

DOCUMENT TITLE:

SMART FACTORY SOLUTIONS FROM GERMANY

**Project: Improving RD and business policy conditions for
transnational cooperation in the manufacturing industry**

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PP	Restricted to other Programme participants	
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CO	Confidential, only for members of the consortium	

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1 cubu:S

Smart Factory solution provider profile

Organization:

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Type of organization:

SME

Market sectors:

Mechanical engineering

Services provided:

Engineering
Manufacturing
Research and development

Smart Factory solution

cubu:S

Product/Solution webpage:

<https://www.schnaithmann.de/news/news-uebersicht/montage-assistenzsysteme/>

Type of solution:

Product

Smart Factory description:

cubu:S is an intelligent and networkable infrastructure for manual workstations, primarily for assembly, packaging and order picking. The system was developed to support the employees at the assembly station to minimize possible user errors.

The technical solution is that a motion sensor from consumer electronics was integrated into the system. By combining it with a commercially available beamer and a PC, it was possible to design a flexible system with minimal hardware requirements.

A completely new kind of human-machine interaction is realized in the system itself. The use of "intelligent" component containers opens up unimagined possibilities for flexibility along the entire value chain.

The individual work steps are projected onto the assembly table. The "Pick-by-Light" principle is used to visualize the component removal from the correct container.

Keywords:

employee support
assembly assistance system

Example of Product/Service usage:

A profile system with many possibilities: The flexible profile system offers a huge basic range for all material flow and handling tasks in workshops, warehouses and offices. The entire spectrum ranges from individual components and simple racks to the provision of materials to custom-made multifunctional workstations.

Today's production lives from rapid changes. Especially at workplaces, the question arises: With which system can I remain flexible in the end? This can only be answered individually. Accordingly, fast, tried-and-tested solutions are needed. These should be able to be implemented independently of the location, should remain as adaptable as possible and should always be able to cope with the dynamics of production. This is all possible with cubu:S

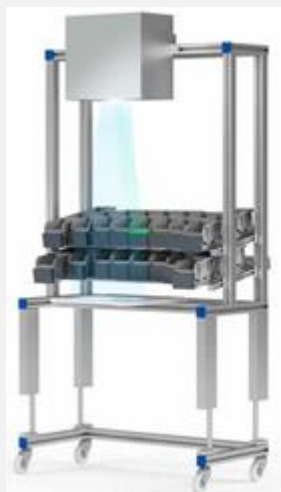


Figure: cubu:S

Improvement areas covered by the Product/Solution:

- Increased speed of production operations
- Improved agility and responsiveness in the production process
- Improved product quality
- Improved maintenance/uptime

Product/Solution is related to the following type of implementation:

Implementation in the production processes

Other relevant information about the product/service:

Attachment1: Company logo

Attachment 2: Video demonstration <https://www.youtube.com/watch?v=vE8h1qb7J3w>

Product/service technological focus:

- Industrial Manufacture
- Process control and logistics

Market availability:

Available on the market since *unknown*.

2 Schlauer Klaus

Smart Factory solution provider profile

Organization:

OPTIMUM datamanagement solutions
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Germany

Website and social media:

Website: www.optimum-gmbh.de
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Type of organization:

SME

Market sectors:

Mechanical engineering

Services provided:

Engineering
Manufacturing
Research and development

Smart Factory solution

Schlauer Klaus

Product/Solution webpage:

<https://www.optimum-gmbh.de/der-schlaue-klaus.html>

Type of solution:

Product

Smart Factory description:

The intelligent database supported image processing software "Smart Klaus" was developed as an assistance system that offers a perfect solution to these challenges. Where RFID and barcodes reach their limits, industrial image recognition plays to its strengths along the entire supply chain - sometimes in combination with existing systems - or can even replace them with intelligent feature recognition.

The production process is thus facilitated.

One or more cameras record the passing products. The software checks the image for certain characteristics. Intelligent algorithms then recognize distinctive points and compare them with the database. On the basis of the stored characteristics, the "Schlaue Klaus" now identifies and checks the products. If the system detects an error, the "Schlaue Klaus" outputs a signal in the form of a tone or screen hint. The employee receives a note.

