AUSTRIAN INSTITUTE OF TECHNOLOGY
TOMORROW TODAY

TUCO-3D

3D 360° PANORAMIC IMAGING

GENERAL

The centrepiece of our TUCO-3D panorama scanner is an innovative sensor head comprising a dynamic stereo vision line sensor that continuously rotates at ten revolutions/sec generating real-time 3D 360° distortion-free panoramic views.

The dynamic stereo vision line sensor, allows high-speed rotations even in difficult lighting conditions, thanks to the high temporal resolution and to the wide dynamic range of the detectors. The large panoramic field of view of 360° in azimuth and 3D and continuous monitoring ensure to not miss events. Exploiting the on-chip processing of the dynamic vision sensor, TUCO-3D provides panoramic edge depth maps, suitable for low-cost transmission.

A user friendly tool allows the real-time display or recording of the panoramic edge depth maps. Operating in the Windows environment, button and icon tool selection with point and click operation ensures easy setting of data quality and clear display of the panoramic grey scale or edge images.

ADVANTAGES

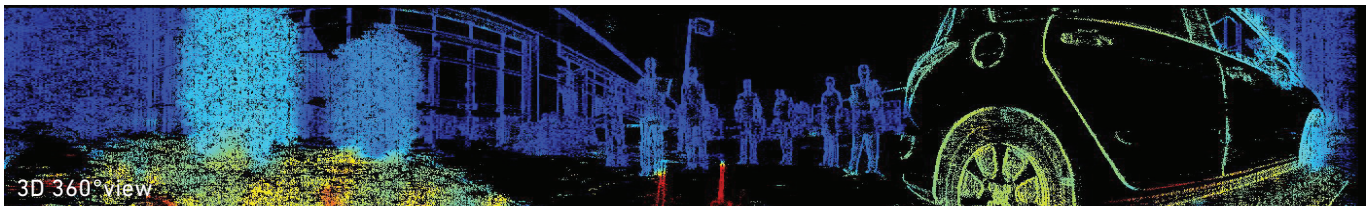
- Extremely wide area coverage: 360° in azimuth
- Round views in 3D world coordinates (not yet real-time)
- High vertical resolution (1024 pixel)
- Fast image rate: ten 360° scans per second
- Wide intra-scene dynamic range of over 120 dB makes it perfectly suitable for outdoor applications
- Passive operation (no laser or additional light required)
- Abstract scene representation

APPLICATIONS

- Autonomous vehicles
- Search and rescue
- Collision avoidance
- Patrolling robots


Raw image (edges)


Reconstructed intensity image


3D 360° view

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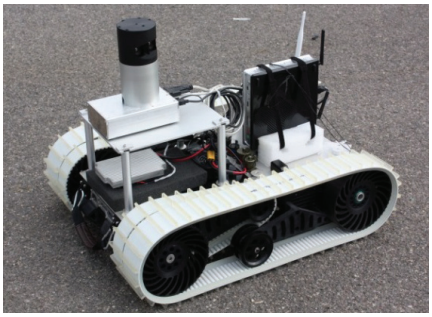
SPECIFICATIONS

▶ Lens focal length:	4.5 mm	8mm	12mm	16mm
▶ Vertical FOV:	48.9°	28.7°	19.37°	14.59°
▶ Horizontal FOV:	360°	360°	360°	360°
▶ Image resolution:	2300(H) x 1024(V)	20.000 (H) x 256 (V)	6200(H) x 1024(V)	8300(H) x 1024(V)

▶ Depth:	3D camera coordinates
▶ Scanning speed:	3600°/sec (10 rps)
▶ On-chip compression:	> 30
▶ Detector type:	CMOS (Dynamic vision sensor)
▶ Dynamic range:	> 120 dB
▶ Output:	Gigabit Ethernet
▶ Power supply:	12 VDC / ~1 Amp
▶ Weight:	1.42 kg
▶ Dimensions	
TOP (DIA x H):	80 x -140mm^2
Bottom (W x L x H):	110 x 125 x 70 mm^3



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