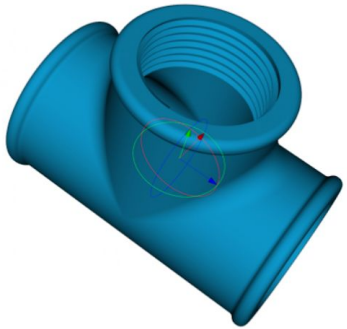
Localization & Bin Picking

Introduction to business partner

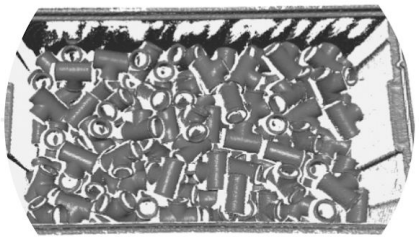
Rev.1: 03/2018

3D Localization C++ SDK Library

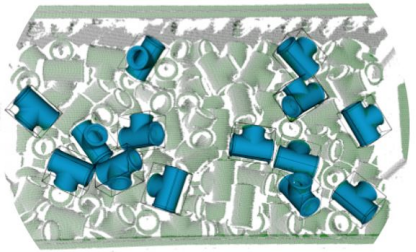
Recognition of object's pose (position and orientation) in the scene



Insert CAD model



Capture 3D scene



Get localized results

Product page: http://www.photoneo.com/product-detail/photoneo-localization-sdk/

Wiki: http://wiki.photoneo.com/index.php/3D_Localization_Configurator

Outline - Bin picking

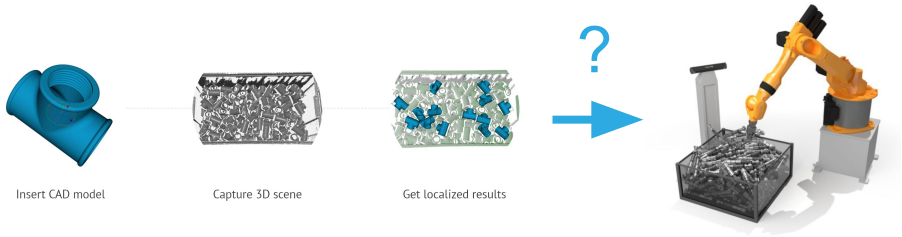
Picking randomly placed objects from the box

Vision system - *where are the parts?*

Decision logic - *which part to pick?*

Path planning avoiding collision - *how to get there and back?*

Wiki: http://wiki.photoneo.com/index.php/Bin_Picking_Solution



From Localization SDK to Bin Picking

Solution Overview

- **Localization SDK**
- **Locator**
- **Bin Picking Studio**
- **Bin Picking Appliance**

Bin Picking solutions overview

	Localization SDK	Locator	Bin Picking Studio	Bin Picking Appliances
Vision system - ***where are the parts?***	✔	✔	✔	✔
Decision logic - ***which part to pick?***	-	Simple	✔	✔
Communication - ***how to tell the robot?***	-	Simple	✔	✔
Path planning avoiding collision - ***how to get there and back?***	-	-	✔	✔
Installation & service & support			Support	✔

Use Cases

Localization SDK	Locator	Bin Picking Studio	Bin Picking Appliances
Robot assembly Inspection (pre-alignment) Advanced algorithms (Trajectory correction)	Belt picking (picking from one layer, not the bin) Most simple bin pickings without collision avoidance and longer cycle times	Advanced bin pickings with collision avoidance, multiple gripping points and faster cycle times (to meet all requirements for industrial applications)	Most complex bin pickings
Requirements for deployment			
To include C++ library and **develop** all necessary SW	**Develop** custom SW for robot navigation (path planning, collision avoidance, grasping)	**Configuration** of localization and bin picking	-

