Shibaura Machine
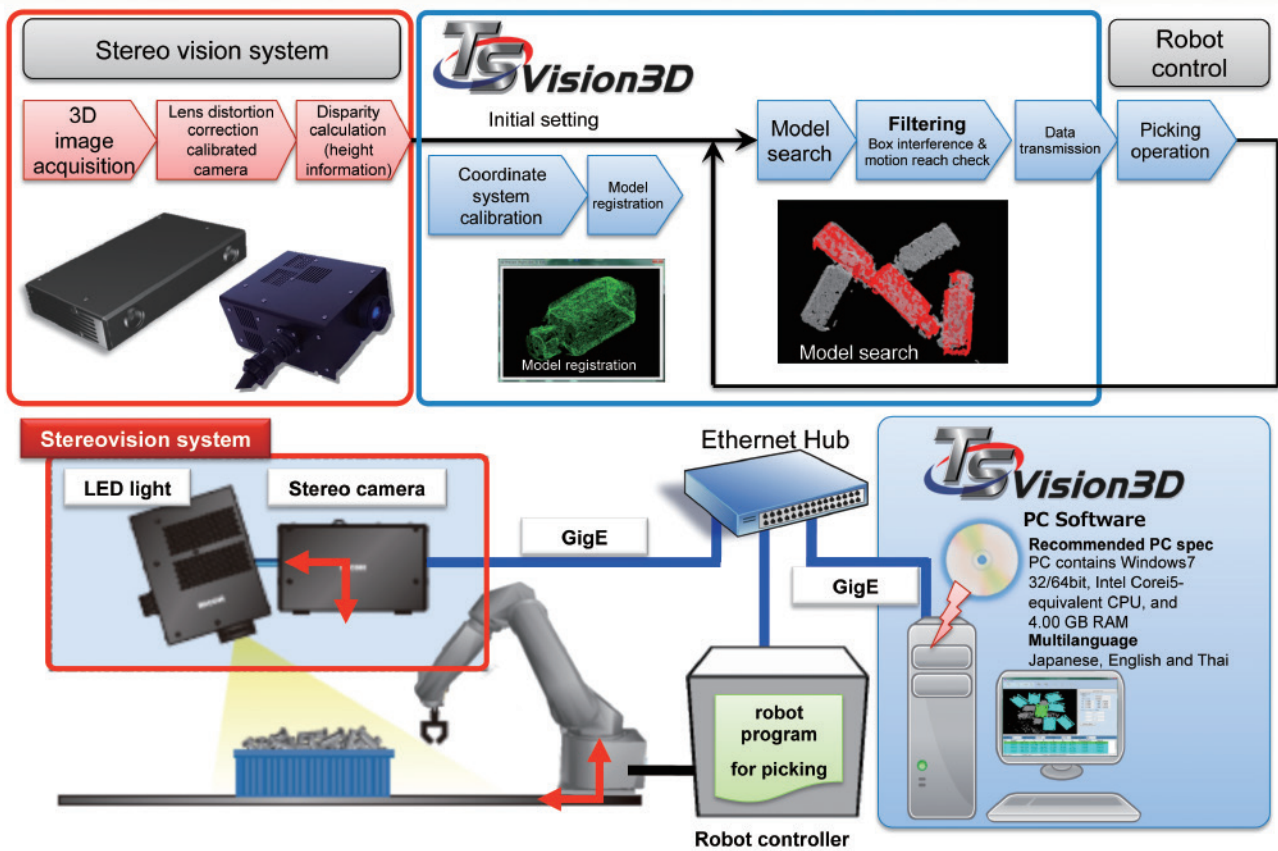
TS Vision3D

ROBOT VISION RECOGNITION PACKAGE

EASY INTRODUCTION OF BIN-PICKING AUTOMATION SYSTEM

SYSTEM CONFIGURATIONS

Stereo vision system

3D image acquisition → Lens distortion correction calibrated camera → Disparity calculation (height information)

TS Vision3D
Initial setting

Coordinate system calibration → Model registration

Model search → Filtering Box interference & motion reach check → Data transmission → Picking operation

Robot control

Model registration

Model search

Stereovision system

LED light | Stereo camera

Ethernet Hub

GigE

GigE

TS Vision3D
PC Software
Recommended PC spec
PC contains Windows7 32/64bit, Intel Corei5-equivalent CPU, and 4.00 GB RAM
Multilanguage
Japanese, English and Thai

robot program for picking

Robot controller

POINT 1 — Package consists of stereo camera, PC software and LED lighting

▶ **Real-time and highly accurate 3D measurement by stereo camera**
(+/- 0.7mm and 600 – 800 mm depth at 700mm distance.)

