Progress in Autonomous Picking as demonstrated by the Amazon Robotics Challenge

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Motivation

E-commerce drives single-piece picking in locations with large number of items at one place.

Cost issues?

Workforce shortage

Same-day delivery 24/7

Amazon Picking / Robotics Challenge

The Everything Store
- Inhomogeneous products
- No predefined locations
- No defined orientation
- Occlusions

Seattle 2015
Amazon Picking Challenge 2015
Kiva-Ragaz und Team RBG

Development of the Amazon Robotics Challenge

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Enablers

Robot Ergonomics

Grasping and Suction Gripping

3D-Imaging

Computing Power

Elements of a Solution

Decision Making

Perception

Performance of ANN

Results

2018 International Material Handling Research Colloquium