

# Use case 3: Collaborative robotics in large scale assembly, material handling and processing

Problem/goal	Utilization of agile human robot collaboration in large scale material handling, processing or assembly tasks, which are needed e.g. in the prefabrication of a wall element
Potential users	Intergrators of robotic applications and companies carrying out large-scale material handling, processing or component prefabrication
NACE	33.20 Installation of industrial machinery and equipment
Description	Demonstration of agile industrial robotization of a large-scale material handling, processing or prefabrication where robots and people will process components collaboratively. The working zone will be monitored dynamically and provided to the worker and robot together with the task plans and situation aware information. In the use case different multimodal human-computer interaction methods are evaluated.
Hardware	ABB/KUKA robots, Universal Robots (UR3/10), Robotiq gripper, Pilz Safety Eye, 3D Kinect, RF tracking and local positioning systems, LIDARs, PhotoXi 3D Scanner, Sick S300 safety scanner
Software	Commercial (Visual Components/ ABB Robot Studio/ RoboDK/ AUTOMAPPPS), and open source software (ROS, CloudCompare)
Standards	Considered: ISO/TS 15066:2016, ISO 10218-1/2
Possible benefits	Studies with collaborative robots, human-robot interaction, dynamic 3D safety
Partners	Centria, Tampere University (Finland), FhG (Germany), UiT (Norway), LMS (Greece)
More info	



Agile large-scale prefabrication can benefit from collaborative robotics