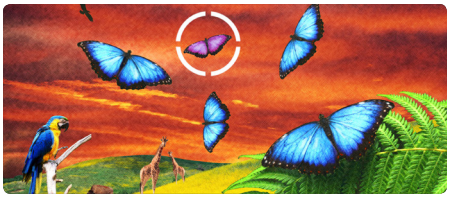

SCORPION VISION SOFTWARE®

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Scorpion 3D Stinger™ for Robot Vision

♠ Scorpion Vision Products

Scorpion 3D Stinger™ for Robot Vision is designed to solve manufacturers' classic challenge: Picking parts from a conveyor belt, a pallet or a bin.

Scorpion 3D Stinger™ is a product based on the open Scorpion Vision Framework.

The Scorpion 3D Stinger Camera is designed for 3D Robot Vision.

SCORPION
3D STINGER™

Product description

Scorpion 3D Stinger™ identifies and locates any part in 3D with sub-pixel accuracy.
The parts are described with the simplest 3D model consisting of 4 to 8 selected 3D features.
The system uses the best 3D stereo vision to make the most accurate and reliable system that never fails!

System Setup

A standard Scorpion 3D Stinger for Robot Vision system consists of a Scorpion 3D Stinger™ Camera mounted on a robot or over the crate, part or conveyor. The camera is connected to an Industrial PC running the Scorpion 3D Stinger software.

Flexible Robot Connection

The Scorpion 3D Stinger software communicates with robot from all major vendors systems over rs-232 or tcp/ip

3D Robot Calibration

The Scorpion 3D Stinger software is always calibrated in 3D robot coordinates. Manual and automatic 3D calibration is support based on the Scorpion Vision Software Framework.

Scorpion 3D Stinger Unique Approach

The simple and ingenious concept is the following:

1. Locate all features in 2D
2. Convert all features into 3D
3. Convert 3D features into objects with identidy and 3D location

The Scorpion 3D Stinger algorithm handles:

1. Multiple object on top of each other
2. Multiple different objects

All 3D Robot Vision can be solved by this template. All identified objects are guaranteed to be correct. - Scorpion 3D Stinger never fails.

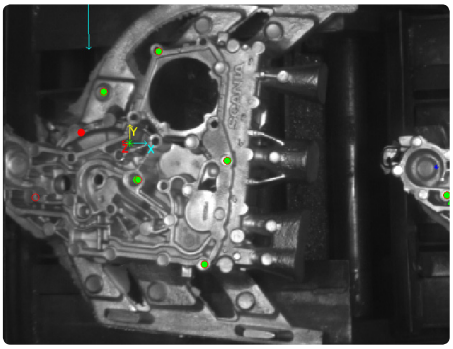
Standard Template for 3D Robot Vision

Scorpion 3D Stinger™ for Robot Vision is a standard solution template. It is used to solve any Robot Vision application. The standard procedure is:

1. Calibrate the 3D Camera in Robot Coordinates
2. Define the 3D model and the 3D features for each object
3. Teach the system to locate the features in 2D.
4. Define and implement the Robot connection

Why Choose Scorpion 3D Stinger?

1. It is fast, robust and accurate.
2. The Scorpion 3D Stinger Camera is easy to install and deploy.
3. It can be used for any robot vision application.
4. It handles illumination variations.
5. It runs on a standard Industrial PC
6. Requires no knowledge of 3D machine vision



Engine Block located and identified by Scorpion 3D Stinger™ using natural feature points

Product motivation

Today parts are often picked and stacked manually. Manufacturers spend a lot of time and resources shifting or organizing parts in the manufacturing process or feeding robots and machines with parts. To pick unordered parts requires that the robot can recognize the parts from many angles, and that it knows where in space to pick.

