Tiki3D
Advancing Photogrammetry

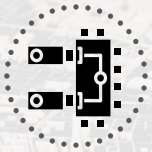
Tiki3D

One-stop Reality 3D Modeling Solution 2024

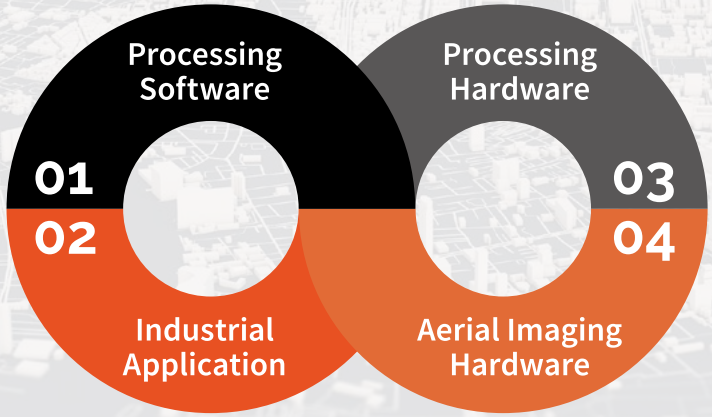
Auckland | Hong Kong | Shanghai | Roma | Mumbai | Dubai

Tiki3D
Advancing Photogrammetry

- Tiki3D Reality 3D Modeling Software
- Tiki3D Editor
- Tiki SmartVerse
- Tiki3D Satellite
- Tiki3D LiDARPro



- TWS Rack
- TWS Mobile
- TWSmini
- TWS 3S



- Reality 3D City Mapping for Urban Planning & Mapping
- TRMS Real-time 3D Mapping System
- Commercial Inspections

- TS001 Drone
- TS002 Drone
- TMP4 Fixed-wing Drone
- T710 Drone Dock
- TR1 Camera Payload System
- Little Monster Oblique Camera System

Tiki3D, established in 2018, is a Hong Kong-based innovative tech start-up providing one-stop-shop solution for reality 3D modeling. With over a decade of experience in such field. Our industry-leading post-processing software suite incorporates powerful AT algorithm and high performance 3D model reconstruction capability for data acquired by drones, LiDAR scanners or satellites. It is also a competitive end-to-end solution covering processing hardware, aerial cameras and mission planning services for data acquisition. Ideal for Survey & Mapping, Urban Planning, Inspection, Infrastructure, Emergency Rescue, Mining, Security, etc.

Tiki3D Reality 3D Modeling Software

Being the pioneer and leader in Real-World 3D modeling software systems, our software is user-friendly, easy to learn, and quick to master; it features strong aerotriangulation algorithms to create 3D models at high efficiency.

It fully supports a range of image sources, from mobile phone cameras to large 150-megapixel medium-format cameras, and from low-altitude frame cameras to Satellite Linear Array Pushbroom (LAP) cameras. Built-in rapid 3D model editing tools make it easy to refine damaged areas such as water bodies and road intersections. It features a complete model editing workflow.

> Infinite Aerotriangulation Algorithm (ENHANCED)

The newly upgraded "Enhanced Aerotriangulation Adjustment Mode" further increases the data processing capacity for standalone computers, supporting the processing of **100,000 images with 64GB of RAM or 200,000 images with 128GB of RAM.** It maximizes hardware utilization in different hardware clustering configurations.

Additionally, "Aerotriangulation Volume Mode" has been enhanced, increasing the processable data volume limit. This mode supports the processing of **over 1 million images with 64GB of RAM.** Each stage of the process benefits from cluster parallel computing, employing adaptive partitioning to significantly reduce data redundancy. With automated fusion, you can achieve consistent accuracy in your aerotriangulation results, all while simplifying your workflow with minimal manual intervention.

> Infinite Fusion

Our system supports a wide array of multi-source heterogeneous sensors and multi-level resolutions, eliminating the need for geospatial references.

It seamlessly integrates both aerial and terrestrial data, whether collected indoors or outdoors, all without requiring any human intervention. Paving the way for a **One-click solution** for aerotriangulation and 3D model construction. Additionally, the latest update enhances compatibility and adaptability across various image and laser scanning devices.

	Basic		Ultimate
Product version	Model Construction	Basic (Full-Frame)	Air-Land Fusion Module
Input Data	< 62 megapixels	< 62 megapixels	< 100 megapixels
Camera Type	Drone Cameras		Full-frame
Parallel Computing	Y	Y	Y

> Infinite Intelligence

Equipped with a **built-in AI deep learning interface**, our software automatically performs water surface repairs; recognizing surfaces, filling holes, flattening, and color balancing without requiring manual input. Additionally, our image control feature identifies all control points within your survey area, streamlining the process and enhancing efficiency.

