LiGrip H300

Handheld Rotating Laser Scanner

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Key Features

300-Meters Scanning Range
640,000 pts/s

Boasting a cutting-edge XT32M laser, the LiGrip H300 achieves a maximum range of 300 meters, and the scanning rate can reach 640,000 pts/s.

Versatile Mapping Methods

Choose from **SLAM**, **RTK-SLAM**, and **PPK-SLAM** for flexibility across a range of scenarios.

RTK-SLAM: Ideal for areas with CORS signal coverage, allowing you to directly obtain precise point clouds with absolute coordinates.

PPK-SLAM: In areas without CORS signal coverage, you can choose to set up a base station to obtain point clouds with absolute coordinates.

SLAM: Point clouds with absolute coordinates can be obtained through the integration of GCP control points (if point clouds without absolute coordinates are sufficient, direct data collection can be performed).

Multi-Platform Compatibility

Use the handheld, backpack, vehicle-mounted, and drone-mounted to ensure comprehensive coverage and enhanced efficiency for different scene requirements.

Abstract

The LiGrip H300 (Ver B.00), discover the latest innovation in GreenValley International (GVI)'s LiGrip handheld series. This sleek and compact device offers lightweight handling, userfriendly operation, and versatile installation ptions. With its advanced sensors, the LiGrip H300 can quickly capture extensive scene data across various platforms, such as handheld, backpack, mounted on vehicle, and drone.

Experience the power of multiple high-precision mapping methods, including SLAM, PPK-SLAM, and RTK-SLAM, allowing you to swiftly acquire point cloud data with absolute coordinates. Combined with GVI's self-developed LiDAR360 and LiDAR360MLS software, the LiGrip H300 effortlessly tackles last-mile challenges in mapping, mining, forestry, and road asset survey.

Real-Time Point Cloud Data Processing

Scan and process simultaneously, with LAS results immediately available. With RTK, obtain point clouds with absolute coordinates.

8K High-resolution Panoramic Camera

H300 adopts INSTA X4 camera. It supports video recording at a maximum resolution of 8K, and the visual colors are perfectly reproduced. Equipped with a metal heat dissipation structure, the camera can quickly dissipate heat. The camera supports detachable components.

Lightweight and Portable
Weighing just 1.3 kg

Handheld Weight:
1.58 kg

Handheld Only:
1.26 kg

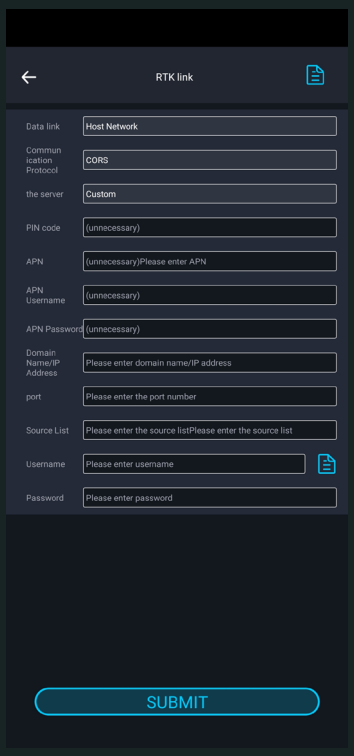
Handheld + Camera:
1.51 kg

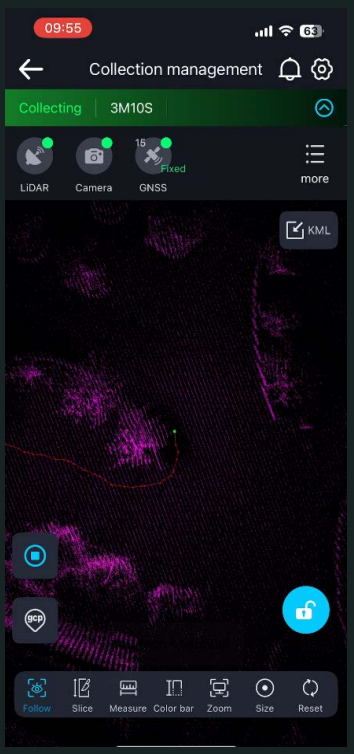
Handheld + Tripod:
1.33 kg

Collection and Processing

Acquisition and Control

GreenValley APP offers comprehensive features such as device management, collection control, real-time point cloud display, project management, RTK settings, coordinate system settings, and data copying.





