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SLAM100

Handheld Laser Scanner



SLAM100

SLAM100 is the first handheld mobile lidar scanner launched by Feima Robotics. The system has a 360° rotating head, which can form a 270°×360° point cloud coverage. Combined with the industry-level SLAM algorithm, it can obtain high-precision three-dimensional point cloud data of the surrounding environment without light and GPS.

SLAM100 adopts three 5-megapixel cameras to form an ultra-wide field of view with a width of 200° and a height of 100°. It can simultaneously obtain texture information under light conditions and generate color point clouds and partial stitched panoramic images.

SLAM100 adopts an integrated structure design with a built-in control and storage system and built-in replaceable lithium batteries. Once press the start button, SLAM100 can start operations immediately, making data acquisition more efficient and convenient.

SLAM GO is the mobile APP for SLAM100 to view and manage projects, which would automatically be synced to the cloud to furthermore perform real-time SLAM mappings and previews. Moreover, SLAM GO can be utilized to perform operations such as firmware upgrades and equipment maintenance. SLAM GO POST, as a PC software module integrated in UAV Manager Professional Edition which is a comprehensive software platform Released by Feima Robotics, can realize the functions of data post-processing, color point cloud production, data stitching, data optimization, data preview and measurement and so on.

SLAM100 can be widely used in various applications such as traditional surveying and mapping, enclosed space, three-dimensional digitization, emergency response and so on due to its portability, GPS-free, and multi-platform mounting ability.

Overall Parameters

Laser Scanning FOV	270° × 360°
Camera FOV	200°(H) × 100°(V)
Relative Accuracy	2 cm
Absolute Accuracy	5 cm
Storage	32 GB(Standard)
Power Supply	Replaceable Battery; External Power Supply
External Power Supply Voltage	20-30 V
Battery Capacity	3350mAh*4
Battery Duration	2.5 h
Power Consumption	25 W
Operating Temperature	-10°C ~ +45°C
Operating Humidity	<85% RH
Weight	1588 g(Without Battery)
Size	372 mm × 163 mm × 106 mm(Without Base)

Sensor Parameters

Laser Class	Class 1
Laser Channels	16
Maximum Range	120 m
Laser Pulse Repetition Rate	320 kHz
Echo Signal Intensity	8 bits
Number of cameras	3
Camera Resolution	5 Megapixels
NFC	Supported



02 | Component Introduction

Laser Scanner

120 Meter Range 320 kHz Laser PRR

Rotating Head

360°x270° FOV

Three Cameras

5 Megapixels for Each

Dismountable Handle

Replaceable Battery

NFC

Touch WIFI for Connection

Status Indicator

Power and Working Status Reminder

Start Button

One-key to Active

SD Card Slot

Replaceable Storage Medium

Extended Interface

Abundant External Equipment

USB Interface

Firmware Updating or Log downloading

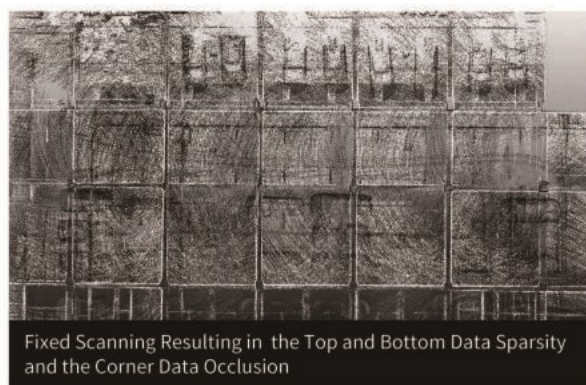
SLAM100

270°×360° Laser FOV

Through rotating scanning, the Laser Scanner of SLAM100 can dynamically collect data and form a 270°×360° field of view, making it accurate and complete to acquire data from the space around us.



