Mosaic Xplor

asim
A Navigation & Communication Venture.

Fully spherical 360° mobile mapping backpack camera with LiDAR and GNSS

Trailblazing portable reality scanning leading the way in Geospatial, Surveying, and Entertainment

Explore, capture, and analyze challenging-to-reach environments like industrial facilities, factories, pedestrian zones with the ease of highest-resolution laser and photogrammetric scanning.

Contact - +91 80836 30500

www.asimindia.com

Mosaic Xplor

Explore places you never could before - safely, on the move, and in higher resolution

Feature highlights

- Latest gen 1-inch SONY global shutter sensors (6 x 12.32MP)
- 14K Equirectangular pano
- 10fps h.264 (120Mbps / sensor)
- Cutting-Edge 360º x 120º LiDAR Capture
- 2 LiDAR x 200,000 precision within 40 meter range (max 70m)
- Point cloud accuracy: 5cm accuracy and 3 cm precision
- Authentic and precise image capture at speeds up to 25 km/h
- Best-in-class lenses
- Spatial accuracy < 2 mm at 10 m
- Onboard GNSS
- AUX Port to connect external devices (i.e. GNSS/INS)
- Sealed, water and dust resistant housing
- Protected lens, easily replace lens covers when scratched
- Onboard hot-swappable USB 3.0 storage
- External storage over ethernet via NFS or Samba

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Architecture

The 6 Sony image sensors with wide-angle lenses capture 360º of RAW image data, which is precisely synchronized by our proprietary algorithm.

This image data is processed into an 8-bit image file by the ISP and compressed to a high-bitrate h.264 file and written to the removable USB storage device.

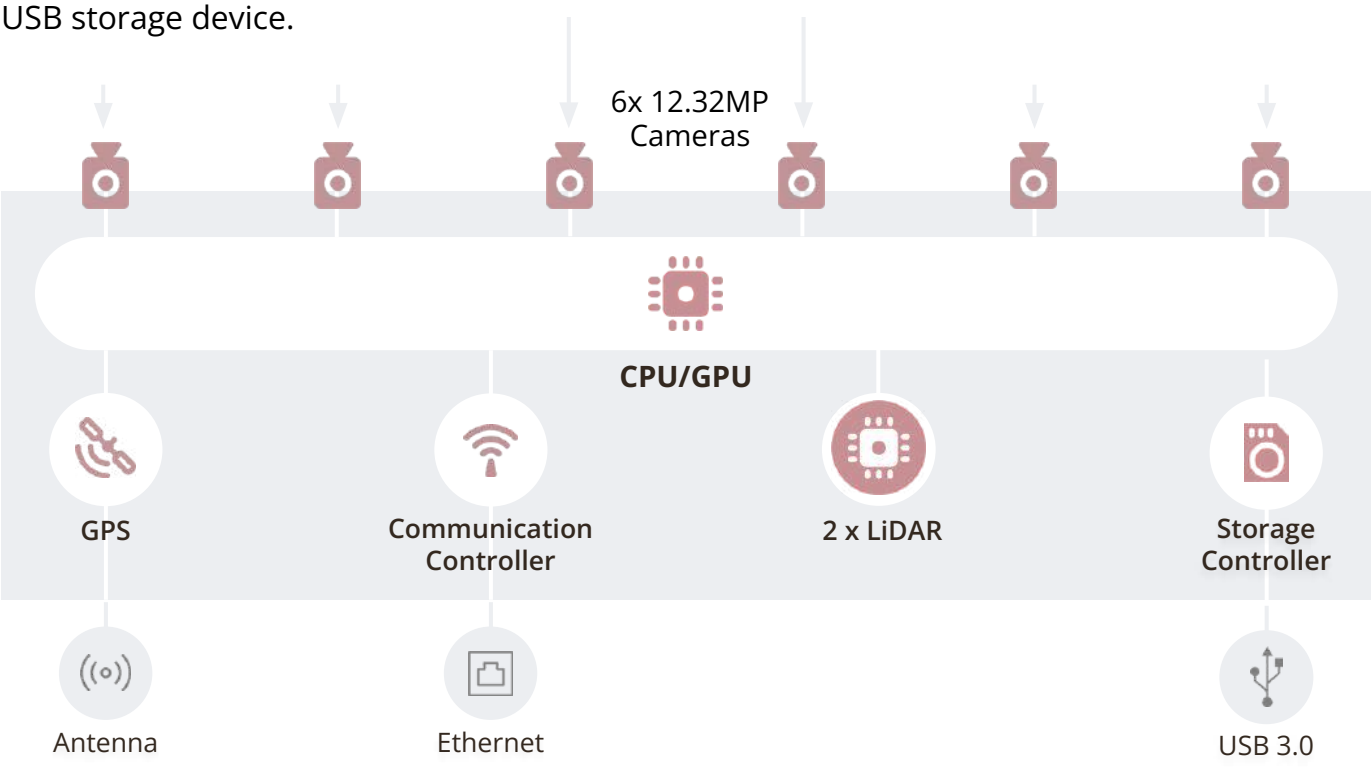
2 x LiDAR sensors each with 360 x 60º for total of 360º x 110º FOV.