Mobile SLAM Measurement Data Fusion

Based on LiDAR360MLS, a mobile SLAM measurement data fusion and 3D elements intelligent extraction and analysis software developed by GVI. It supports PPK-SLAM, RTK-SLAM, SLAM processing, control point-based adjustments, point cloud accuracy improvement, seamless multi-project data stitching, point cloud and panoramic image generation, LAS/LAZ data export, orthophoto, and planimetric map export. The processing speed of indoor and outdoor operations can reach a ratio of 1:2 (with color correction). It supports camera calibration, data measurement (length, area, volume), and panoramic-based measurement.

Data Post-processing and Applications

Data can be processed and analyzed directly through LiDAR360MLS or easily imported into LiDAR360 for applications in mapping, road asset survey, mining, forestry, and beyond, effectively addressing your data application's last-mile challenges.

Specifications

System Parameters

Dimensions	195×125×350 mm	**Voltage**	15.2 V
Battery Pack Dimension	134×64.6×167 mm	**Storage**	512 GB
Handheld Weight	1.58 kg (Including Tripod and Camera)	**Battery Capacity**	5870 mAh
IP Rating	IP54	**Single Battery Life**	180 mins
Port	USB, Ethernet	**Continuous Scanning Duration**	Up to 55 mins
Suitable Environments	Versatile for a wide range of indoor and outdoor applications	**Operating Temperature**	-20℃ ~40℃
Equipment Storage Temperature	-40℃ ~70℃	**Battery Storage Temperature**	Recommended storage temperature 22℃ ~30℃ [1]

LiDAR Sensor Parameters

Scan Rate	640,000 pts/s	**Detection Range**	Up to 300 meters
Range Accuracy	1 cm	**FOV**	280° (Horizontal)×360° (Vertical)

Camera Parameters

Camera Type	Insta X4	**Image Resolution**	11904×5952
Data Format	MP4 INSV	**Video Resolution**	7680×3840
Dimensions	95×60×55 mm (including heat dissipation structure)		

RTK Module [2]

Satellite System	GPS+BDS+Glonass+Galileo+QZSS, supports 5 constellations and 16 frequencies		
RTK Accuracy	1 cm+1 ppm	**RTK/PPK Protocol**	NTRIP
Dimensions	97×71×30 mm	**Weight**	190 g
RTK Data Format	.rtk	**GNSS Raw Data Format**	.log
Compatible with	LiGrip H300, and LiGrip H120		

Mapping Method

Mapping Principles	RTK-SLAM, PPK-SLAM, SLAM	**Real-time Processing**	Support

Data Results

Relative Accuracy	≤1 cm	**Absolutely Accuracy**	≤5 cm[3]
Point Cloud Format	LAZ (real-time processing), LiData (post-processing)		

[1] B58 battery storage temperature: Recommended storage temperature 22 ℃ ~30 ℃ ; 20 ℃ ~50 ℃ less than 1 month; -20 ℃ ~40 ℃ less than 3 months; -20℃ ~20℃ less than 12 months;
[2] It needs to be purchased separately;
[3]The greater the number of feature points in the scanned scene, the better the feature quality, and the higher the point cloud accuracy. It is recommended to follow the recommended operating methods to obtain high-precision point cloud results.

Backpack Kit

The GVI's backpack kit is a versatile accessory designed for handheld 3D LiDAR SLAM systems. Featuring an ergonomic design for comfortable wear, it is lightweight and easy to assemble and disassemble. With an integrated GNSS antenna, it supports PPK and RTK (requires separate purchase of RTK module) and directly outputs point cloud data with absolute positioning. This saves time and improves your operational efficiency. The integrated backpack frees up your hands, making work more comfortable and efficient. It is suitable for applications in surveying, forestry, stockpiles, powerline scanning, mining, and more.