There are similar solutions which, like the "Schlaue Klaus", support the worker. However, they all have other advantages and disadvantages. However, the "Schlauer Klaus" is the solution with the most functions and the best development.

Keywords:

Intelligent image processing for industry 4.0
assembly assistance system

Example of Product/Service usage:

The system masters the challenges of incoming goods inspection with speed and precision by recognizing the different parts in a flash or ensures direct cost savings when taking back products and components.

The "Schlaue Klaus" supports the employees in production and assembly to master the tasks within the shortest time and with absolute precision. The software solution guides the workers (by displaying the next step on the monitor), checks and confirms the individual steps and finally documents the results.

The image recognition program is particularly in demand in quality assurance for products with many features that have to be checked within a very short time, because it makes the complexity manageable and relieves your employees at the same time.

With the utmost care and reliability, the "Schlaue Klaus" is also in demand as a solution in order picking and outgoing goods inspection, which ensures higher customer satisfaction and thus also secure customer loyalty.



Figure: Schlauer Klaus 1



Figure: Schlauer Klaus 2

Improvement areas covered by the Product/Solution:

- Increased speed of production operations
- Improved agility and responsiveness in the production process
- Improved product quality
- Improved maintenance/uptime

Product/Solution is related to the following type of implementation:

- Implementation in the production processes

Other relevant information about the product/service:

- Attachment 1: Company logo

Attachment 2: Video of the “Schlaue Klaus”

Product/service technological focus:

Industrial Manufacture
Process control and logistics

Market availability:

Available on the market since 2015.

3 Zero defects production with RQM

Smart Factory solution provider profile

Organization:

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Type of organization:

SME

Market sectors:

Other

Services provided:

Engineering
Research and development

Smart Factory solution

Zero defects production with RQM

Product/Solution webpage:

<https://www.pickert.de/caq-mes/>

Type of solution:

Product

Smart Factory description:

RQM is an integrated overall solution between ERP/PPS and Shop Floor:

RQM enables compliance & governance (laws, standards, customer requirements, organization), replaces islands with an integrated solution, supports continuous improvement (PDCA) and reduces quality costs.

RQM is a standard system for everyone, is further developed together with our customers (the RQM.Community) and is customizable and release-capable in the standard.

RQM links the areas of quality management and production management instead of looking at them in isolation.

This makes it possible to monitor, evaluate and react in real time. This avoids errors even before they occur. This is the only way to implement the right measures quickly.

This reduces costs and increases quality, which ultimately leads to greater customer satisfaction and competitive advantages.

RQM is the only system on the market that not only implements control loops and CIP to some extent, but makes them possible throughout.

Keywords:

Intelligent image processing for industry 4.0

Example of Product/Service usage:

The RQM allows the automatic marking of production parts.

RQM can read existing number codes or apply them to articles, e.g. via laser marking systems.