> Tiki3D Editor

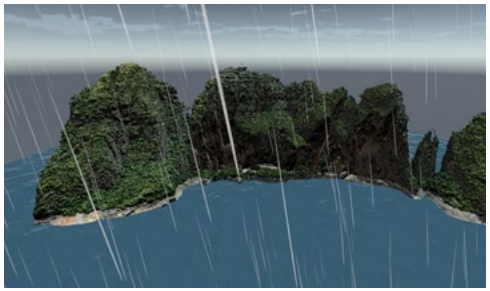
Tiki3D Editor is a software for detailed individual model and mesh model editing. It includes features like building **surface flattening, texture modification, removal of floating objects, road flattening, water surface patching, bridge and tunnel penetration, and a model library.** It enables detailed model repair, topology optimization, and mesh reconstruction to fix model defects, hole patching, and shape correction, enhancing the quality of automatically produced models and meeting the needs for high-precision modeling.

Effects Before and After Model Editing

Water Surface Refinement

> Cross-Platform 3D Visualisation Software - Tiki3D SmartVerse

Tiki3D SmartVerse is a specialised visualisation software for real-world 3D and BIM applications that offers **game-level rendering effects**. It provides tools to set various weather conditions like rain and snow, adding animated dynamic vehicles and characters, batch-planting of vegetation, creating dynamic water bodies, **transforming static scenes into dyanmic moving states**, creating game-quality animated scenes. The output data models are compatible with OGC/IFC/S3M standards and various viewing applications, **facilitating seamless integration between BIM and GIS data across different domains**. Industry Application customisation is available.



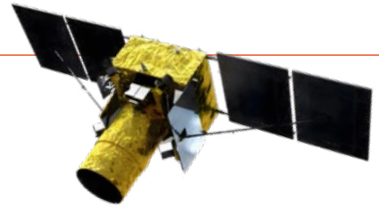
Weather Render Effects in Tiki3D SmartVerse

Night Render Effects in Tiki3D SmartVerse

> Color Adjustment

The Tiki3D Editor provides versatile tools for fine-tuning image color parameters, allowing you to adjust parameters like brightness, contrast, white balance, and saturation with ease.

Color Adjustments Effects



Tiki3D Satellite Imagery Modeling System

Tiki3D Satellite is a world-leading automatic 3D modeling system for satellite imagery, featuring a fully automated workflow mode and efficient processing capability to produce high-precision satellite realistic 3D models. Using self-developed and **highly robust Dense Image Matching algorithms** to produce denser Point Clouds with higher accuracy and resolution. Adopting a high-precision **Point Cloud Fusion algorithm** based on image guidance to achieve building edges that are more refined.

Using **Classification Interpolation Technology** to ensure finer terrain models in mountainous areas with high slopes. With accurate structures and natural textures, the overall quality of our models far exceeds the level of our competitors.

> Tiki3D Satellite Application

3D Model constructed from Multi-View Stereo 0.5 Meter Worldview Imagery

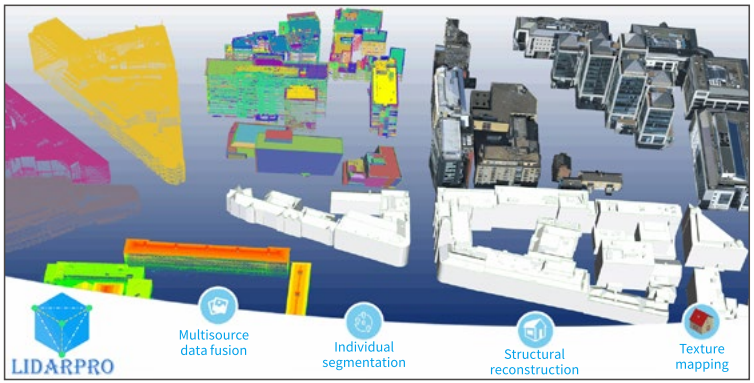
3D White Model constructed from Multi-View Stereo 0.5 Meter Worldview Imagery

> Key Features and Advantages

- Supports a rich array of image data sources that are capable of forming 3D stereo pairs, such as SPOT6, SPOT7, GF-7 high-resolution satellites, Pleiades, Kompsat, Worldview1-2-3, etc.;
- Supports a wide-range of output formats such as DSM, DOM, LAS Point Cloud, obj, osgb, and other formats;
- The High-fidelity Fusion algorithm ensures the maximum restoration from the image data of ground objects;
- Self-developed and highly robust Dense Image Matching algorithms produce denser Point Clouds with higher accuracy and resolution;
- World-leading satellite imagery modeling technology with straight building edges and realistic building facade textures;
- Simple and efficient data processing: Upon importing of data, real-world 3D models can be constructed on a single click;
- Satellite imagery modeling functions have been integrated into Tiki3D Software's user-friendly interface, simplifying the learning process.

