

Use Case 13: Deployment of mobile robots in collaborative work cell for assembly of product variants.

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| Problem/goal | Collaborative mobile manipulator in shared work place to perform assembly operations. |
| Potential users | SME's and large scale industry that need flexible mobile robotic solutions |
| NACE | C27 - Manufacture of electrical equipment; C26 - Manufacture of computer, electronic and optical products; C28 - Manufacture of machinery and equipment n.e.c. |
| Description | The aim is to demonstrate the capabilities of mobile manipulators in work places shared by humans. The robot needs to localize itself accurately using sensor fusion techniques in the indoor working environment during its motions. Next, the mobile manipulator movements are planned, avoiding obstacles, by solving a numeric optimization problem which takes into account a continuously updated digital representation of the environment. A Kuka KMR robot will perform in a collaborative work space, a kitting application of air compressor components. |
| Hardware | Kuka KMR, Ultra Wide Band tags and beacons. |
| Software | ROS, Sunrise OS, OpenCV |
| Standards | ISO/TS 15066:2016 |
| Possible benefits | Mobile collaborative robots allow to deploy robotics in manufacturing operations with unlimited reach. Their on-board and external sensing systems allow to realize autonomous and agile manufacturing that can cope with variability. |
| Partners | Flanders Make (Belgium) |