LiDAR data is synchronized with image data and stored in .laz

Camera system captures and stores precise GPS data and timestamps.

All-in-one system with CPU & GPU, on board hot-swappable SSD for full day of capture without need to upload to external device.

The camera can be monitored and controlled via an ethernet connection by any device with a web browser (PC, tablet, or smartphone).



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Design and Construction

The camera has been carefully and deliberately designed to work well in the most demanding environments:

Robust housing:

- industrial grade waterproof connectors
- protected lenses which can withstand harsh daily use

Our optical design ensures:

- sharp images at all angles, without a drop off in resolution at the edges (from which other cameras using fisheye lenses might suffer)
- a balance between uniform sharpness without using too many image sensors.

Other design considerations:

- removable, swappable storage
- control via web browser for simple onboarding and handling of operations for any staff member

Weight

Approx. 2 kg (5 lbs) for camera + LiDAR + GNSS
Approx. 3.5 kg for backpack + mount

Dimensions

Sphere ∅ 188mm
Length: 238 mm
Width: 188 mm
Height: 240 mm

Power consumption

Average: 45 W
Maximum: 55 W

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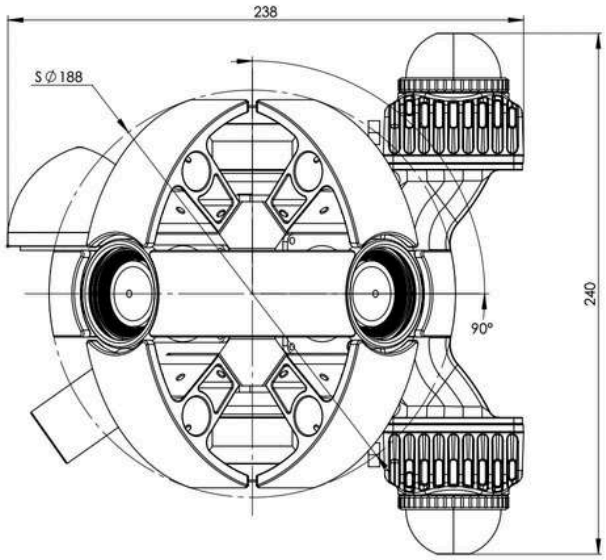
6× wide angle cameras

High sensitivity and low noise sensors provide ideal pixel density and consistency of optical resolution across the frame with minimal fisheye distortion or compression.



Sensor
Sony 1-inch Global Shutter

Lens focal length
5.5mm

Pixel size
2.7µm

Lens focal length / 35mm eq.
14mm

Focusing range
1m – ∞

Aperture
f/2.4

Guaranteed temperature performance

Camera sensor
-10°C to +60°C

Camera lens
-20°C to +80°C

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Best-in-class, well-protected optics

The highest fidelity images collected while on the move.