Tiki3D LiDARPro 3D Geospatial Modeling Software

Tiki3D LiDARPro is an innovative software designed for automatic construction of 3D geospatial entities using data sources such as point clouds (from Laser scanning, Satellite Remote Sensing, and Dense Matching Aerial Imagery), images (Satellite Remote Sensing and Aerial Imagery), and Mesh models, streamlining the entire process from multi-source data synchronization to point cloud classification, segmentation, and precision validation.



- Point Cloud Filtering
- Automatic registration of point clouds with multi-view aerial images
- Automatic classification and semantic labeling of point clouds
- Segmentation of different structures within the point cloud into individual units
- Regular gridding and partitioning of point clouds
- Extraction of planar features from point cloud
- Reconstruction of structured building models based on both point cloud and images
- Modification of model's structure contours
- Automatic texture mapping and refinement
- Fully automated construction of 3D models (LOD1.x to LOD3.x)

> Main Features of the Software

- Fully Automated 3D Modeling: High efficiency production without need for manual intervention. Capable of automatically constructing 3D segmented structured models and carry out texture mapping, delivering native-resolution models similar to manually drawn ones.
- User-Friendly Interface: Simple and easy-to-use.
- Rapid Integration and display of 3D Point Cloud and 2D Image, and quick extraction of key features.
- Support wide-range of data sources: Various point-cloud data, image data, vector data, and mesh real-scene model data formats.
- Variety of outputs and output formats: Individual models in OBJ format, outlines of structures in SHP format, point cloud classification results, planar segmentation results, feature line results, LOD1.X to LOD3.X models, DOM, etc.
- Support Manual Semantic Labeling for Point Cloud Classification.
- Supports an expandable sample library and training models.
- Allows for manual modifications to the 3D models that are automatically constructed from point cloud and images.
- Referential structural modeling of buildings using combined point cloud and imagery data.
- Sketch-based modeling of building structures using multi-view imagery.
- Support building vector and point cloud construction of white models at various LOD levels.
- 3D Model and Multi-View imagery integrated editing interface, delivering higher precision models.
- Industry-leading algorithms related to monomerization.
- Comprehensive & functional design: includes data acquisition, editing, texture mapping, and quality inspection.

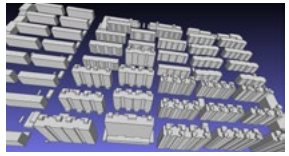

Point Cloud Data from Oblique Imagery


Point Cloud Classification Results


LOD2 Building White Models


Texture Mapping of 3D Model

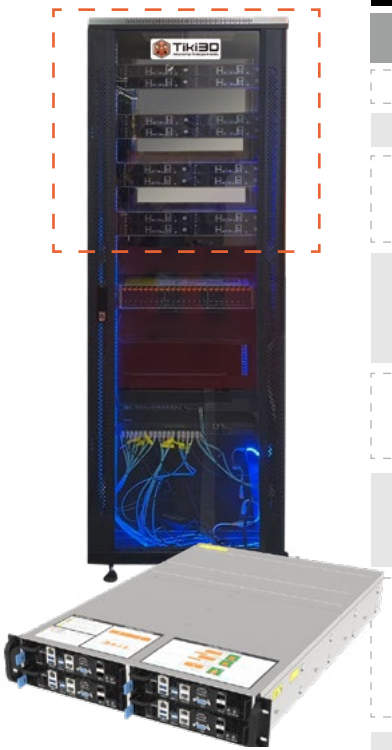

Generic Projected Texture


Automatically-extracted Vector White Model

Tiki3D One-click Reality 3D Model Reconstruction Software

TWS Rack

The system features a modular design with independent hot-swap and plug-and-play capabilities for easy maintenance and upgrades. Its high-density 1-to-4 design supports up to four GPU cards, with a compact 1U height and length under 2700mm, optimizing space. Equipped with complete IPMI remote management, KVM functions, and dual 1+1 (with PMBus functions) redundant power supplies delivering up to 4000W, it ensures efficient operation for IDC computer rooms. Supporting AMD's latest Ryzen CPU and GPUs, it excels in enterprise virtualization, deep learning, 3D rendering, cloud applications, and edge computing, with seamless physical-to-virtual machine conversion for optimal performance and cost efficiency.



