Demonstrator Description Sirris

How can small production runs be automated? How should logistics operations on the workfloor be automated? The intelligent use of digital working instructions, automated guided vehicles (AGVs), connected production cells, etc. are the theme of the demonstrator.

Manufacturing companies consider optimisation of the logistics activities on the production floor as an important driver to remain competitive. However, logistics in production comprises several subaspects.

Sirris has built a demonstration line for making a personalised lamp. The production must be optimised to allow the different versions to be made efficiently. The lamp is manufactured and assembled at various workstations according to digital instructions and provided with an autonomous, automated supply of parts by AGVs from a connected warehouse. The entire process is monitored by tracking & tracing. A digital Polca system has been implemented for the supply and removal of components at the various workstations.

The demonstrator is showcasing the following technologies:

- ERP-system handling the orders (Priority)
- Digital manufacturing platform (Scalefactory)
- Digitally-controlled warehouse
- Automated supply and removal of the components
- Digital working instructions for assembly (Azumuta)
- Tracking & tracing of the manufacturing process (Onetwo)
- Autonomous Mobile Robots (MIR – Wewo)
- Digital POLCA system to coordinate the material deliveries
- Karakuri transport

A short movie of some of the elements can already be seen at:
https://www.youtube.com/watch?v=R_3A1KaR0LI&

Highlight: Automated transport of parts

With our demonstrator we automate the transport of parts between the warehouse and a CNC machine tool. We use the MiR200 platform (AGV) for this purpose. The operator on the CNC machine tool indicates which parts he needs to machine. This demand for parts triggers the AGV (digital) to drive from the waiting position to the warehouse. In the warehouse, the warehouse operator collects the right parts and places them in transport trays. He then loads these trays onto the AGV (he scans the correct codes to avoid errors). As soon as the trays with parts are loaded on the AGV, it drives to the CNC machine tool. At the machine, the trays with parts are transferred without operator intervention to a specially designed construction, based on the karakuri-kaizen philosophy. In the same movement, the empty trays are also taken back. The AGV drives back to its waiting position and is available for other transport requests.

MIR Transport system with karakuri