SOLOMON

AI
3D VISION
ROBOT · COBOT

SOLOMON Technology Corporation
https : //www.solomon-3D.com
E-mail : inquiry@solomon-3D.com

SOLOMON Vision with Intelligence

Our Mission

At Solomon our mission is to offer products that enable our customers to enhance factory productivity, quality, and advance towards smart manufacturing. We envision a future where machines and robots capable of perceiving, learning, and carrying out complicated tasks to help increase production flexibility and bring about better work life quality. With this goal in mind we have continued to innovate our award-winning products, not only applying advanced theories and technologies in the fields of 3D vision, deep learning, and motion planning, but also synthesizing and delivering them in an open platform solution accessible to users across different industries.

Company Profile

Year established : 1973

Year public listed : 1996

Headquarter : Taipei, Taiwan

Employees : 1,000

Turnover : ~150 million USD

Offices Worldwide

Taiwan (HQ)

No. 42, Sing Zhong Rd., Nei Hu Dist.,
Taipei, Taiwan
Tel : +886-2-8791-8989
Email : inquiry@solomon-3D.com

USA

234 S 5th Avenue, City of Industry,
CA 91746
Tel : 626-764-4846
Email : inquiry@solomon-3D.com

China

Building 66, Liando Valley, No. 328, Heng Yong Road,
Jiading District, Shanghai, China 201806
Tel : +86-21-5911-8366
Email : inquiry@solomon-3D.com

SOLOMON

Vision Systems DESIGN 2019 Innovators Awards GOLD

AI 3D VISION

Enabling Smart Manufacturing

Solvision
(Machine Vision)

AccuPick
(Random Bin Picking)

Solscan
(Scanner)

Solmotion
(Vision Guided Robot)

Solvision

Defect and pattern inspections with AI

Solvision draws on state-of-the-art deep learning technologies to solve common machine vision problems, such as detection of features, defects, and patterns. Programming code is unnecessary for the detection.

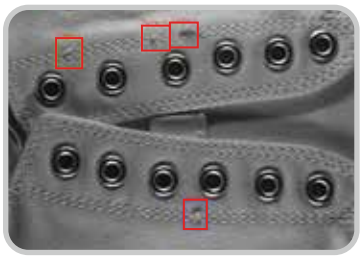
This intuitive, human-like approach requires only the input of image samples and the machine will learn to recognize irregular patterns or features by itself, which remained a challenging task for traditional inspection systems.

Solvision comes in two modes of learning ： supervised and unsupervised. When in supervised mode, each defect type needs to be identified and trained. While in unsupervised mode, Solvison needs to be shown only the golden sample, and it will be able to identify the differences in inspected objects.

OCR

- Food & Beverage
- Pharmaceutical
- Chip Packaging
- Packaging
- Metal
- Rubber & Plastic

Defect Inspection

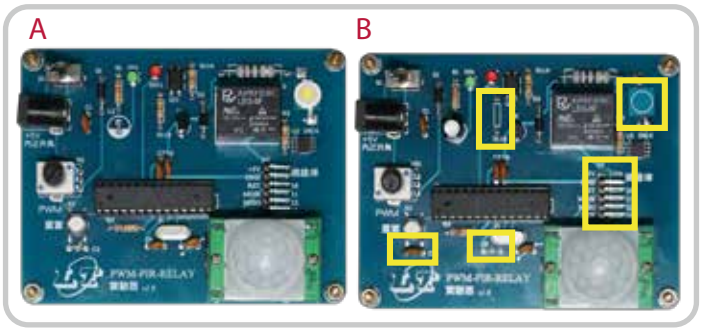


- Electronics
- Footwear
- Textile
- Metal
- Rubber & Plastic
- Medical Devices

Vision Guided Robots

- Sealing
- Deburring
- Inspection
- Assembly
- Packaging

Pattern Matching and Categorization



- Assembly QC
- Packaging

Fast Item Identification

- Medical Devices
- E-Commerce
- Warehouse

Recognizing Features and Location

- Packaging
- Logistics
- Pick & Place
- Human Gesture Detection

Solvision

Hardware Requirements

Module Name	SLM VISAI-0230
Operating System	Windows 10 (64 bit)
Pixels	2.3M
CPU	Minimum : Intel Core i5 Recommended : Intel Core i7
GPU	Minimum : Nvidia GTX 1060 (RAM : 6GB)
RAM	Minimum : 8G Recommended : 16G
Interface	USB 3.0
Coding Interface	Minimum : .Net framework 4.5.2
Coding Language	C# (WinForm DLL)
Language	English
Image Format	JPEG, PNG, BMP
Supported Robots ★★	✓

★★ Optional

Specifications subjects to change without notice.