Latest Performance Specification	
Computing Nodes	4 x 1U nodes
CPU	Supports AM5 packaged Ryzen CPU/APU processors
Graphic Card	NVIDIA RTX4090 GPU、 Core frequency>2300MHZ
Memory	4*DDR5 UDIMM, supports dual-channel DDR5 ECC/Non-ECC memory, with a maximum capacity of 48GB per slot 3600MHz (2DPC) / 5200MHz (1DPC)
Storage	Depending on the chipset: B650: 3 M.2 KEY-M slots, SSD1 only supports PCIe Gen4 x1 A620: 2 M.2 KEY-M slots X600/X300: 1 M.2 KEY-M slot
Network	2*2.5G LAN, supports network wake-up and PXE functions 2*10G SFP+ (optional), supports wake-on-LAN, PXE, NSCI, SR-IOV and other functions
Display	Integrated AMD Radeon series display core (depending on OPN model) HDMI(2.0)VGA(BMC display port). Max:1024*768 resolution
Power	CRPS power supply with PMBus 2000W (1+1) Highly efficient redundant power supply (94%) AC Input:200~240VAC, 15A(Max.), 50~60Hz DC Input:240V, 10A(Max.) DC Output:12.2V, 164A(Max.)
Size	2U without handle, side ear and other protrusions, 650×435×88mm
Weight	28kg

TWS Mobile

The TWS Mobile features an innovative suitcase-like design, offering both portability and functionality. It includes multiple processing servers and a lightweight, portable screen. Highly versatile, it can be customized to meet a wide range of commercial needs.

Latest Performance Specification	
CPU	Intel i9 / AMD R9 / Hygon / Loongson
GPU	NVIDIA RTX / Moore Threads / Innosilicon
memory	128GB DDR4/5
Store	Storage starts at 4T nvme ssd
Reveal	2560 ×1440
Power source	From 650w
Dimension	35×10×37cm
Weight	10KG

TWSmini

The TWSmini Mobile GPU Workstation is designed to be highly portable and versatile. The TWSmini has shown outstanding performance in emergency rescue and other field operations,and gained the nickname of "Reality Modeling in a Box".

At 25kg, the size of a suitcase, it is suitable for field missions in remote areas. It is able to construct 3D models real-time, in the field.

Latest Performance Specification	
Computing Nodes	Option of 6 or 10 nodes
CPU	Support latest mobile Intel i9 14900
Graphic Card	NVIDIA RTX4080 GPU
Memory	64G DDR5
Storage	Fast NVMe SSD Storage (from 8TB Intel U.2 SSD)
Network	10Gbps Ethemet Port
Display	Starting from 2560 × 1440 @ 144Hz
Power	1000~4000PSU
Size	0.06 cbm
Weight	16-30kg

Latest Performance Specification	
Computing Nodes	1 nodes
CPU	Support latest mobile Intel i9 14900
Graphic Card	NVIDIA RTX4090 GPU、 Core frequency>2300MHZ
Memory	128G DDR5
Storage	Storage 4T nvme ssd and above
Network	Public network module, WiFi, RJ45 module, 4G SIM card, WLAN module
Display	1920 ×1080 ×3
Power	800PSU
Size	490×250×410mm
Weight	16kg

TWS 3S

The TWS 3S is the latest model in the Mobile GPU Workstation series. It features three integrated display monitors, all in a compact, portable design. Despite its small size, the TWS 3S delivers powerful processing capabilities, enabling efficient handling of large data volumes with high-speed performance.

UAV | Drones | Drone Dock

TS001

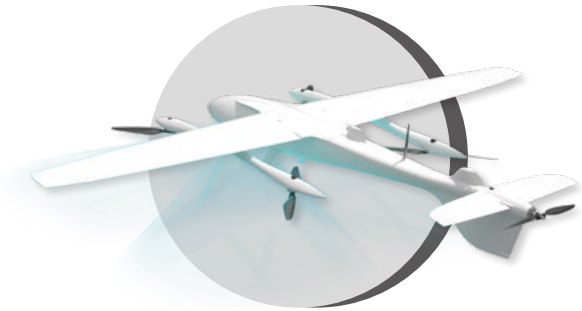
TS001 quad-rotor drone equipped with 24-megapixel sky camera

> Max Flight Time: 45 minutes

> 1 sqkm model reconstruction duration: 15 minutes (GSD 5cm)

> Maximum load 2kg

> Interchangeable mount design



TS002

55Minutes
Max Flight Time
(without payload)

40Minutes
Max Hovering Time
(with 3 lens camera)

27 mis
Max Flight Speed

-10°C ~ 45°C
Operating Temperature

⩾ 4800g
MTOW

3236g
Weight
(without payload)

