

Technical Feature Article

Driverless transport system to support future industry as well as personal services SALLY is conquering new worlds

SALLY is the new compact class among automated guided vehicle (AGV) systems from DS AUTOMOTION. Her primary mission is to help create a more flexible internal material flow, thus making production facilities more adaptable and transforming them so they get closer to achieving the goals of Industry 4.0. Utilising SLAM navigation and task-specific add-on equipment, SALLY can also be flexibly adapted to perform transport, handling and assistance tasks far beyond that. Before long, a statement that customers in many industries already know will be similarly heard in hotels and health z. B. in Hotels und healthcare institutions, maybe eventually even in public spaces: SALLY does it!

SALLY has got what it takes to revolutionise the internal transport chain. The automated guided vehicle (AGV) designed for small loads up to 100 kg can replace permanently installed conveyor systems usually claiming a lot of space. SALLY allows manufacturers to quickly, simply and frequently reconfigure their production processes. Adaptable production facilities are a key prerequisite for producing in dwindling lot sizes.

SALLY does it

For a successful Industry 4.0 implementation, existing gaps in the internal transport chain need to be bridged. SALLY can be adapted flexibly to various transport tasks. Using navigation technologies such as SLAM, she realigns her course using features of her working environment and does not need especially prepared roads. This reduces installation expenditure and facilitates future route modifications.

A typical application is to provide required material to the work stations along the production chain. SALLY facilitates an enormous increase in production flexibility. "Manufacturing products in different versions can be optimised, for example, by splitting production stages with different durations to more or fewer stations working in parallel", says Manfred Hummenberger, managing director of DS AUTOMOTION. "Permanently installed conveyor systems can offer this flexibility only as much as the requirement has been taken into account in the original planning."

Flexible material provision using small load containers

The most frequent application for SALLY is transporting small load containers. They are used for instance to supply electronic components to placement tables, finished assemblies from there to a QC inspection station and then on via final assembling to packaging. Likewise, newly machined turned or milled parts can be transported to the part cleaning system and on to downstream processing in the cleaning cages, without fixed installations and with much higher efficiency than previous systems.

In many applications, SALLY is equipped with a small roll conveyor so she can more easily pick up and deposit containers. This is one of many equipment options designed to make it easy to adapt SALLY to various application scenarios. The AGV is equipped with a mechatronic interface for the purpose.

Suitable equipment for many application scenarios

Numerous other equipment options are in various planning or design stages at DS AUTOMOTION. "They provide the compact, swift SALLY with the capabilities she needs in excess of safe driverless navigation in specific applications", says Arthur Kornmüller, who is also a managing director of the AGM manufacturer

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based in Linz, Austria. “SALLY’s capabilities go far beyond carrying containers from A to B. Equipped with the appropriate options, she can in many instances be used to radically change processes.”

In the production environment alone, there are quite a number of suitable applications. In the electronics or medical industries, SALLY can supply cartons or shelf bins in multi-storey open racks. Cabinet or chest-of-drawer superstructures can be used to provide small components for assembly or cabling work where they are needed.

Mission: relief and support

“We have not launched SALLY aiming at replacing human labour”, says Kornmüller. “SALLY can support working people by relieving them of repetitive, cumbersome or physically strenuous work.” An example is providing the supplied material where it is needed for further processing. In most cases, a person needs to interrupt their work to unload the small load container that is also rather heavy for a human. Where transfer using a roll conveyor is not feasible, an industrial robot can provide an appropriate solution. As optional equipment for SALLY analogous to lorry cranes, it can transfer parts or small containers from the vehicle to a transfer shelf or vice versa.

There are also plans to equip SALLY with a bigger robot arm to act as a mobile manipulator. “In many cases, permanently installed handling devices are underutilized”, says Kornmüller. “Equipped with a robot arm, SALLY can alternatingly lend a hand in several places, replacing several of them.”

There is more to SALLY

“Fully automated solutions are not always the best choice”, says Hummenberger. “Processes can be designed very efficiently and space-saving in collaboration between man and SALLY, with a high workplace quality for the human colleague.”

Compiling shipments during warehouse picking, SALLY not only carries the commission for the worker. Using her connections to the warehouse and commissioning software systems, she can also show him the most efficient path to the individual storage locations. An integrated terminal serves for visualising and acknowledging withdrawals. The person can concentrate on retrieving the required material and checking that it was the right item.

The person needs not take the commission anywhere, either. SALLY does this while the worker already takes care of assembling the next packet. “Possible applications range from tool stores in machining factories to commissioning warehouses of smaller online retailers”, Hummenberger mentions a few examples and adds: “It is not science-fiction to see SALLY conveying, say, installation material individually compiled to craftspeople waiting at the counter of a specialist wholesaler’s.”

SALLY the personal assistant

SALLY can in future also support cleaning or maintenance staff. Fitted with the appropriate superstructure, she can take cleaning utensils or tools and mounting material where they are needed. She can carry more than a human being and will therefore have everything on board for many cases. This saves time-consuming trips to collect things that had been left behind or gone out. For unavoidable refills, SALLY can roll to the central warehouse unaccompanied so the person can continue his or her activities.

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A future in hospitality and healthcare

The adaptability application specific equipment options lend SALLY will see her go on to non-industrial applications as well. An important area of deployment for SALLY is material transport to individual recipients in hotels and healthcare institutions.

SALLY can deliver breakfast to the room in hotels, supper and/or medication for the following day at sanatoriums. As a 'self-propelled rolling walker' she can help residents in retirement homes, patients in rehab clinics or guests in health spas find their way.

A vision: SALLY in public spaces

When you arrive at a hotel or spa centre, SALLY may soon take your bags to your room without expecting a tip. In a slightly more distant future, she might carry bags in public infrastructures. As one of several partners working on the 'TransportBuddy' research project, DS AUTOMOTION is breaking the ground to the make options such as this possible. The aim of the research project is to develop methods for free navigation among flows of people. The Research platform and experimental vehicle for future use of AGVs in public infrastructures is no other than SALLY.

DS AUTOMOTION and SALLY at the LogiMAT 2017 show: **hall 9, booth 9C41**



SALLY, an AGV in the 100 kg load class, boosts intralogistic flexibility, bridging the gap to Industry 4.0.



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Analogous to a lorry crane, a robot arm can transfer parts or small containers from the vehicle to a transfer shelf.

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SALLY can help people find the way.



In the 'TransportBuddy' research project, SALLY serves as a research platform and experimental vehicle for the future use of AGVs in public infrastructures.

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DI Manfred Hummenberger MBA and Ing. Arthur Kornmüller,
Managing Directors of DS AUTOMOTION GmbH:

“Small, lightweight and agile and with a multitude of application-specific add-on equipment options, SALLY can take on transport tasks for which previously there had not been any economically viable solutions.”

About DS AUTOMOTION

DS AUTOMOTION is a globally leading supplier of automated guided vehicles and driverless transport systems based in Linz, Austria. The company has been designing and manufacturing transport automation solutions for various applications and industries. More than 170 employees generate annual revenues in excess of 30 Million Euros. 95 percent of the products are exported worldwide.

For more information, please visit www.ds-automotion.com.

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