Product Advantages

Light and Small

Minimalist shape, greatly reducing the size and weight of the equipment

High Efficiency

Hands-free, collect as you go

Easy to Disassemble

Minimalist design, easy disassembly and assembly, easy to use, assembly time is less than 1 minute

High Precision

Combine GNSS and LiDAR SLAM algorithms to obtain point cloud data with absolute coordinate positions

Weather-Resistant Design

With an IP54 protection rating, the LiGrip is rugged and resistant to rain and dust

High Compatibility

Compatible with a variety of GVI products, supporting one-stop software solutions

System Parameters	
Dimensions	760×500×270 mm (folded), 1100×500×270 mm (expanded)
Material	Aluminum Alloy + Carbon Fiber
Weight	3.2 kg
Compatible Handheld Models	H300, H120
Absolute Accuracy	≤5 cm

*In areas with no GPS coverage or weak signals, we recommend using the handheld mode for higher efficiency.

Vehicle-Mounted Kit

It supports PPK and RTK (separate purchase of RTK module required), providing a direct output of point cloud data with absolute positioning. Suitable for large-scale, strip-shaped terrain and facade data collection, saving time and effort.

System Parameters

Supported Vehicle Types	Sedan, SUV
Kit Weight	3.6 kg
Kit Dimensions	340×305 ×360 mm
Mounting Method	Suction Cup + Safety Rope
Maximum Vehicle Speed	40 km/h

Drone-Mounted Kit

It supports PPK and RTK (separate purchase of RTK module required), providing a direct output of point cloud data with absolute positioning. Suitable for large-scale topographic mapping, facade measurement, stockpile measurement, and 3D modeling.

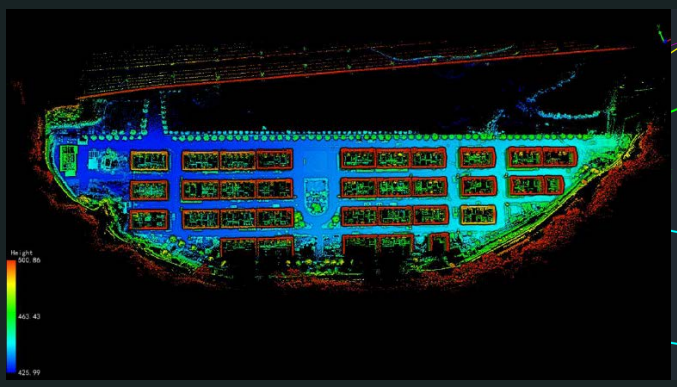
System Parameters

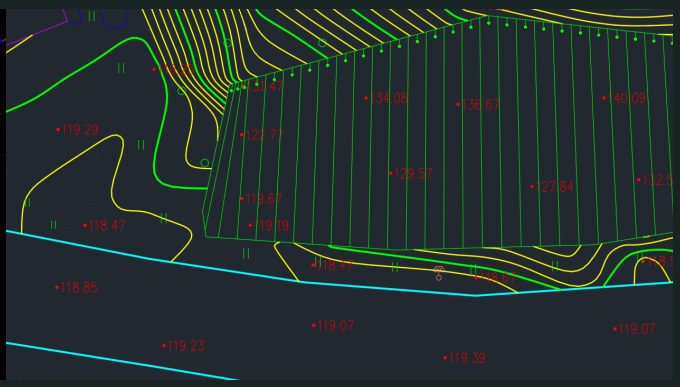
Supported Drone Models	M300/M350
Kit Weight	330 g (including bracket, power cord, GNSS antenna, RTK module)
Take off Weight	2.45 kg (including handheld, control box)
Power Supply Mode	Powered by Drone
Kit Dimensions	388×70×140 mm
Working Durance	25 mins