T710 – Tiki Drone Dock

> Compatible with various drone models

> Intelligent 120s Battery Swap System

> Full Remote Control

> 24h Continuous Operation

> IP55 Weather-proof

TMP4

> Material	All-carbon fiber composite design
> Take-off and landing mode	No remote control required, fully autonomous vertical take-off and landing
> Weight	15kg
> Cruise speed	80km/h
> Recommended flying altitude	6500m
> Operational wind condition	Level 6 during take-off and landing. Level 8 headwind and tailwind, and Level 6 crosswind during cruise phase
> Operational temperature	-20°C to 50°C
> Navigation control	Dual-frequency navigation system, supports GPS with various types of satellite
> Mission mode	Supports fully automatic mission mode
> Safety mechanism	Supports "Automatic Return Home" during excessive wind condition, loss of contact

High-Precision Aerial Survey Camera System

TIKI TR1 Series

SONY Full-frame, 3-Axis Gimbal, Interchangable Lens

TR1 is a professional-grade aerial survey camera system that features an interchangable lens Sony LX1 Camera, 3-Axis Gimbal, and feature add-on main control board. It combines high resolution, light-weight design, real-time settings, efficient storage, rapid burst shooting, and high-definition video recording.

High Resolution SONY LX1 Full-Frame Camera
61 MP effective full-frame Sony sensor. Enjoy full Sony warranty, retaining camera's resell value

Versatile & Lightweight Design
Interchangeable Lens Body only weighs 420g (excl. Gimbal)

Efficient Data Storage and Management
External high-speed SD card, photos with real-time POS data.

Superior Image Quality

At 61 megapixel, Sony LX1 Camera produces high-quality images with low noise and high dynamic range. Allows for detection of fine cracks and scratches during inspection and mapping purposes.

Advanced BIONZ XR ™ Image Processor

Compared to the previous generation processor, the performance is improved by approximately 8 times. It reduces processing latency while enhancing the handling of video and still images, resulting in excellent image quality and fast camera response.

Efficient Capturing Performance

Under Single-shot mode, continuous exposures can be triggered at 0.8 seconds interval. This feature improves efficiency and reduces operation time while ensuring precise trigger control.

Technical Specifications

Dimensions/Weight (without gimbal)	105×75×100mm/ 420g	Structural Properties	Detachable E-mount lens
Dimensions/Weight (with gimbal)	180×154×160mm/ 860g	Power Supply Image Transmission	External power 12-30V Dynamic HD transmission
Total No. of Pixels/ Minimum Exposure Interval	61 million/ 0.8 seconds	POS Storage	Real-time photo write-in
Sensor Size/ Shutter Speed	35.7mm×23.8mm 1/8000 to 1 second	Camera parameter settings	DJI remote control or WIFI connection WEB setting
Lens Focal Length/ Photo Format	Standard 35mm, optional 56mm JPEG/JPEG&RAW/RAW	Trigger Method	Manual or automatic trigger
Lens Type	Professional fixed-focus lens	Supported Aircraft	DJI M300 series, other drones
Video Recording/ Recording Format	Supports 1080P/ MP4	Environmental Humidity	⩽70%
Data Storage	External 256G high-speed storage card	Operating Temperature	-10°C~50°C

Little-Monster Oblique Camera System

The Little-Monster Aerial Camera is a oblique aerial photography system independently developed by Tiki Technology. The system consists of five 100 or 150-megapixel Phase One industrial camera, which capture textures of buildings, rooftops and facades from different angles. The system is reinforced, calibrated for precision, and equipped with a measurement-grade GPS aerial antenna, high-precision inertial altitude measurement system, and an aerial photography management computer. The system also features softwares for flight path design, flight control, and data post-processing.

Little Monster 1

Little Monster 1 - Equipped with a surveying GPS aerial antenna, a NovAtel/S1 high-precision inertial altitude measurement system, and an aerial photography management computer; Lens angle is configurable and there are various types of lens to choose from based on your needs.

Little Monster 2

> Newest flagship - Little Monster 2

Storage capacity : 4TB

Minimum Exposure Interval: 0.9s

Size: 330.6mm x288mm

Power supply: 19~30V DC

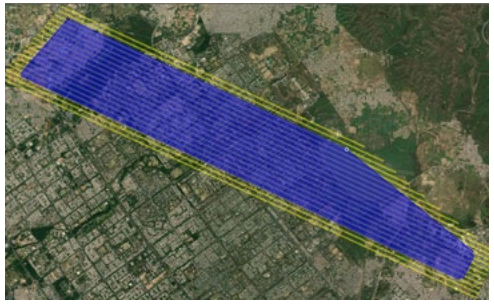
Power Rating: ⩽ 450W

Temperature Range: -10°C ~40°C

*Little Monster 2 consists of five 150-megapixel Phase One industrial cameras, which capture textures of buildings, rooftops and facades from different angles. The system is reinforced, calibrated for precision. Weighing only 18 kg, Little Monster Camera systems can be easily mounted on different types of aircrafts. The Little Monster also offers flexible lens and angle configuration options tailored to different user needs, diverse terrain and climate characteristics. User-friendly Pilot and Operator navigation interface enables a more intuitive operation.

