.steute

AGV can be individually "put to sleep" and "woken up" via the nexy wireless network.

Live monitoring of material flow with wireless network

Closing the gap in the information flow

Farewell to the conveyor belt: under this motto, multiple forward-thinking companies have reorganised their material flow. Stationary conveyors have been replaced by mobile and thus flexible units, such as AGV, tugger trains or mobile eKanban racks. The prerequisite for such advances is a new approach to information flow – and the logical way to solve this is wireless technology.

When load carriers are mobile, it is not so easy to track goods, or rather to determine their precise location at all times. That is why even advanced IT systems for material flow management often lack this feature. Instead, they capture stock levels only at fixed points along the way. That

works, but in practice it leads to discrepancies in the system, showing a quantity which is either too low or too high – and users would prefer their articles or boxes to be captured without any gaps in the system. This requires a wireless-based monitoring solution, which is exactly what steute provides with its nexy system.

The early days: AGV applications
The first nexy development was for automated guided vehicles (AGV). An industrial wireless network is spanned across the production or assembly area, forwarding sensor signals via Access Points to a Sensor Bridge. Each AGV is equipped with a receiver unit and can be individually and remotely "put to sleep" or "woken up". This has the huge advantage that

the vehicle batteries have longer lifetimes and thus a lower power consumption. Also at the transfer points between fixed and mobile conveyors, nexy is able to guarantee an accurate information flow using appropriate wireless sensors.
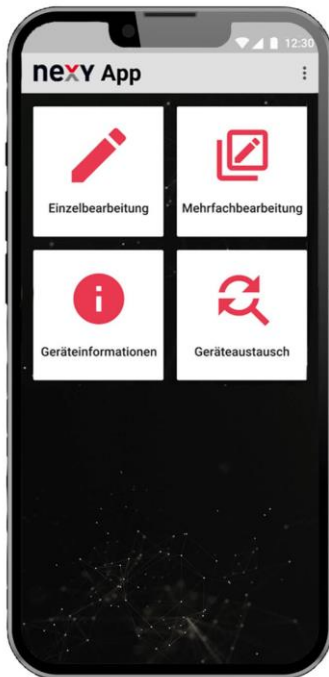
Via the nexy app, users can teach in and manage their nexy components – from the shop floor rather than an office.

The next step: eKanban racks

This principle quickly proved successful for final assembly in the automotive industry and other application fields. Once installed, such a network is suitable for multiple functionalities, so the next obvious step was to integrate an additional application – for example the detection of boxes in mobile eKanban racks. Here, too, major companies eager to operate nexy wireless networks with thousands of sensors in order to manage the replenishment of parts at their assembly points could quickly be found, for example from the fields of mechanical engineering and electronics.

Monitoring in supermarkets

The most recent application field is dolly monitoring in automotive materials super-markets, facilitating the permanent monitoring of stock despite the presence of mobile load carriers. The information flow is guaranteed by sensors developed explicitly for this purpose. They automatically detect when dollies or other mobile transport devices arrive or leave on a monorail track and send a notification which is passed on via Access Points to the Sensor Bridge in real time.

Digital visualisation of stock

In all three application cases, the stock is visualised digitally. And since the Sensor Bridge as the service manager of the network is open for connection to e.g. an ERP system or WMS, the information gap in the material flow over the last few metres (or mobile metres) can be closed.

A special benefit of this wireless network is that – once installed – it can be used for multiple applications. They include the three examples named here, but also others, e.g. the integration of Andon buttons (for consign-ment) or of signalling columns (stack lights for displaying operational status). For all these applications and more, pre-configured software modules are available.

Growing ecosystem

Alongside this development, the range of sensors and actors available for use in the wireless network is expanding all the time, whereby the wireless protocol used by the network meets the highest standards regarding transmission reliability. New products include different types of laser sensor which can detect e.g. the fill levels inside boxes, or at a greater distance the existence of pallets or LLC in storage and parking areas. Potential applications for the wireless network are increasing steadily.

Multiple applications can be operated within one and the same wireless network.

The user interface is also undergoing continual further development and becoming increasingly user-friendly. The nexy app is being shown for the first time ever at the LogiMAT fair. One of the features it includes is the teaching in and management of all components directly on the shop floor, which makes in particular the initial operation of larger nexy installations with several hundred field devices far easier. Users only have to scan in the ID-code of the sensor or actor and then they can parameterise the sensors and actors in the Sensor Bridge from wherever they choose.

Author:

Andreas Schenk
Product Manager Wireless
steute Technologies

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