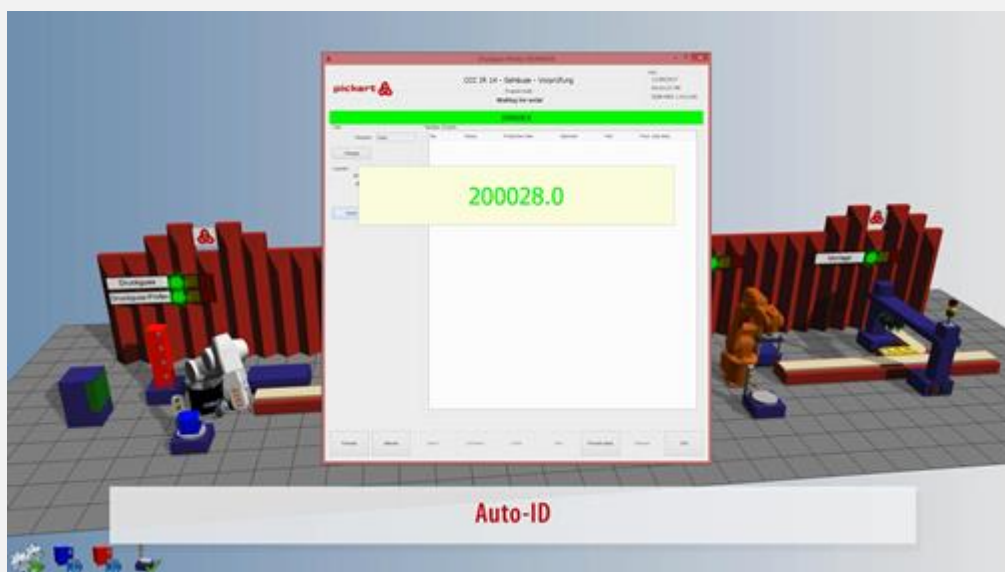


Figure: Auto-ID

Process parameters can be monitored for each operation. These can be visualized in real time. If the process parameters match the specifications, the material is forwarded to the next operation. If there is a discrepancy, an immediate reaction is possible.



Figure: Realtime process data monitoring

In addition to individual monitoring, several process data can also be monitored. These can also be visualized simultaneously.

Quality inspection in the form of random samples or a 100% inspection can be easily integrated into the running production process. All common inspection systems can be integrated into RQM.

To ensure that only fault-free parts are processed, bad parts are immediately marked and rejected. Alternatively, the production process can also be actively stopped.

Important process parameters are visualized via an interface that can be displayed on any terminal device. Separate dashboards can be created for each area.

Assembly processes can be integrated without any problems.

Built-in batches and serial numbers are recorded and tracked. This guarantees complete documentation of all installed parts.

RQM offers a multitude of evaluation possibilities to trace different data at any time.

At any time there is a complete overview of all products.

This means that all production data is always in view, no matter when the parts were produced and delivered.

RQM supports companies on the way to a zero-defect production.

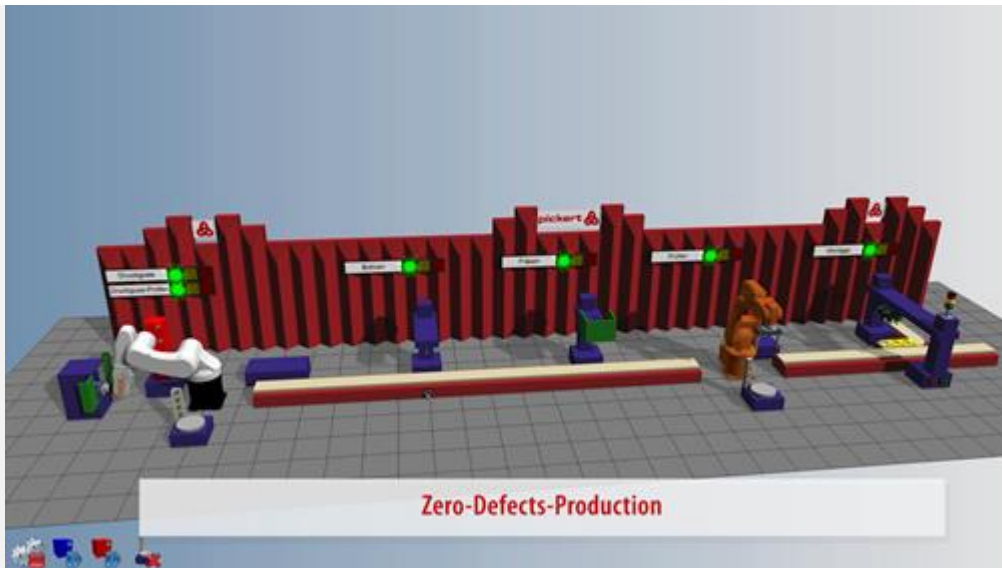


Figure: Zero-Defects-Production

Improvement areas covered by the Product/Solution:

- Improved coordination with suppliers
- Increased speed of production operations
- Decreased manufacturing costs
- Improved information for production decisions
- Improved agility and responsiveness in the production process
- Improved coordination with customers

Product/Solution is related to the following type of implementation:

Implementation in the production processes

Other relevant information about the product/service:

- Attachment 1: Company logo
- Attachment 2: Video about the RQM
- Attachment 3: Information material about RQM

Product/service technological focus:

Process control and logistics

Market availability:

Available on the market since *unknown*.