▶ **Random pattern projection by high luminosity LED**
Accurate positions and posture recognition by acquiring surface data of an object. Less susceptible to small fluctuations in outside light conditions. Stable 3D image detection.

▶ **High speed (30 fps) and high accuracy image processiong**
Production through-put is improved by reduction in wait time and missed workpieces.

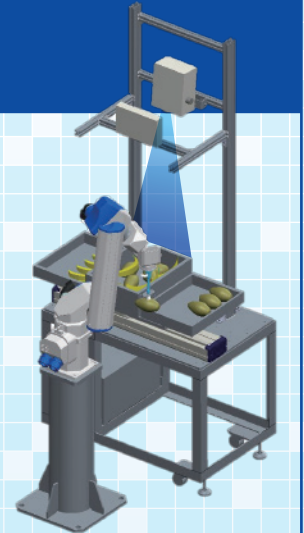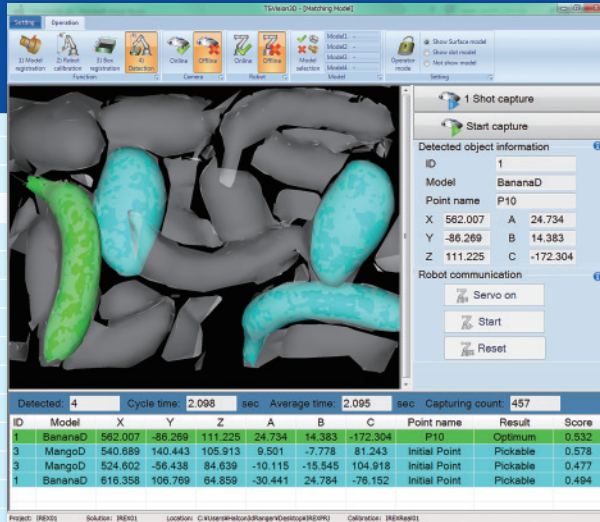▶ **With larger depth, more workpieces can be included per one box**

POINT 2 — Software functions

▶ **Easy model registration**
No CAD data required. Multiple models (workpieces shapes) can be registered.

▶ **Easy calibration (registration of robot and camera coordinates)**
Easy set-up procedure for robot and camera coordinates orientations.

▶ **Box position registration and interference avoidance function**
Box position registration and interference with the box is avoided during pick movements.

▶ **Checking for arm working envelope**
Robot's working envelope is monitored and if a workpiece is out of reach, it is skipped.

POINT 3 — **Easy-to-use software**

▶ **Easy-to-use operation scheme, with operation contents accessed from easy-to-understand icons in the main display**
Easy set-up by following the icons in their order.

Shibaura Machine's Robot Vision Recognition Package TSVision3D

Easy introduction, maintenance and set-up change-over for bin-picking automation systems

● **Package consists of stereo camera, PC software and LED lighting**

Quick and easy bin-picking of multiple workpieces with 3D camera

● **Real-time, fast (30fps) and highly accurate 3D measurement (image capturing, image processing, parallax calculation)**

● **Random pattern projection by high luminosity LED, stereo camera**

Surface data is obtained and 3D image is detected. Less susceptible to small fluctuations of outside light conditions. Accuracies in position and posture recognition is improved.
With larger depth, more workpieces can be included per box. Waiting time and missed workpieces are minimized and production through-put is improved.

● **Easy model registration (no CAD data required).**

● **Multiple models (different shapes of workpieces to be handled) can be registered.**

Even in a process where changes in workpieces and supply boxes are often, setting up can be done quickly at the site (on the factory floor)

● **Easy calibration (registration of robot and camera coordinates)**

Easy set-up procedures for robot and camera coordinates and their orientation.

● **Box position registration and interference avoidance function**

By registering the box dimensions, pick operations are carried out without interference.

● **Checking for arm working envelope**

Robot's working envelope is monitored and if a workpiece is out of reach, it is skipped.

● **Easy-to-use PC software**

Each icon clearly represents each function that it invokes. Easy set-up is done simply by following the icons in their order from left to right.

This product is used in combination with vertical articulated robot TVL,TVM and TV series (with controller TSL and TS series, respectively.)

Preliminary feasibility test can be carried out, with provision of sample workpieces.

Distributor

∗ Contents included in this catalog are subject to change without prior notice to reflect improvements.