Industry-Specific Solutions

Topographic Mapping

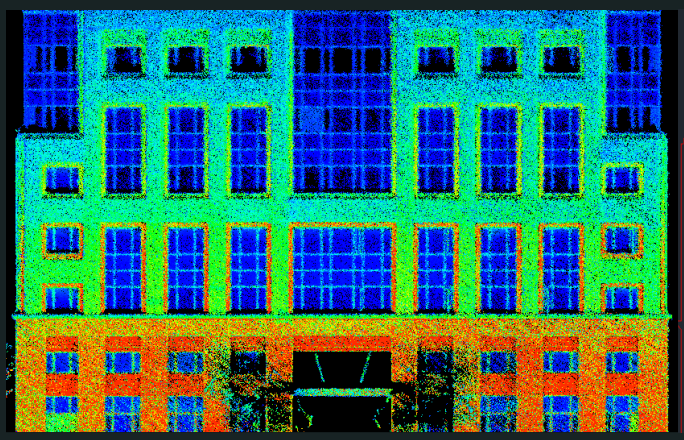
Use RTK-SLAM with CORS to obtain point cloud data with absolute coordinates. In areas without CORS coverage, PPK-SLAM technology can achieve the same accuracy, meeting 1:500 topographic map requirements. Paired with a high-resolution panoramic camera, it provides auxiliary object attribute judgment. Using drone/vehicle-mounted kits, large-scale topographic mapping data can be collected in one go.

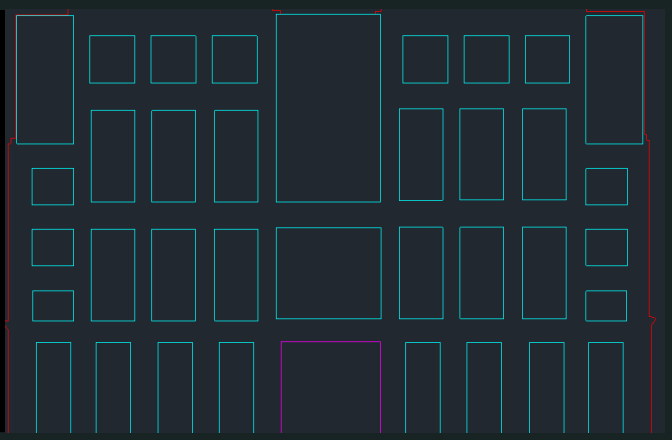




Facade Measurement

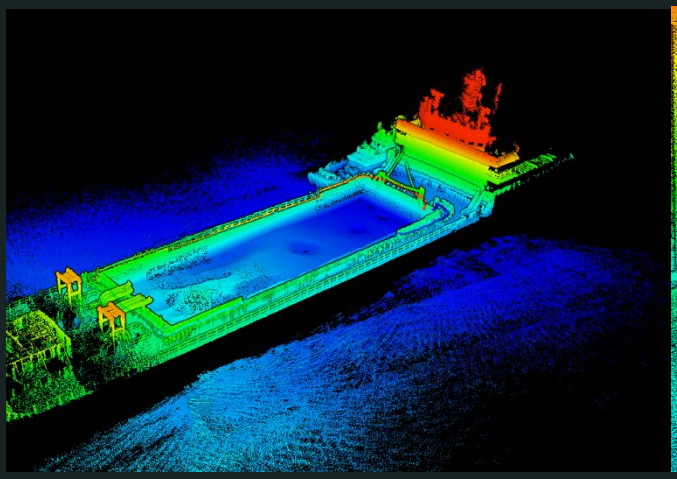
With a 300m range and 640,000 pts/s, the H300 can measure taller buildings and capture finer object details, making facade drawing easier. For scenarios requiring facade scanning due to tall buildings, tree obstructions, or large areas, drone/vehicle-mounted kits can be used for easy data acquisition. Use the LiDAR360MLS facade module to quickly and efficiently create facade data based on point clouds or panoramas.