4 Mold ID

Smart Factory solution provider profile

Organization:

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Type of organization:

Large company

Market sectors:

Electrical and electronic engineering industries

Services provided:

Engineering
Manufacturing
Research and development

Smart Factory solution

Mold ID

Product/Solution webpage:

<https://www.balluff.com/local/de/solutions-and-technologies/mold-id/>

Type of solution:

Product

Smart Factory description:

Mold ID is an intelligent solution with an RFID data carrier that is attached to each tool. This allows the tool to be provided with individual information, such as useful life and last location.

Keywords:

Plastics industry
RFID

Example of Product/Service usage:

In injection moulding processes, for example, the system is completed with a shot counter in the form of an inductive or optical sensor on the machine. In this way, the actual number of mechanical shots is recorded. An RFID read/write unit is mounted for communication with the data carrier of the tool in the machine. A central Mold ID unit with industrial PC in a separate control box controls this. A simple visualization for the machine operator is possible with the help of a SmartLight signal light, which is mounted in a clearly visible position. The current status of the tool is then displayed in the traffic light colours.

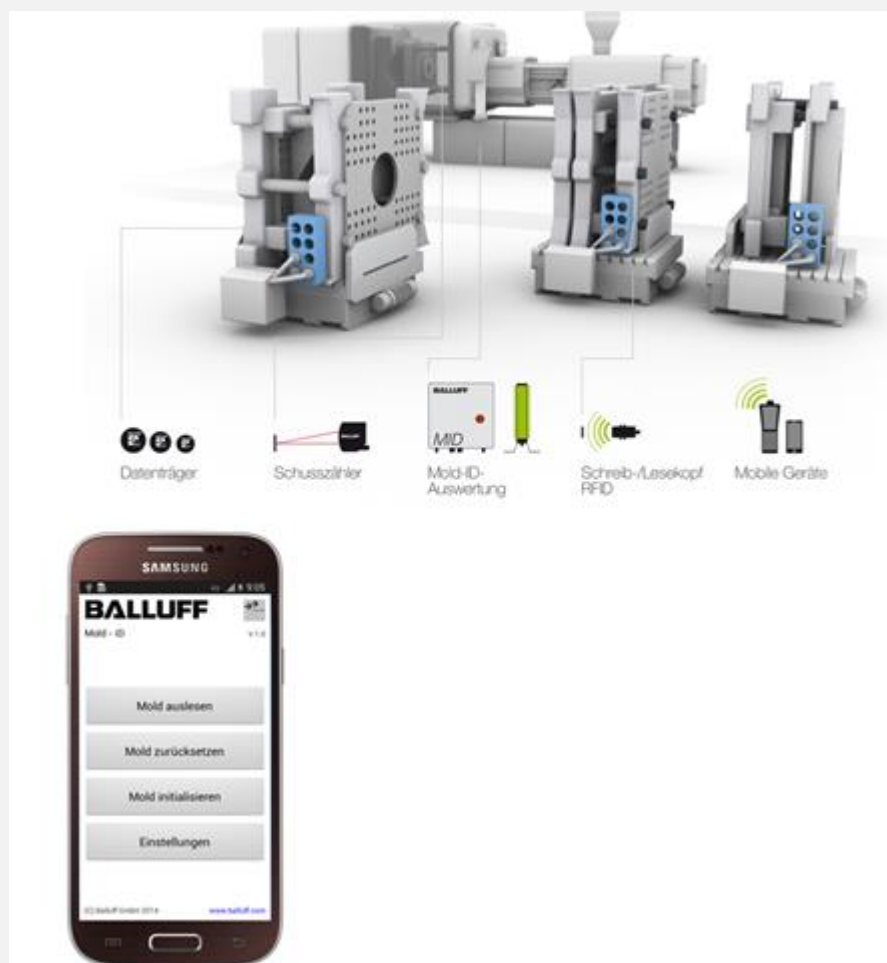


Figure: Mold-ID

Improvement areas covered by the Product/Solution:

Improved agility and responsiveness in the production process
Improved maintenance/uptime

Product/Solution is related to the following type of implementation:

Implementation in the production processes

Other relevant information about the product/service:

Attachment 1: company logo

Attachment 2: Video about Mold-ID

Attachment 3: Information material about Mold-ID

Product/service technological focus:

Information Processing & Systems, Workflow

Market availability:

Available on the market since *unknown*.