Six 12.32-Megapixel image sensors (full spherical coverage) giving 14 K resolution panoramas, unsurpassed in this class

- Microsecond-level synchronization (sync measured in microseconds, not milliseconds)
- Precise and stable optical calibration allowing accurate measurements and 3D reconstruction
- 109° x 80° lenses utilizing all pixels on the sensor, with just enough overlap giving a good balance of overlap vs. resolution.
- Minimal stretching and distortion of the source images means that the actual resolution in the final panorama is consistent across the whole image, including straight up
- Image sensors with proper thermal management, giving noise-free operation even in the harshest environments
- Replaceable flat glass lens covers prevent expensive servicing of lenses. Easily and economically replace lens covers rather than requiring costly manufacture servicing.

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Built-in GNSS with external antenna

Built-in GNSS sensor allows for distance based triggering out of the box

- Connects up to 4 GNSS networks simultaneously (GPS, Galileo, Glonass, BeiDou) for precision measured to the meter
- Active dual-band antenna giving a fix in seconds, and good location even in urban canyons
- Able to integrate with external RTK GNSS to achieve centimeter level accuracy

Amazing 8-bit compressed RAW images or h.264

Perfect balance between preserving highest quality and efficient image storage

- Option for internal removable storage: m.2 disk, up to 4TB capacity, hot-swappable
- Option for external storage over ethernet via NFS or Samba

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Image quality › Level of detail

Global shutter provides the highest resolution for stitched panoramas and 360° videos to better map your city, asset, space, or streets.

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Image quality › Us vs. the competition

Seethesuperbimagequalityof the Mosaic Xplorversusthecompetitor in a side-by-side comparison of the same street view.

Mosaic Xplor camera

- preserves nearly all of the dynamic range even in harsh lighting
- eliminates artifacts from different image sensors exposing the scene differently
- offers a single unified and consistent image
- minimizes ‘blowout’ between sun and edge of buildings

The competition

- camera / image processing implementation is sub-optimal
- many over- and under-exposed pixels
- very few correctly-exposed pixels
- high ‘blowout’ between sun and edge of buildings

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Competitive matrix

Mosaic Xplor outperforms the competition in every category

	Mosaic Xplor	NCTech Pulsar	Insta360 Titan	Insta360 PRO	Ladybug 5	Google
Resolution	13.5K	11K	11K	8K	8K	16K
Global shutter	YES	NO	NO	NO	YES	NO
Lens protection	YES	NO	NO	NO	YES	NO
On-board GPU	YES	NO	NO	NO	NO	NO
IP64 water resistance	YES	YES	NO	NO	YES	NO
Waterproof industrial grade connector	YES	NO	NO	NO	NO	YES
Vendor unlocked	YES	NO	YES	YES	YES	NO
Compressed 12-bit RAW	Q4	NO	NO	NO	NO	NO
H.264 120 Mbit	YES	NO	NO	NO	NO	YES
Single swappable storage	YES	NO	YES	YES	NO	NO
Internal & external storage via NFS	YES	NO	NO	NO	NO	NO
Built-in GPS	YES	NO	NO	NO	NO	YES
External GPS antenna	YES	NO	NO	NO	NO	NO
Deep LiDAR integration ready	YES	NO	NO	NO	NO	YES

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Applications

How to create a competitive advantage with Mosaic Xplor

Hands-free functionality enables secure stability while effortlessly navigating ladders, stairs, and previously inaccessible areas.

Expanded vertical Field of View (FOV) that enables capturing almost straight-down imagery, leaving no detail unrecorded.

Seamlessly collect data while in constant motion, whether walking, on a scooter, or biking, without pausing for photos.

VFX

Surveying

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The company

Mosaic is a 360° camera hardware and services company based in Prague, Czech Republic.

We are passionate about documenting the world.

We can help you map a city or a whole country with solutions for cars, motorcycles, bicycles, and hikers.

We are the only company in the world building a camera specifically for ground-level mapping and imaging at scale, with available services combining our hardware, logistics know-how, and delivery of data in one integrated package.

Our team has been in the game for decades making us industry experts in the field of 360º imaging.

Our plan is to build a single, detailed, high resolution photographic map of all the world's streets over the next few years. This will allow us to understand the world better, faster, and in greater detail than ever before: better street maps, better driving directions, better traffic management, better city management and safety inspection, and safer self-driving vehicles on the street.