SOLOMON Technology Corporation
No. 42, Sing Zhong Rd., Nei Hu Dist., Taipei, Taiwan
Tel : +886-2-8791-8989
Fax : +886-2-8791-9652
https://www.solomon-3D.com
E-mail : inquiry@solomon-3D.com

https://www.solomon-3D.com

YouTube

Solscan

Multi-purposed 3D structured light scanner

Solscan offers a fast and reliable way to develop various 3D applications, giving system integrators, machine builders, and industrial end users a perfect tool to easily customize 3D applications. Solscan 3D scanning is based on structured light technology, and is capable of generating a massive and accurate point cloud on an object.

- **Fast Scanning**
  Solscan completes a scanning process in about 1.5 seconds and outputs high-quality point clouds from six-axis(x, y, z, Nx, Ny, Nz) configurations.

- **Dual Camera**
  Two built-in 2D cameras are constantly on the lookout for any fault with occlusion due to over-lapping objects.

- **Color Function**
  Solscan is equipped with RGB cameras, making it possible to develop applications that are important in dealing with color differentiation.

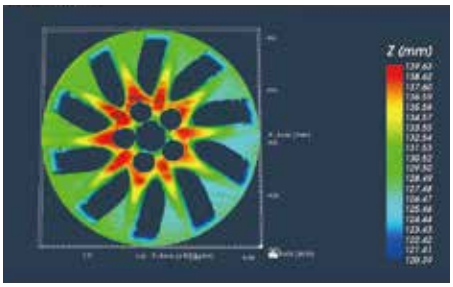
- **Friendly GUI**
  Solscan comes with an easy-to-use GUI, and also software for point cloud export.

- **Complements Solomon 3D software**
  Solscan scanner is seamlessly integrated with AccuPick and Solmotion software, which have been used by customers in different applications.

- **GenIcam 3D Interface**
  Solscan comes with a GenIcam 3D interface, which can help simplify tasks for users of such 3D software as Halcon or Common Vision Blox (CVB).

Applications


Object Recognition & Classification

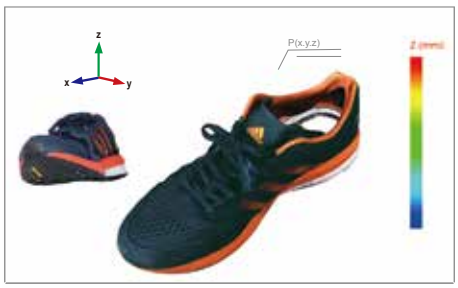


Measurement

Pick & Place


Robot Guiding


Object Scanning


VR/AR 3D

Solscan

Specifications

Module Name	SLM 3DSCN-0231C	SLM 3DSCN-0501C
Pixels	2.3 M	5 M
Camera Resolution	1920 x 1200	2590 x 2048
Field of View ★★	231 x 178 ~ 1033 x 778 mm	310 x 269 ~ 1202 x 1120 mm
Working Distance ★★	450 ~ 2000 mm	
Spatial Resolution ★	0.24 ~ 1.07 mm	0.24 ~ 1.08 mm
Scanning Time	Minimum : 0.3 Sec	Minimum : 0.8 Sec
Scanning Technology	Structured Light Projection	
Projector Light Source	LED	
Interface	USB 3.0	
Dimensions	363 x 202 x 120 mm (L-W-H)	
Power	AC 100 ~ 240 V / 50 ~ 60 Hz	
Weight	3 kg	
Operating Temperature	0 - 40°C	

★★ Optional

★ The product is not applicable to the transparent objects or objects with over 50% light reflection rate.

User Applications

3D Dimensional Measurement	✓
Quality Inspection	✓
Object Recognition	✓
Pick & Place	✓
Mesh Generation	✓
Log File	✓
Export Formats	STL, PLY, OBJ, VRML, 3DS, FCS, TXT

Specifications subjects to change without notice.

AccuPick Bin picking just got smarter

The award-winning AccuPick 3D solves complex and diverse bin picking problems with advanced AI technologies. AccuPick 3D recognizes objects and patterns difficult for standard bin picking systems to identify. Users may choose any 3D scanning technology supported by AccuPick 3D software based on the needs of individual applications. Optional software module allows rapid robot path planning for bin collision avoidance. Fast and seamless integration of 3D scanning, AI-based recognition, and motion planning is what makes AccuPick 3D the ideal solution for all your pick-and-place needs.

- AccuPick 3D software is scanner agnostic, supporting structured light, active stereo vision, time-of-flight (ToF), and laser triangulation scanners.
- CAD file not required for object recognition, applicable to objects with variations in sizes and shapes.
- Open platform solution: AccuPick supports 16 robot brands and communicates with all major PLCs.
- Training the software to recognize objects, even ones with challenging features and patterns, takes only a few hours.
- Learning to operate the software is simple with a step-by-step guide.