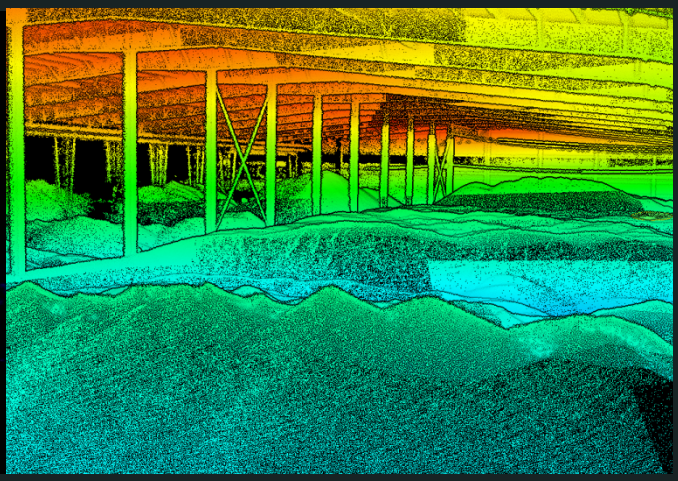




Volume Measurement

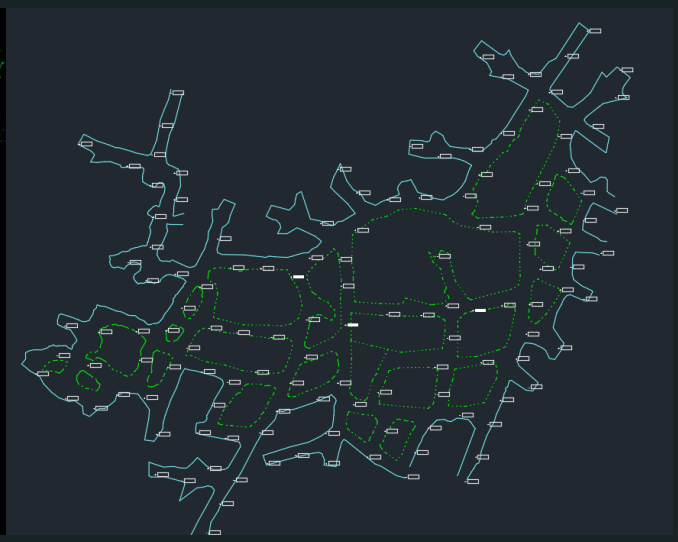
Whether indoors, outdoors, or in mines, the H300 can easily and accurately obtain point cloud data for volumes, with an accuracy of up to 1%.





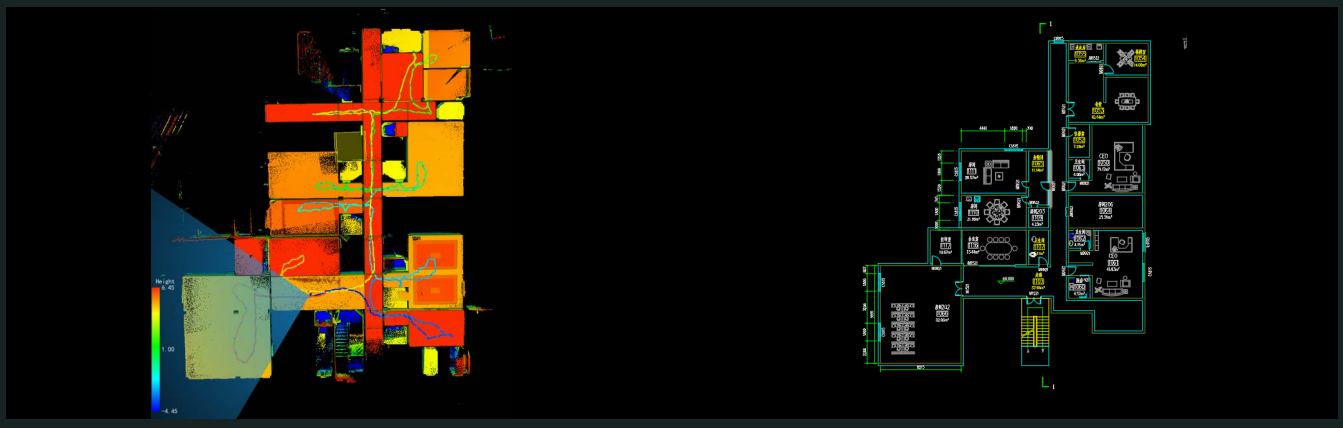
Mining

Suitable for open-pit mine stockpile volume, mine area topographic mapping, underground mining area plan, cross-section, volume measurement, and slope line extraction.