I .City Mapping / Aerial Survey

For Aerial Survey Mapping purposes, Tiki offers an end-to-end solution that includes Tiki Intelligent Flight Path Planning, image capturing hardwares, and 3D reality modeling software.



Tiki Intelligent Flight Path Planning

Extensive Experience

Tiki3D has accumulated over 1million sqkm of 3D modeling experience

Superior Efficiency

Process and produce over hundreds of sqkm of 3D model within 24h

> Recommended Products

- Tiki3D Reality Modeling Software
- TWS Rack
- TS001 Drone
- TS002 Drone
- TMP4 Drone
- Little Monster System

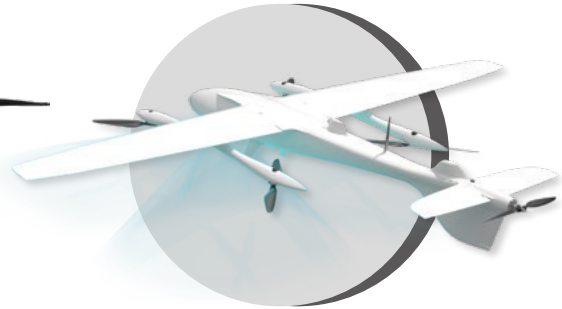
> Suitable Industry

- Construction & Maintenance
- Civil Authorities

I .Reality 3D City Mapping for Urban Planning & Mapping

With years of experiences in Reality 3D modeling for municipalities, Tiki3D's solution has evolved into a robust & extreme performance 3D modeling system. The system had been deployed in data centers and had successfully processed millions of images in both AT and reconstruction in scalable grid-computing architecture. Our satisfying customers achieved over 200Gpix/day/machine with easily affordable software & hardware investment.

TS001 with TR1 Payload



TMP4 with TR1 Payload

Little Monster 2 mounted on helicopter

Little Monster 1 India Project with Fixed Wing Aircraft

Aircraft Type	Imaging Solution	Aerial Vehicle Solution	Tiki3D Reality Modeling Software Version
Manned Aircraft (Helicopter, Fixed-wing)	· Little Monster Oblique Camera System	-	Ultimate
UAV/Drone	· TR1 Payload System	· TMP4 Drone · TS001 Drone · TS002 Drone	Basic & Ultimate

II . TRMS – Real Time 3D Mapping System

Our system is designed to streamline workflow with an "On-the-Fly" capability, where data can be transmitted while drones are still in operation, allowing for immediate data processing. This **Real-Time** transmission and computation process ensures that there is **no loss in resolution**, guaranteeing **high fidelity** in the final output. The result is crystal-clear, high-definition deliverables, produced without any compromise on accuracy or quality. The generated lightweight 3D model can be browsed in real-time by multiple users on various mobile and virtual reality devices, and it can easily be pushed to big screens in control rooms thousands of miles away.

> Recommended Products

- Tiki3D Real-time Software
- TWS Mobile
- TWSmini
- TWS 3S
- TS001 Drone
- TMP4 Drone
- TR1 Payload