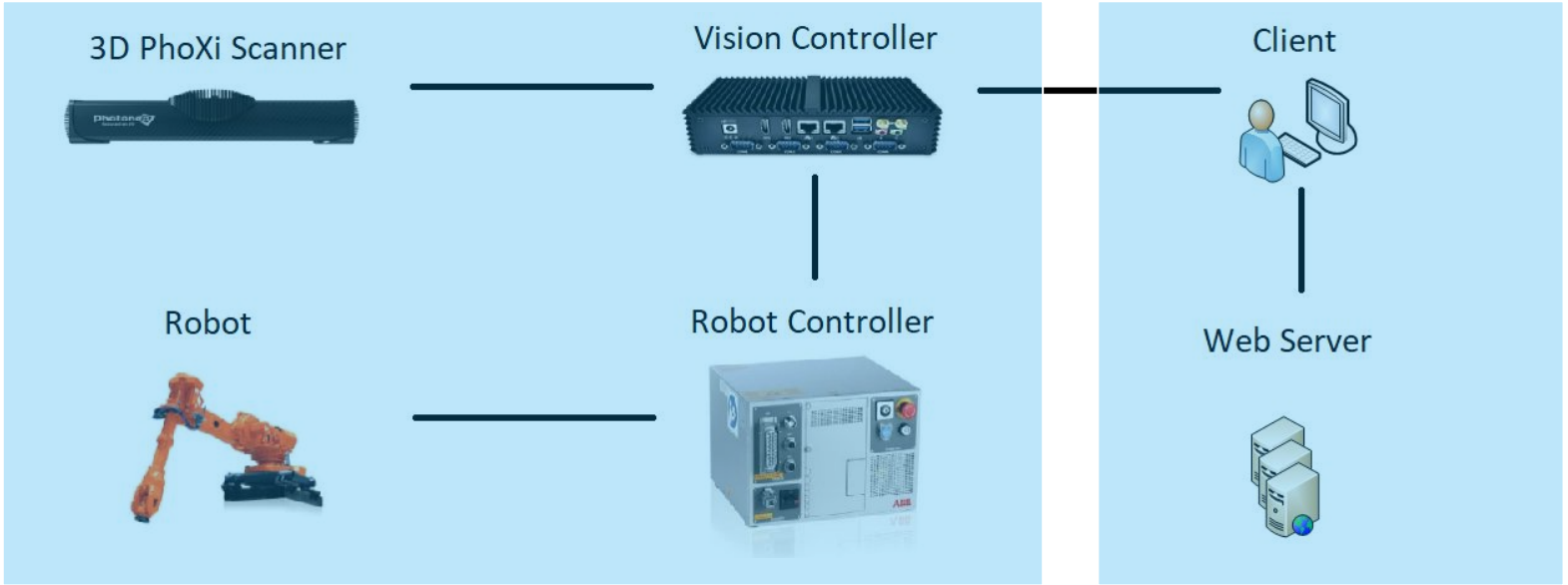
Bin Picking solutions - scope of delivery - comparison

	3D Localization C++ SDK	Locator	Bin Picking Studio	Bin Picking Appliances
Object recognition by CAD model	✔	✔	✔	✔
Robot-camera calibration SW	On demand	✔	✔	✔
Communication interface with robot	-	Simple	Full	Full
Vision controller	-	✔	✔	✔
Path planning & collision avoidance	-	-	✔	✔
Vision system feasibility study	-	-	On demand	✔
Gripper design support	-	-	On demand	✔
Installation & Commissioning	-	-	On demand	✔
Training	-	-	On demand	✔
Configuration / Usage	On user PC	Directly on vision controller	Vision controller or Cloud via ***web application***	Preconfigured
Delivery	Worldwide	Worldwide	Worldwide	Central Europe

Topology

Bin Picking Studio
- access via web browser

Bin Picking / Locator - HW Components



Bin Picking Studio - Key Benefits

- Web interface - accessible from any location over the Internet
- Visual representation of each step of the configuration
- Quick initial setup
- Easy to use - less expertise and technical knowledge required
- Reusability of past bin picking solutions
- Less factory line downtimes - configuration and testing in virtual environment
- Tool helping to work around general challenges and fine tuning solution on the web
- Wide portfolio of robotic brands
- Scanner to robot calibration interface