



AUTONOMICS

STEREOCAM

Smart stereo camera with embedded dense disparity processing and object detection for service robots.

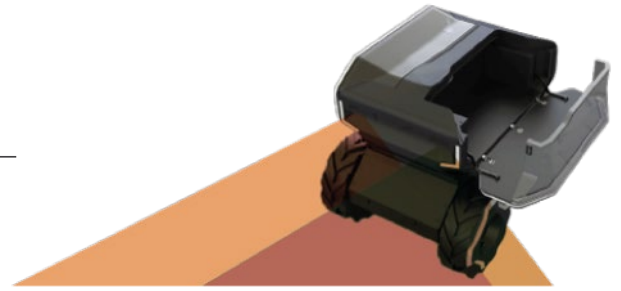
Q4 2021

STEREOCAM



AUTONOMICS STEREOCAM brings high-quality 3D vision to your service robots.

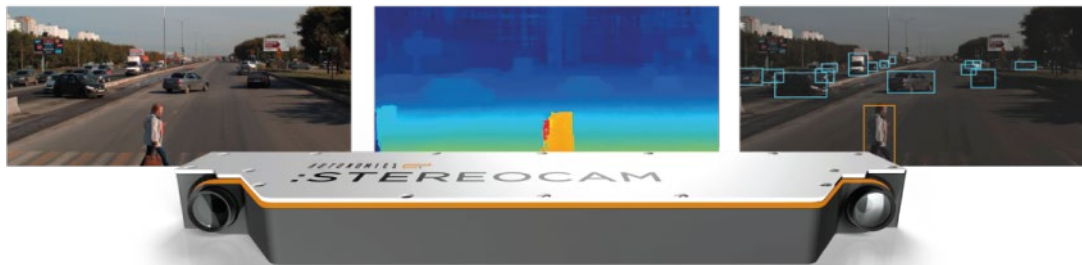
Last-mile delivery, warehousing, outdoor cleaning — robotization of these routines requires depth perception abilities, in order to perform complex tasks such as obstacle detection, visual odometry, SLAM.



Features

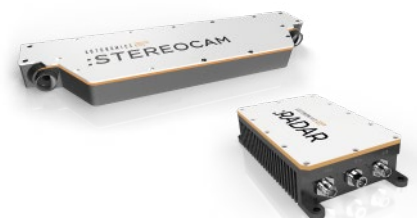
1: FPGA-based dense stereo disparity
calculation along with embedded real-time subpixel-accuracy post-processing makes AUTONOMICS STEREOCAM a perfectly suited solution for various applications.

2: Built-in pedestrian and vehicle detection
functions provided by state-of-the-art deep learning algorithms are essential out-of-the-box features for robots, operating in environments shared with people.



3: Automotive-grade rugged design
ensures the stability of stereo vision system calibration parameters, even in harsh environments.

4: AUTONOMICS RADAR and AUTONOMICS STEREOCAM smart stereo camera data fusion provides an unprecedented level of **safety, situational awareness and cost efficiency** of your robots.



5: ROS compatibility
makes it easy to integrate AUTONOMICS RADAR into existing systems.



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Specifications

Camera specifications

Sensor	Sony Pregius IMX 265, Color
Sensor resolution	1920 x 1080 pixels
Shutter control	Global shutter
Field of view: horizontal / vertical	60° / 32°
Stereo baseline distance	342 mm

Embedded stereo processing

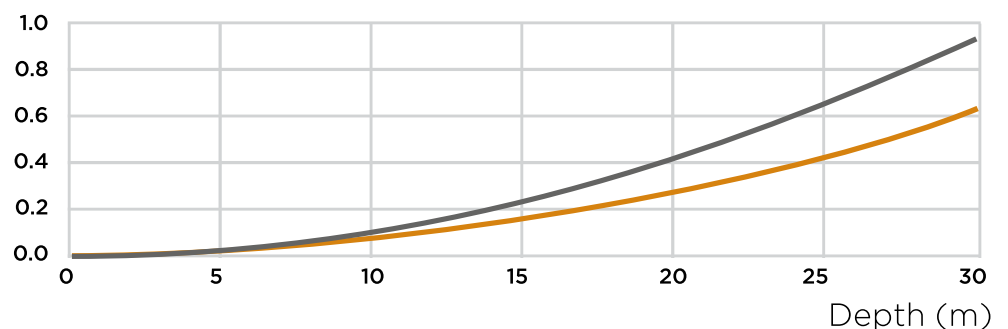
Embedded Stereo disparity pipeline	FPGA-based: Census, multi-window aggregation, Semi-global Matching with 4 paths and two passes			
Embedded Postprocessing	Uniqueness check, WTA with subpixel accuracy (1/16), Consistency check			
Erroneous pixels in non-occluded areas (with 3 pixels error threshold), %	3.5			
Average disparity error in non-occluded areas, pixels	0.8			
Density: percentage of pixels for which ground truth has been provided by the method, %	93			
Stereo processing max performance	2 GDisp/sec			
Disparity map resolution, pixels	800x400	800x400	1200x600	1200x600
Disparity range	128	256	128	256
Frame rate, FPS	30	15	20	10

Expected depth error

Resolution

800x400

1200x600



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Specifications

Object detection/recognition

Recognition objects	Vehicle, Pedestrian, Traffic Light (with signal recognition)
Output data	2D bounding box, class, confidence
Frame rate, FPS	10

Hardware details

Operating Voltage	9 - 36 V DC
Power Consumption	< 40 W
Dimensions	392x100x32 mm
Weight	2 kg
Interfaces	Gigabit Ethernet, CAN
Shock load	75g / 5 ms
Vibration load	5g / 5 Hz - 500 Hz
Ambient operating temperature	-50 °C ... +50 °C

Dimensions