Rotating Scanning Making the Top and Bottom Data Uniform and the Corner Data Complete



Fixed Scanning Resulting in the Top and Bottom Data Sparsity and the Corner Data Occlusion

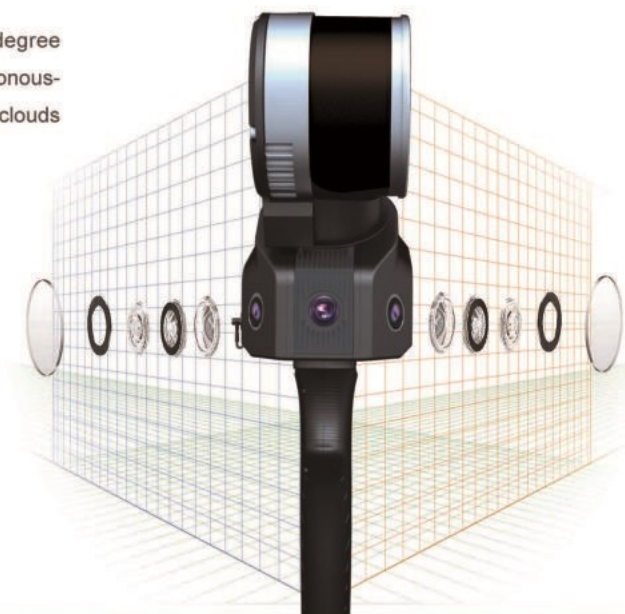


The Visible Light Cameras

Three 5-megapixel cameras are adopted to form a horizontal 200-degree field of view and a vertical 100-degree field of view, which can synchronously obtain texture information and to furthermore produce color point clouds and partial panoramic images.



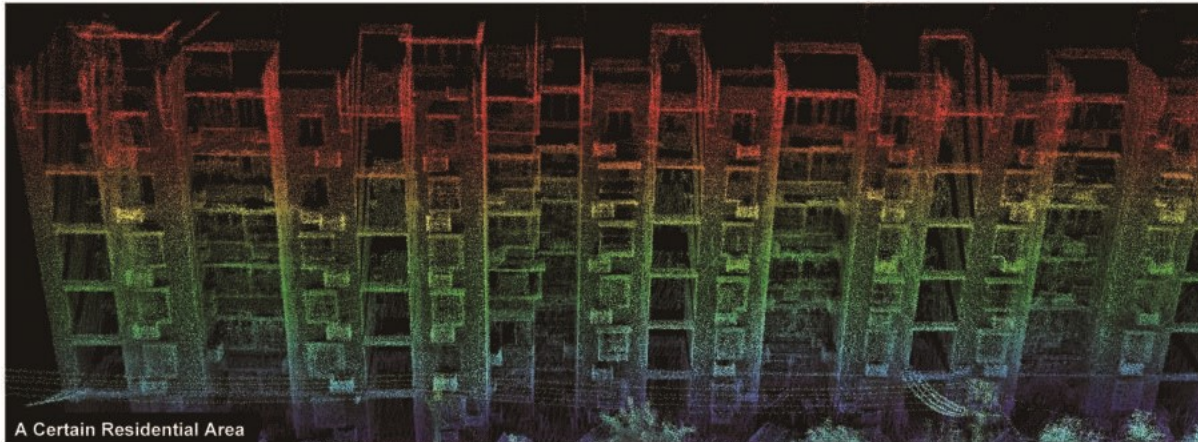
Schematic Diagram of Data Cloud and Image Fusion