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Advanced features

Multiple Scorpion 3D Stinger Cameras can be integrated into a single Scorpion 3D Stinger for Robot Vision System.
This can

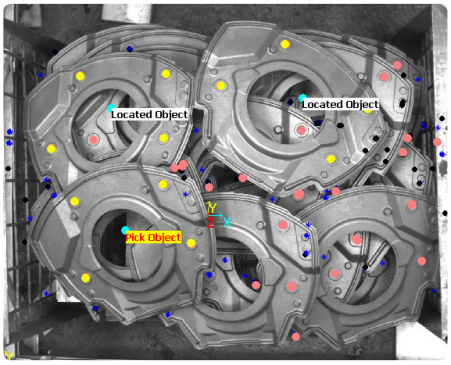
1. Extend the 3D FOV
2. Improve the accuracy
3. Make the system more robust

Mounting the camera on the robot

This is useful in 3D Bin Picking and when the robots picks at multiple stations. Capturing multiple image sets in different robot positions have the same effect as multiple 3D cameras.

Off-line Maintenance Software

The Scorpion SDK 3D software is used to develop and maintain a Scorpion 3D Stinger for Robot Vision Solution.



Scorpion 3D Stinger™ locating and identifying products in a crate.

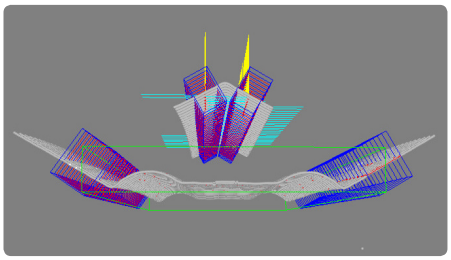
Scorpion Vision OEM

The Scorpion 3D Stinger™ is designed to be implemented as an OEM solution where it is adapted to the specific requirement of the solution. Both hw and sw can easily be modified for an optimal fit.

SCORPION 3D STINGER™

Scorpion Vision Framework

The Scorpion Vision Framework is a proven 2D and 3D machine vision framework.



3D visualisation is an integrated part of the Scorpion Vision Framework.

Advanced 2D and 3D Calibration

Scorpion 3D Stinger offers fundamental performance gain and cost saving with sub-pixel measurement algorithms.
3D camera calibration adds the capability of working in the right 2D plane.

Multiple vision systems on one computer

With Scorpion Watchdog it is easy to run multiple systems on a single computer. This is a simple way to exploit the power of multicore CPUs. The multicore option can speed up a single application by a factor of 3 on a quad-core processor.

Flexible interfaces

The framework contains the most powerful Python scripting engine. It provides access to .Net framework and databases. This means that almost any interface or connection can be added to Scorpion for free - like custom GUI, database access and reporting functions.

Fast Configuration with Point & Click

Enhanced Point and Click for defining ROI, polygon models, reference images and templates significantly speeds up tool creation.

Specifications

Resolution Guidelines

We can provide the following rule of thumb for the 1.3 MPixel version of the Scorpion 3D Stinger Camera with a 3D FOV of 1200 x 900 x 500 mm with a camera distance of 1500 mm and a 8 mm lens.

Rule of thumb:

z-resolution is 6 times the 2D feature location resolution.
This will lead to the following:

1. x and y resolution is 0.15 mm
2. z resolution is 1.0 mm

This will in most cases create a very robust and reliable system. The accuracy is defined as 3 times the resolution.

Angle Range

The system will resolve + - 25 degrees in rx and ry. and 360 degrees in rz.

Limitations

3D resolution is always dependant of contrast and object and feature shape.

Fast Object Location

The object location can be from 0.1 second for single objects. Typical multiple object location is 1 second.

Scorpion 3D Stinger™ Partner

Join our Scorpion 3D Stinger™ Network

We invite you to join us as a partner.

1. Click to read more on the Blog
2. Check out our videos

Support and Training

First class support

The software is backed by an extensive set of sample system profiles to help the user understand the power of Scorpion 3D Stinger™

Startup and Training

A large set of Do It Yourself tutorials are available to teach you how to configure a Scorpion system, to configure the toolbox and communicate with external systems.

For more information:

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