> Suitable Industry

- Emergency Response & Rescue

II . TRMS – Real Time 3D Mapping System

Aerial Image Capturing

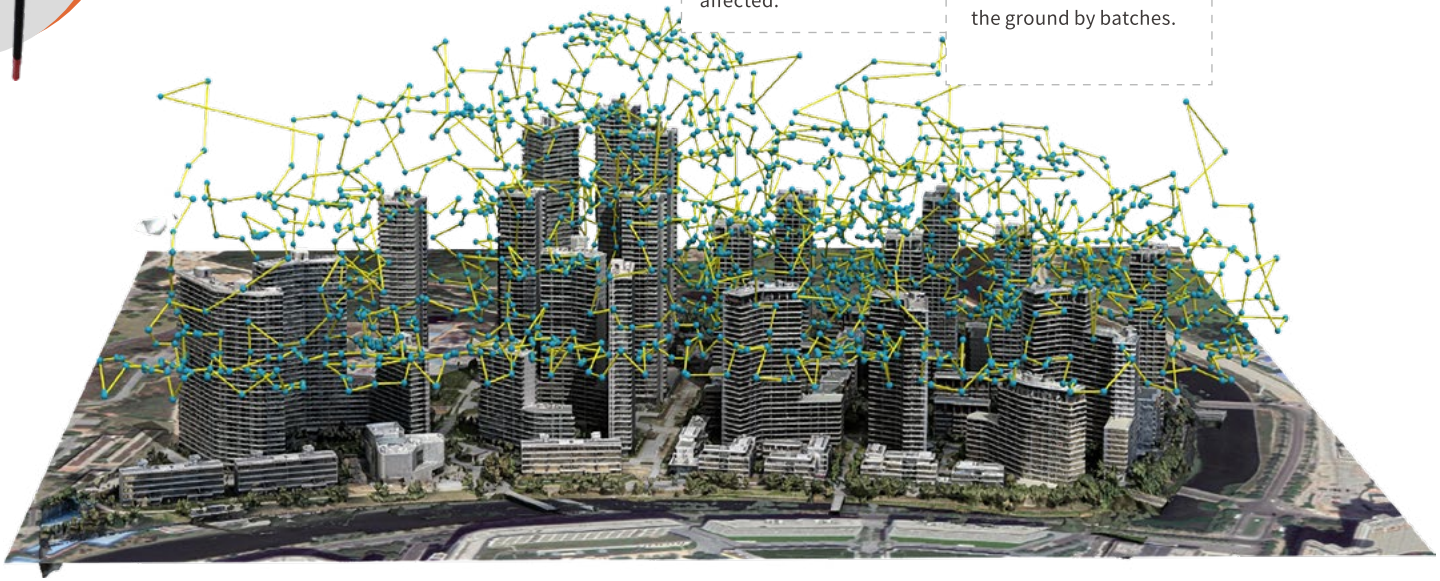
UAV/Drone takes off from base, starts capturing aerial images based on flight paths generated on Tiki's Smart Mission Planning Platform.

Data Transmission

While UAV/Drone is in operation, data is transmitted live to the ground receiver. Flight operations will not be affected.

3D Model Reconstruction

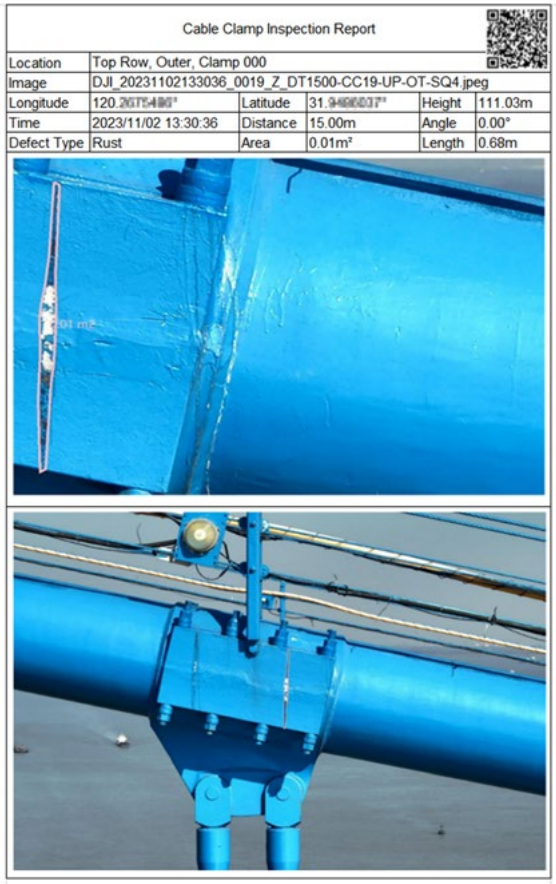
Tiki3D TRMS Real-time 3D Model reconstruction begins with the data that has been received on the ground by batches.



> Overcome traditional problems of unconstructable details caused by aerial images taken from obstructed angles.
> Fully restore the real-world environment with a user-friendly interface.
> Uses 3D data formats that are universally compatible.
> Allows for direct measurement of distance, area, and volume.
> A lightweight, progressive-loading data format enables full-resolution review even with low bandwidth.
> Achieve lossless resolution and texture of 3D models from original images

III . Commercial Inspections

Tiki Smart Mission Planning uses boundary and elevation data from coarse models to create flight paths for close-range photogrammetry of facades. These flight paths feature automated execution, consistent focal plane alignment with the surveying surface, constant relative distance, and consistent overlap.