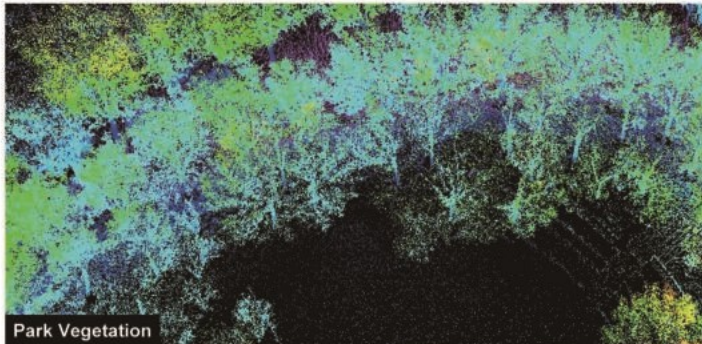
Partial Panorama Image

High Precision and High Definition

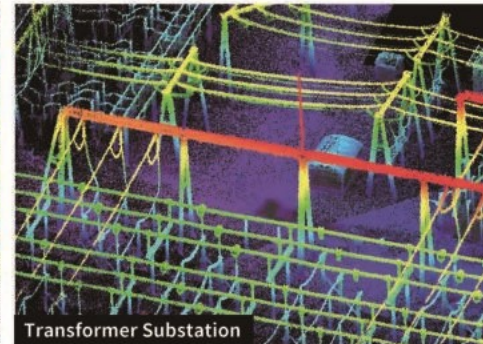
Industry-level SLAM post-processing algorithms enable SLAM100 to obtain higher precision and finer 3D point cloud data.



A Certain Residential Area



Park Vegetation



Transformer Substation

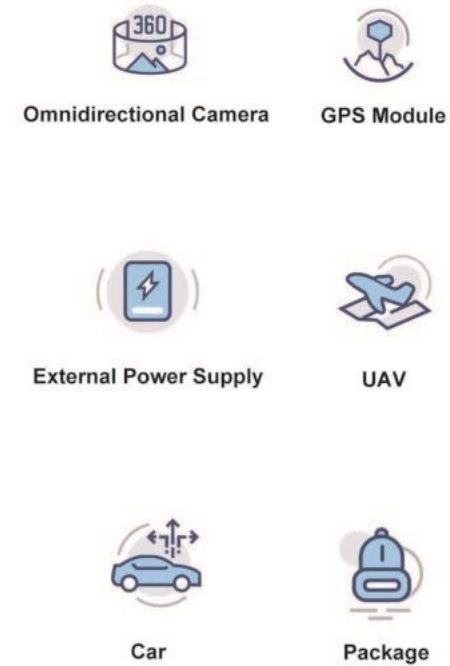
Automatic Control Point Measurement

Without the need to manually add control points, SLAM100 can actively collect and automatically extract the control points and thus easily georeference the result data in the global coordinate system.



Versatile External Interfaces

SLAM100 has a wealth of external interfaces, which can be connected to a panoramic camera, a GPS module, a car, a UAV and so on, to diversify data collections and adapt to more application scenarios.



UAV Mount

SLAM100 can be equipped to the Feima's UAV platforms of D500 or D20 via a UAV mount, so as to carry on air-ground or indoor and outdoor data collection



SLAM GO

SLAM GO is a mobile application developed in conjunction with SLAM100. The APP can be connected to SLAM100 through a cell phone, and can perform project management, real-time point cloud display, image preview, firmware upgrade and other operations. The APP is synchronously adapted to Android and iOS operating systems.

Real-time Data Display

Through wireless connection to SLAM100, the scanned data can be real-timely displayed in 2D, 3D or slice display modes and without loss.

Cloud Information Synchronization

Historical project information, such as the operating time, operating location, project overview and data overview, can be synchronized to the cloud via the APP and displayed.

Image Preview

The APP can preview the images obtained by three cameras, so as to adjust the operating parameters according to the actual operating environment.



SLAM GO POST

SLAM GO POST, embedded in the UAV Manager Professional Edition, is a PC software that is compatible with SALM100. The software can perform post-processing of collected data, generate high-precision and high-definition color point clouds, produce partial panoramic images, display point cloud and perform optimization processing.