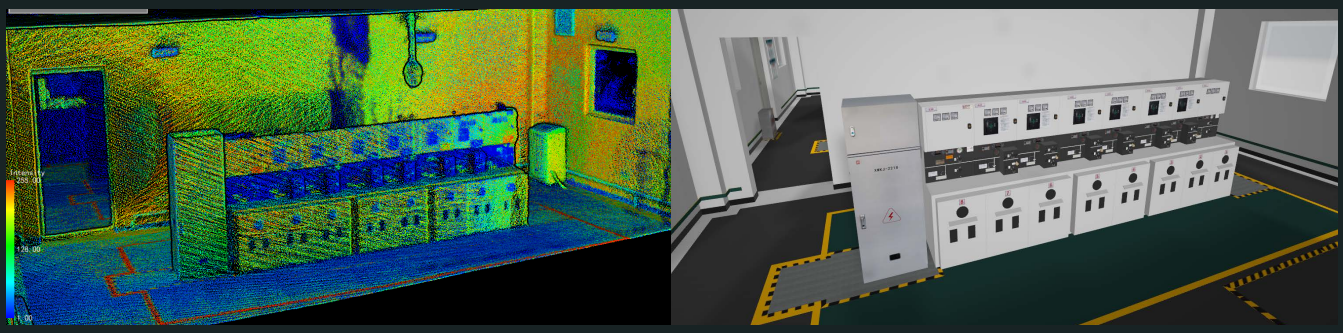
Property Surveying

The H300 handheld SLAM scanner's convenience and accuracy make it widely applicable for property surveying, asset inspection, and engineering auditing, with measurement efficiency 10 times that of traditional manual methods.



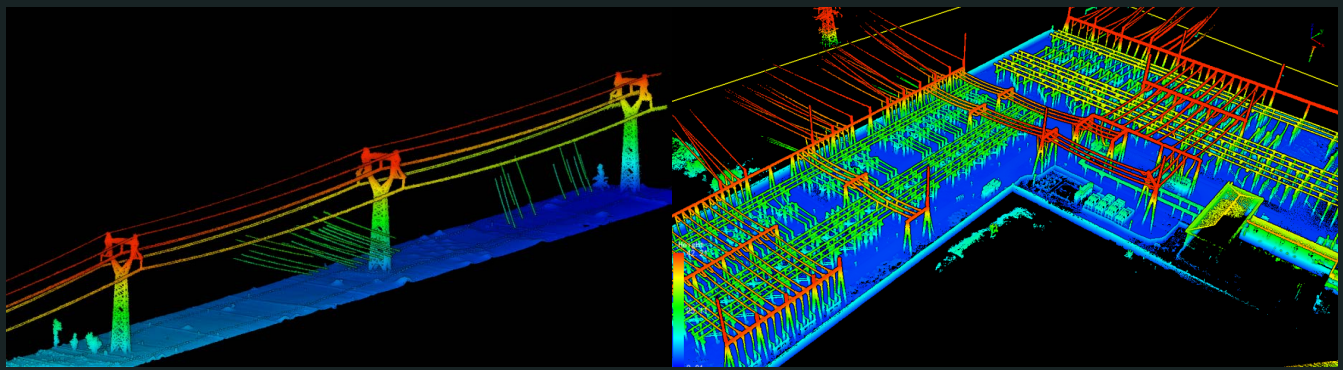
3D Modeling / Digital Archiving

Handheld measurements for interior structures and exteriors, along with aerial measurements for rooftops and high-rise building sections, provide a comprehensive point cloud for both the inside and outside of objects. This data serves as a foundation for the preservation of historic architecture, reverse modeling and digital conservation.



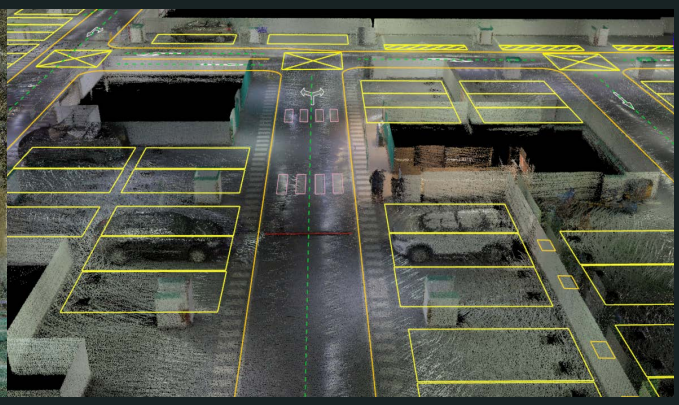
Power Grid and Substation Scanning

The H300 offers a range of up to 300 meters, effortlessly collecting point clouds of powerlines and the tops of electrical towers. Its excellent point density ensures more detailed scanning of substations, providing a better base map for modeling and navigation.