Applications

Fast Path Planning to Avoid Bin Collision


De-palletization


Picking Unknown Items


Small Objects (<1cm)

E-commerce Logistics


Items with Varied Shapes & Sizes

AccuPick

Specifications			
Module Name	SLM 3DRBP-0231C	SLM 3DRBP-0501C	SLM 3DRBP-0120C ●	SLM SVRBP-0092C
Pixels	2.3 M	5 M	1.2 M	0.92 M
Camera Resolution	1920 x 1200	2590 x 2048	1280 x 960	1280 x 720
Field of View ★★	231 x 178 ~ 1033 x 778mm	310 x 269 ~ 1202 x 1120mm	720 x 580 ~ 2100 x 1680mm	600 x 340 ~ 1350 x 750 mm
Working Distance ★★	450 ~ 2000 mm		700 ~ 2000 mm	450 ~ 1000 mm
Spatial Resolution ★	0.24 ~ 1.07 mm	0.24 ~ 1.08 mm	0.5 % ~ 2 %	0.5 % ~ 1 %
Scanning Time (Minimum)	0.3 Sec	0.8 Sec	0.05 Sec	0.033 Sec
Scanning Technology	Structured Light Projection		Infrared Light	Active IR Stereo Depth
Projector Light Source	LED		LED	IR Laser
Interface	USB 3.0		Ethernet	USB 3.0
Dimensions(L-W-H)	363 x 202 x 120 mm		125 x 30 x 90 mm	90 x 25 x 25 mm
Power	AC 100 ~ 240 V / 50 ~ 60 Hz		DC 24V	USB 3.0
Weight	3 kg		0.5 kg	0.263 kg
Operating Temperature	0 - 40°C			0 - 35°C

★★ Optional

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● Available for Taiwan, China and Hong Kong.

Features

Color Camera	✓
Import CAD File	✓
No CAD File	✓
Point Clouds Match	✓
Deep Learning Recognition	✓
Bin Collision Avoidance ★★	✓
Motion Planning ★★	✓

★★ Optional

Specifications subjects to change without notice.

Solmotion

Vision guided robot (VGR) system

Solmotion leverages advanced 3D and AI technologies to automatically identify an object, its orientation and position, and quickly calculates and guides a robot to the correct path to complete a required task. The vision guided robot (VGR) system helps users save time and money, and significantly enhances flexibility of production lines. Solmotion works with Universal Robots and Kawasaki robots and is able to detect singularity of individual robot models for the planned path and send out signals. Solmotion offers the following key benefits:

- **Improved production flexibility**
- **Shorter changeover time**
- **Reduced costs associated with mechanical tooling**
- **Increased productivity, allowing operators to carry out more value-added jobs**

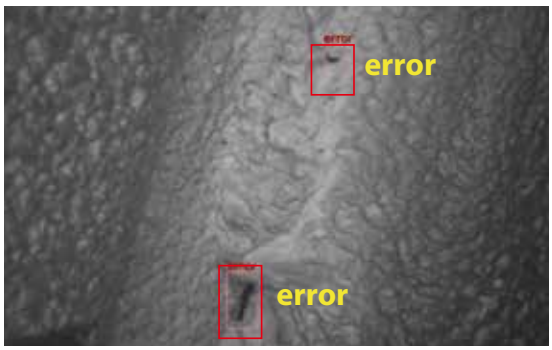
Solmotion's user-friendly interface makes it easy to not only to set the desired robot paths, but also train the software to recognize random changes in part's position and orientation.

Applications

Sealing

Assembly

Inspection



Label

Solmotion

Specifications

Module Name	SLM 3DSCP-0231C	SLM 3DSCP-0501C
Pixels	2.3 M	5 M
Camera Resolution	1920 x 1200	2590 x 2048
Field of View ★★	231 x 178 ~ 1033 x 778 mm	310 x 269 ~ 1202 x 1120 mm
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Projector Light Source	LED	
Interface	USB 3.0	
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Power	AC 100 ~ 240 V / 50 ~ 60 Hz	
Weight	3 kg	
Operating Temperature	0 - 40°C	

★★ Optional

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Features

Visualized Path Planning	✓
Feature Recognition	✓
Point Clouds Match	✓
Robot Control SDK	✓
AI Recognition ★★	✓

★★ Optional

Specifications subjects to change without notice.

SOLOMON Works with Any ROBOT

Vision Systems DESIGN 2019 Innovators Awards GOLD

SOLOMON

Vision with Intelligence

AI 3D VISION

Works with Any ROBOT

Robots' Best Partner

UNIVERSAL ROBOTS Kawasaki mecademic DENSO

STÄUBLI ABB YASKAWA KUKA FANUC

MITSUBISHI NACHI YAMAHA EPSON

TOSHIBA MACHINE OTC DOOSAN

Taiwan (HQ)
No. 42, Sing Zhong Rd., Nei Hu Dist.,
Taipei, Taiwan
Tel : +886-2-8791-8989

USA
234 S 5th Avenue, City of Industry,
CA 91746
Tel : 626-764-4846

China
Building 66, Liando Valley, No. 328, Heng Yong Road,
Jiading District, Shanghai, China 201806
Tel : +86-21-5911-8366