High-precision Point Cloud Mapping

Support generating indoor and outdoor point clouds with a relative accuracy of 2 centimeters

Point Cloud Preview

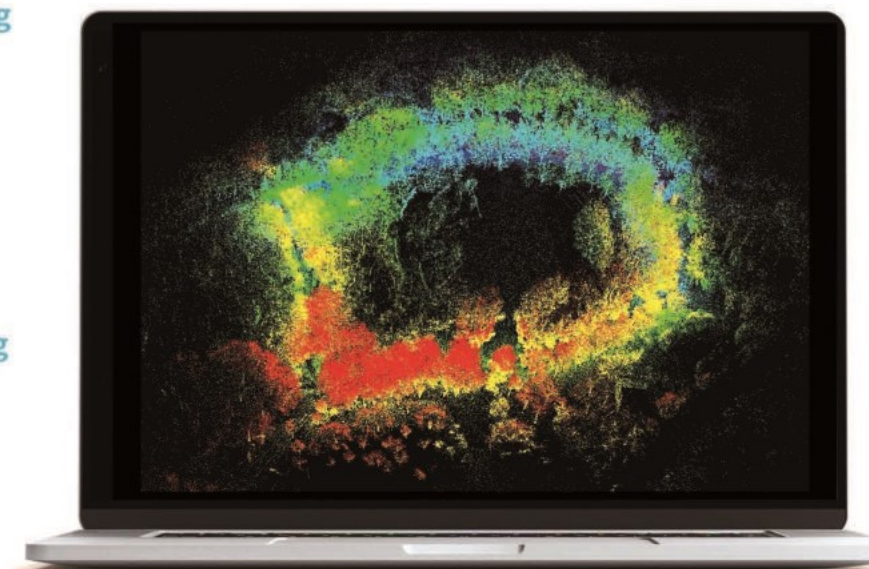
Support basic point-cloud preview operations such as zooming in, zooming out, roaming, and cross-section

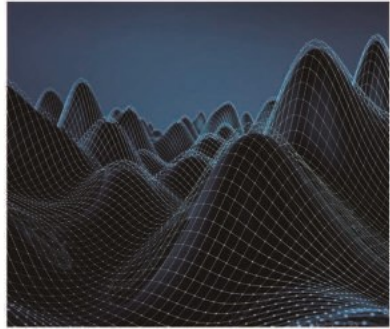
Point Cloud Rendering and Coloring

Support EDL and PCV point cloud rendering and RGB color rendering

Panorama Image Generation

Support the generation of high-definition partial panoramic images of key locations in the scene





Topographic Mapping

Deformation Analysis
Landslide Detection Disaster
Emergency Response
Mining Volume Calculation
.....



Real Estate Surveying and Mapping

Real Estate surveying and mapping
Cadastral Surveying
House Digitization
.....



Spatial Analysis

Earthwork Calculation
Volume Calculation of
Stockpiles and Mines
.....



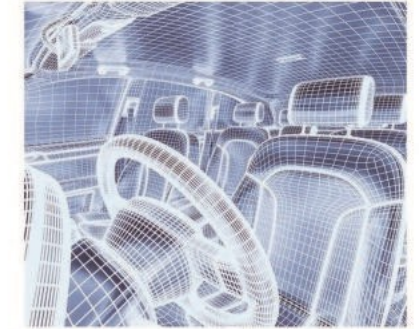
Cultural Relics Protection

Ancient Architectures
Ancient Tombs
Ancient Woody Trees
Statues
.....



Digital Management

Digital Factories
Indoor Navigation
BIM
Line Inspections
.....



Reverse Engineering

Aircrafts
Ships
Large Vehicles
.....



Underground

Enclosed Space Detection
and Intelligent Navigation,
e.g., Garages, Tunnels,
Subways
.....



Karst Cave and Roadway

Channel-type Detection and
Emergency Rescue, e.g., Natural
Caves, Roadways, Urban
Underground Corridors
.....



Capacity Measurement

Volume Measurement of Large
Closed Containers, e.g., Oil
Tanks, Granaries
.....



Acceptance Survey

Acceptance Survey for Buildings,
Factories, Communities,
Subways and Others
.....



Forest Inventory

Tree Extraction and Segmentation
Number of Trees
DBH
.....



Facade Survey

Old Community Renovation
Building Decoration
Facade Modelling
.....