> Recommended Products

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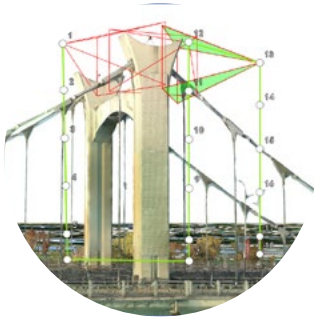
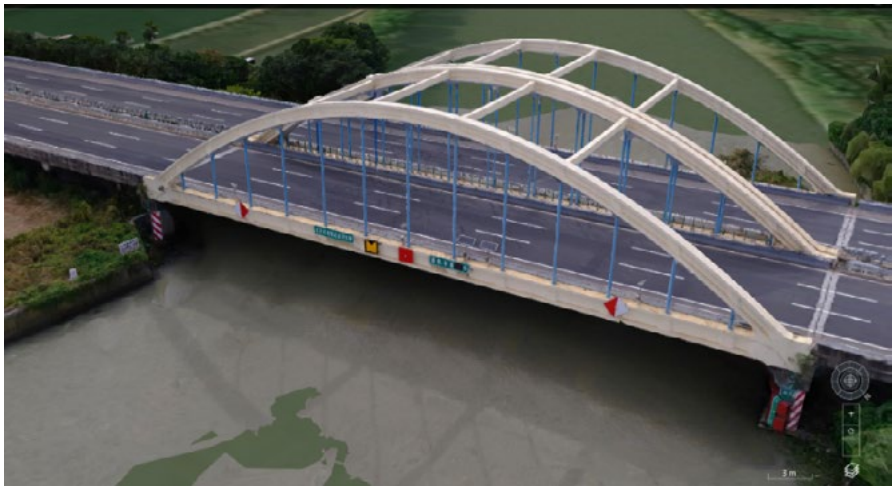
> Suitable Industry

- Construction & Maintenance
- Civil Authorities



Types of Flight Path	Details
Structural Survey	Produce multi-layered flight paths for irregular facades, used for detailed modeling or inspection tasks of complex structures
Street-aligned	Multi-layered flight paths used for urban redevelopment projects with street-facing facades (eg. archiving of the original and post-renovation structure)
Spiral Coverage	Spiral Coverage Flight Paths encircles point of interest. Suitable for detailed modeling or inspection tasks of complex structures

III . Commercial Inspections



Flight Path Planning on Cloud

Software as a Service (SaaS)

> 5 Key Modules: Cross-surround, Grid Mapping, Facade Modeling, Commercial Aerial Photography, and LiDAR Mapping.

> 17 Types of Flight Path Plans

> 37 Flight Modes including level flight, terrain imitation, sweeping, and facade plane targeting targets of interest with different geometry (points, lines, and surfaces)

> Compatible with various types of drones.

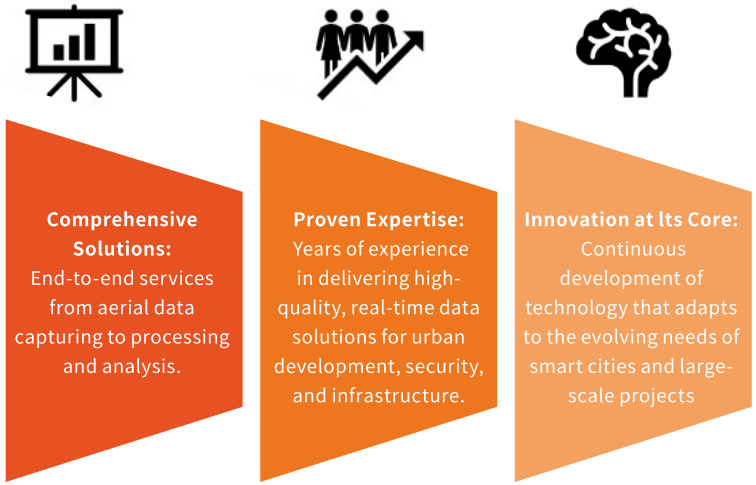
> Compatible with various types of payloads

Flight Paths planned on our Amazon Cloud platform can be verified and simulated for safety using terrain and model data.
Different colored cones show what each waypoint and the next one will capture, helping to ensure the route is safe and the captured content meets expectations.
The path simulation feature also allows for an automatic slideshow of all the captured content at each waypoint.

Partner with Us to Shape the Future

At Tiki3D, we specialise in turning large scale image/LiDAR data into high definition, high fidelity 3D models through our state-of-the-art 3D modeling software for city mapping, advanced aerial surveillance equipment, and powerful processing hardwares. Ourinnovative solutions are designed to help businesses, organisations, and governments to unlock the potential of their cities/infrastructures with unmatched precision and efficiency.

Why Choose Us?



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