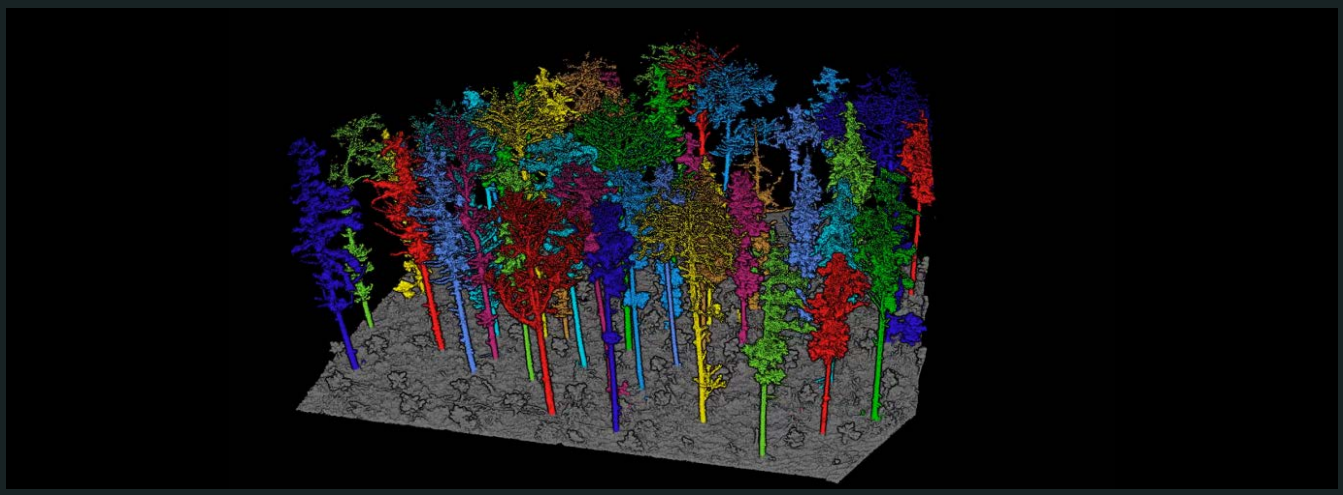
Underground Spaces

Our solution is applicable to the measurement of enclosed areas such as underground parking lots, electrical corridors, air-raid shelters, and shopping malls. It's suitable for underground space surveying, scanning, and providing navigation maps for precision inspection robots.

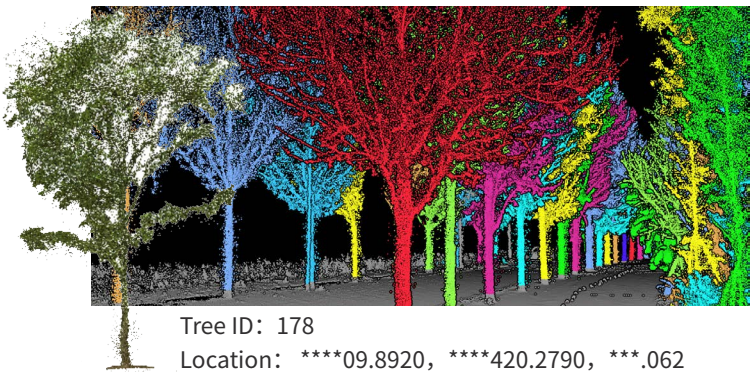


Forestry

Handheld scanning of forest stands and large forested areas is possible with GVI's LiDAR 360 Forestry Module. Quickly gather statistics on the number of trees in forest stands or vast forested areas, individual tree locations, tree height, crown width, DBH, and tree species (when combined with panoramic imagery).



Tree Height (m)	9.1
DBH (cm)	14.3
Crown Diameter (m)	5.2
Crown Diameter E-W (m)	4.5
Crown Diameter N-S (m)	4.8
Crown Area (sqm)	18.3
Crown Volume (cu.m)	53.2
CBH (m)	4.895
Trunk Volume (m)	1.536
Tree Species	Balsam fir
Slope	15°
Slope Direction	221°



Tree ID：178

Location： ****09.8920，****420.2790，***.062

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