UAV aerial photography for modeling +panorama capture





West Facade

Aerial Photography 3D Model









Case 2. Burgruine Münzenberg Münzenberg, Hessen, Deutschland

Project size : 20886 m²

Work duration : 3 days of field work + 2 days of interior work

ARRADA BARA

Technologies : 3D laser scanning +UAV aerial photography for modeling +panorama capture





Point Cloud Slice of Transversal Section



Point Cloud Slice of Longitudinal Section



Longitudinal Section

Case 3. Evangelische Kirche Sulzbach Sulzbach, Hessen, Deutschland

Project size : 386 m²

Work duration : 1.5 days of field work + 1.5 days of interior work

Technologies : 3D laser scanning +UAV aerial photography for modeling +panorama capture





Overlapping Planar Point Cloud Slice with Mapping Drawing

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Overlapping Planar Point Cloud Slice with Mapping Drawing

Case 4. Office Building Renovation of Housing & Construction Bureau of Shenzhen Municipality Shenzhen, PR China

Project size : 7640 m²

Work duration : 2 days of field work + 3 days of interior work

Technologies : 3D laser scanning + UAV aerial photography for modeling + panorama capture

Highlights:

1. Efficient on-site scanning andpoint cloud processing

2. Omni-directional capture of ground and space information

3. Precise mapping of status quo

4. Subsequent application and BIM collaborative management











BIM

Pictures courtesy of CHINA CONSTRUCTION SCIENCE & TECHNOLOGY CO., LTD

Archiving and Documentation

This service integrates the latest technologies including 3D scanning, photographic modeling and panoramic photography from the architectural perspective to help relevant administrative departments of the government and individual or corporate users of revitalized historical buildings efficiently accelerate the digital archiving of historical buildings.



Sun Yatsen Memorial Hall, Kanton

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We can significantly accelerate the data processing with the help of the latest technologies such as the internet, cloud technology, automated 3D measurement, UAV oblique photography and synchronizing site visit, surveying, data processing and mapping, as well as the cloud computing technology.

0.5 day per location for data collection, 0.5 day per location for data processing, and 2.5 days per location for mapping.

Project	Time	Qty	Client
Historical buildings of Guangzhou	2016-2017	92 places	Guangzhou Land Resources and Planning Commission
Historical buildings of Zhuhai	2016-2017	68 places	Housing and Urban-Rural Planning and Construction Bureau of Zhuhai
Historicalbuildings of Shantou	2016	16 places	Shantou Municipal Bureau of Urban and Rural Planning



Case: Online browsing of historical buildings in Guangzhou

Highlight 2: Holistic Representation of Historical Environment

Historical environment is a critical aspect for the archiving of historical buildings. However, in the rapid urbanization process, historical buildings and surrounding environment are changing so fast that the generated topography can hardly keep up with the speed of urban development, resulting in frequent occurrence of outdated, missing or incorrect information. With coordinates obtained by RTK and supporting geographical calibration by aerial photography, the challenge of missing topography and the representation of complex historical environment can be addressed; for historical buildings in a complex natural environment, 3D point cloud technology can guickly obtain data information of both the building itself and its geomorphology.



Case: Coordinates obtained by RTK and supporting geographical calibration by aerial photography

Highlight 3. Presentation Platform for Digital Deliverables

We are the first to realize multi-platform real-time browsing of 3D models, including arti-ficial texture model, point cloud model, oblique photography model etc. With the aid of 2D data including mapping drawings, panoramic photos, digital photos etc., digital deli-verables can be presented in an all-round manner, thus improving public awareness and participation in the protection of historical buildings.

Case: Online browsing of historical buildings in Guangzhou



Highlight 4. Customized Surveying & Mapping from the Architectural Perspective

We streamline and analyze the core elements of historical buildings from the architec-tural perspective, develop targeted work plans in proper detail, and provide accurate interpretation and standardized representation of structures, constructions and materials.

Case:

Interpretation and representation of the structure and construction of a historical building of Guangzhou



Case 1. The Site of Hefengcang Suzhou, Jiangsu, PR China

Project size : 5335 m²

Work duration : 1 day of field work + 2 days of interior work

Technologies : 3D laser scanning + UAV aerial photography for modeling + panorama capture Highlights : UAV modeling technology enables efficient color matching of large-scale sites.





Material	Granite	Rammed Earth	Concrete	Gravel	Tile	Red Brick	Yellow Brick Drain 120×240	Yellow Brick Drain 160×300	Yellow Brick 240×120
Legend		· · · · · · · · · · · · · · · · · · ·		·					
Material	Grey Brick 120×260	Grey Brick 130×270	Grey Brick 160×300	Grey Brick 220×100	Grey Brick 120×240	Grey Brick 100×200	Gray Brick Wall Boundary	Surroundings	Grey Brick 130×270
Legend			0 <u> </u>			<u> </u>			

Plan



Revitalization of Villages and Districts



This service is primarily intended for the protec-tive planning of ancient villages or general renovation and revitalization of common villages; 3D scanning and UAV modeling technologies are adopted to provide highly efficient surveying& mapping services for large building clusters, thus reducing the time required for surveying& mapping, providing a reliable basis forplanning and design, and facilitating judgment and decision-making in design.

> Fujian Tulou Aerial Photography 3D Model











Case 1.

Project size : 31000 m²

Highlights:

Yongrong House

Yuchang House

Fujian Tulou Fujian, PR China

Work duration : 10 days of field work + 20 days of interior work

Technologies : 3D laser scanning +UAV aerial photography for modeling +panorama capture

1. Greatly improved efficiency and lowered cost.

2. Greatly improved accuracy and integrity

3. Quick solution to buildings of large volume

4. Accurate identification of complex geometry



Case 2. Cuiheng Village Zhongshan, PR China

Project Size : 15280 m²

Work duration : 5 days of field work + 12 days of interior work

Technologies : 3D laser scanning +UAV aerial photography for modeling



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Aerial Photography 3D Model of Status Quo



Renovation Design Integrated Model



Point Cloud Slice of South Elevation



Mapping Drawing of North Elevation



Mapping Drawing of Sorth Elevation

Mapping the history for a better future.

Partnerschaft

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Institute of Architectural History and Culture, SouthChina University of Technology (SCUT)

SOUTH South Surveying & Mapping Technology Co., Ltd.

EVEREST Everest Innovation Technology Limited Hong Kong

Guangzhou Lidong Animation Design Co., Ltd.

GEXCEL Gexcel Company (ITALY)