

rc_visard SMART AND ADAPTABLE

Smart 3D Camera with GigE Vision- and GenICam-Standards

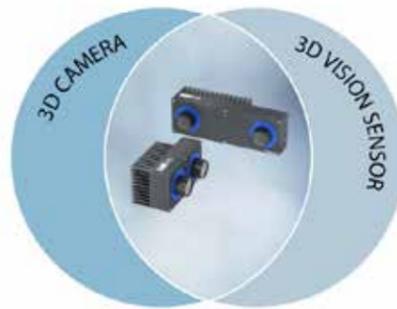


3D CAMERA AND 3D VISION SENSOR IN ONE

The innovative and high-performance smart 3D camera rc_visard is easy to use and provides a high application flexibility. With its on-board processing capabilities, it can be integrated directly into any robotic application, with no need for external hardware. The rc_visard enables robots to generate and process time and location-related data in real time.

An on-board software package allows very simple use of the rc_visard as a 3D vision sensor. For more specific tasks the optional software suite rc_reason provides additional intelligent tools. Furthermore, the integrated GigE Vision interface enables the connection to a PC for further processing of camera data and for creating individual 3D applications. This offers the flexibility of a 3D camera.

Using ego-motion estimations, the rc_visards determine their position and orientation with millimetric precision and very low latencies. Precise ego-motion data is generated reliably, even in case of vibrations. An intuitive web interface enables an easy set-up and configuration. Last but not least, multiple rc_visards can easily operate without interference in the same workspace.



Learn more about the difference between a 3D Camera and a 3D Vision Sensor

THROUGH THE EYES OF THE rc_visard – STEREO DATA PROCESSING



Confidence Image
The confidence image shows the confidence in each measured value for further processing steps.



Depth Image
Distance from sensor to environment is computed through triangulation of the stereo image using the SGM methodology. It serves as input for point cloud generation and 3D reconstruction.



3D Reconstruction
3D reconstruction, calculated from the depth image, no texture.

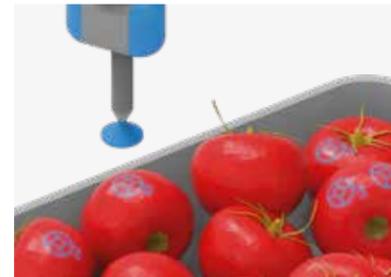


Camera Image
The image of the left camera serves as reference image for the image data set.

SOFTWARE MODULES FOR SPECIFIC APPLICATIONS

All rc_visards come with the same comprehensive on-board software package. This allows an efficient and reliable object recognition, indoor navigation, grasp planning and world modelling. In order to optimize the performance for specific application scenarios, this can be further enhanced by optional modules from the rc_reason software suite. rc_reason comprises a number of modular software components such as SLAM, TagDetect or ItemPick. They can be easily activated on-board any rc_visard, and intuitively operated through the sensor's standard user interface. The rc_reason software suite is constantly growing: experts are continuously developing additional modules in order to match the application-specific requirements of the robotic community.

rc_reason SOFTWARE SUITE*



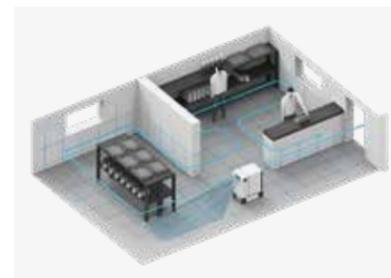
ItemPick
a module for robotic pick-and-drop applications using suction grippers.



BoxPick
a perception module for robotic De-/Palletizing applications of packets.



TagDetect
a module to rapidly detect QR codes and AprilTags.



SLAM
for drift free navigation.



CADMatch
for reliable detection, localization and picking of items from unmixed load carriers.



SilhouetteMatch
a module to detect position and orientation of comparatively flat objects on a plane.

* The rc_reason software suite is expanding steadily. This overview is subject to changes.

A PARTNERSHIP WITH A VISION.

At MATRIX VISION, innovative, comprehensive products are our passion. We have become a world leader in machine vision by providing our customers holistic, high-quality customized vision components. Hence, we have partnered with Munich-based Roboception GmbH to offer the award-winning rc_visard stereo sensor and the associated rc_reason software suite – innovative 3D perception components designed to close the perception-action loop for robotic systems.

“We improve our customers’ competitiveness by accompanying them holistically and sustainably in their projects and offering all parties new perspectives through our passion for machine vision.”

Uwe Hagmaier

Vice President R & D, MATRIX VISION GmbH

”Our slogan is SENSE. REASON. ACT. We go from pixel to action using perception. This way, we give all industrial robots and cobots the capability to perceive the environment.”

Dr. Michael Suppa

Co-Founder and CEO, Roboception GmbH

HOW TO: <https://tutorials.roboception.com/>

CODE: <https://github.com/roboception/>

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