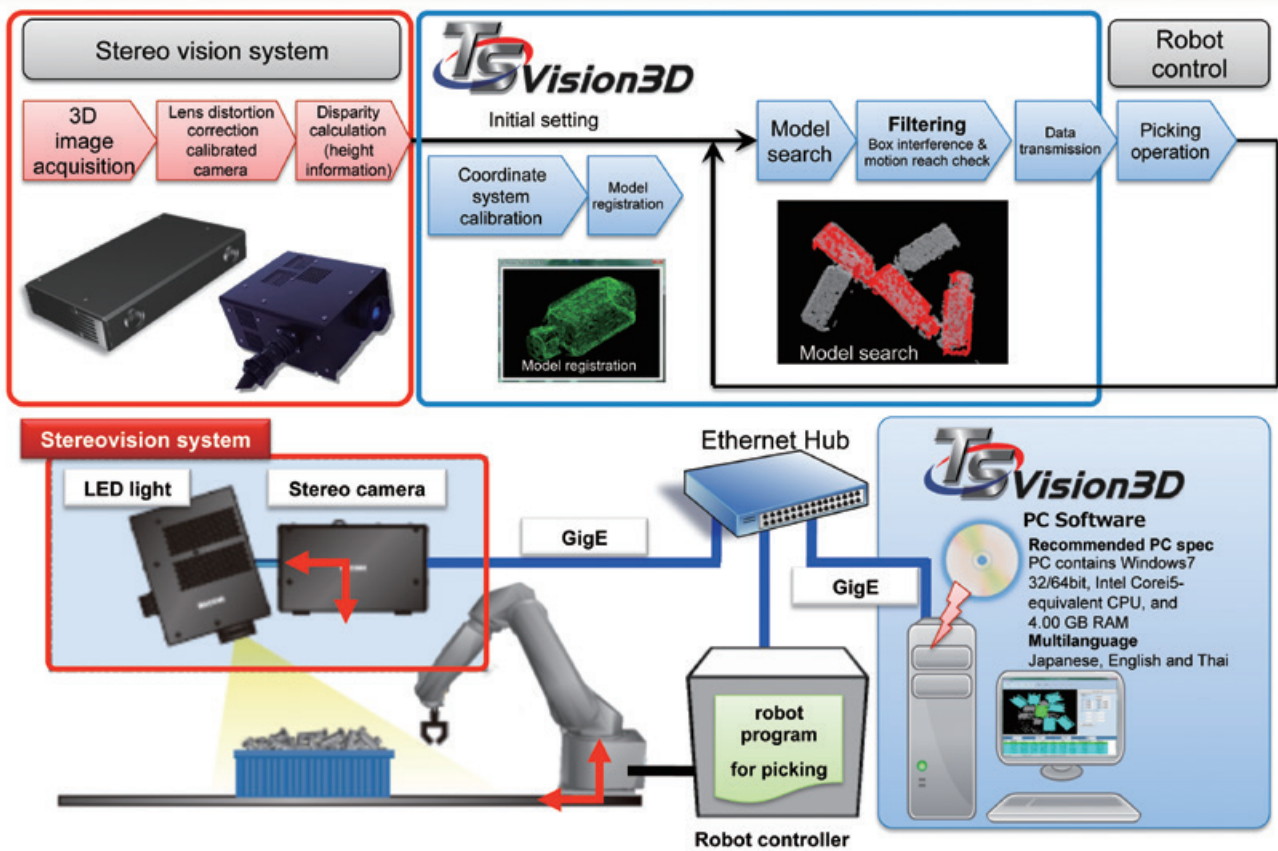


# TS Vision3D

## ROBOT VISION RECOGNITION PACKAGE

### EASY INTRODUCTION OF BIN-PICKING AUTOMATION SYSTEM

#### SYSTEM CONFIGURATIONS



#### 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 processing**  
 Production through-put is improved by reduction in wait time and missed workpieces.
- ▶ **With larger depth, more workpieces can be included per one box**

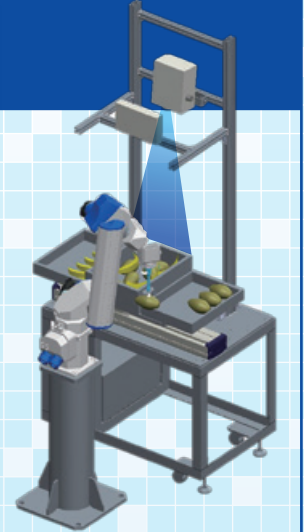
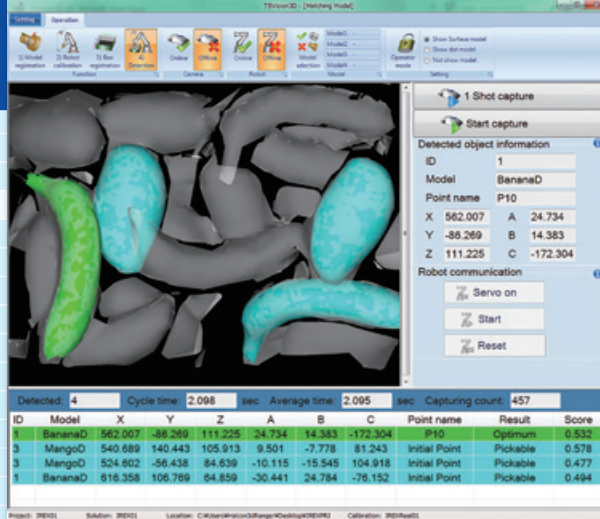
#### POINT 2 Software functions

- ▶ **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.



## Toshiba 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.**

**TOSHIBA MACHINE CO.,LTD.** HEAD OFFICE  
Control Systems Sales Department, Control Systems Division  
2068-3, Ooka, Numazu-shi, Shizuoka-ken 410-8510, Japan  
TEL:[81]-055-926-5032 FAX:[81]-055-925-6527

**TM ROBOTICS (AMERICAS) INC.**  
755 Greenleaf Avenue, Elk Grove Village, IL 60007, U.S.A.  
TEL:[1]-847-709-7308 Mail:info@tmrobotics.com

**TM ROBOTICS (EUROPE) LTD.**  
Unit 2, Bridge Gate Centre, Martinfield,  
Welwyn Garden City, Herts AL7 1JG, UK  
TEL:[44]-01707-290370 Mail:sales@tmrobotics.co.uk

URL:<http://www.toshiba-machine.co.jp/en/product/robot/index.html>  
<http://www.tmrobotics.co.uk>  
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