

# Use case 17: Artificial Intelligence based stereo vision system for object detection, recognition, classification and pick-up by a robotic arm

Problem/goal	Automation of industrial processes involving large number of objects with unpredictable positions.
Potential users	SMEs willing to optimize the production process by using AI based robotic arms.
NACE	C32 - Other manufacturing
Description	A lot of industrial processes involve operation with large number of different objects. It is hard to automate these kinds of processes because sometimes it is impossible to predetermine the positions for these objects. To overcome this issue, we integrate 3D and 2D computer vision solutions with AI and robotic systems for object detection, localization and classification
Hardware	RealSense, Microsoft Kinect V2, Bumblebee, Proximity sensor, Universal Robots UR5
Software	Open source software (ROS, TensorFlow)
Standards	Considered: Python, OpenCV
Possible benefits	Provided algorithms and methods, which are based on AI, will allow to generate labelled data for various objects a lot faster with reduced amount of manual work allowing faster adaption of system which is capable of randomly dropped object detection, recognition, classification and pick-up by a robotic arm for different scenarios.
Partners	EDI (Latvia)
More info	<a href="https://www.youtube.com/watch?v=aovhtCX4aiM&amp;t">https://www.youtube.com/watch?v=aovhtCX4aiM&amp;t</a>

