

Bin surveillance

MATERIALS REQUISITION – An automated wireless material requisition system (AMS) maintains an accurate overview of all stock in e.g. materials supermarkets and stations used in automotive manufacturing, as well as other intralogistics applications. Within this system, a range of wireless sensors developed specifically for such use cases detects pallets, load carriers and fill levels.



In automated intralogistics and handling technology, (target-directed) "bin picking" is and remains at the top of its game: a robot reaches into a bin filled with bulk and – guided by an imaging system – picks out a single item with complete precision.

"Bin surveillance", on the other hand, sounds somewhat less spectacular. But it provides e.g. automotive manufacturers and suppliers with a precise visualisation of

material flow in their "supermarkets" or along their vehicle production assembly lines in real time. The sWave.NET® system, developed by the steute business division Leantec, is able to assume this task.

Automated control of moving materials

This wireless-based automated materials requisition system (AMS) was developed with the intention of closing information gaps – not only in materials supermarkets, but also e.g. in eKanban racks or during replenishment processes via automated guided vehicle (AGV) systems. Sensors in the field detect material stocks and movements. They send information via an industrial wireless system to Access Points, which bundle the data and then pass them on to a Sensor Bridge. The Sensor Bridge in turn shares an interface with the IT platform responsible for warehouse management or production planning (WMS, ERP, MES...).

The result is a real-time flow of information which at field level extends to pallet parking bays, eKanban racks and/or individual load carriers. Here sWave.NET® addresses a frequent problem: monitoring stock imprecisely or with a time delay leads in the mid-term either to a stock shortfall or to a stock oversupply. This is particularly true for articles which are not inventory-managed, but which are still crucial to the assembly process, for example C parts.

Well established in intralogistics

The sWave.NET® system has become well established in intralogistics – not only in the automotive industry, but also in e.g. mechanical engineering, medical technology and the manufacture of electronic components. Features of the latest version include new logic functions and a dashboard which visualises the operational status of the complete system with all sensors and actors. In addition, sWave.NET® can now also be





installed and operated "on premise" without its own hardware.

The sWave.NET® system facilitates data exchange with commercially available fleet management systems such as Agilox, Idealworks, M. Hartwall, MHP and Synaos. The result is a continuously refreshed "digital twin" of the situation in the warehouse and/or consignment zones and supply zones. The uninterrupted information flow also covers mobile transport units – automated guided vehicles (AGV) or autonomous mobile robots (AMR).

The "eyes" of the AMS

One typical application example for sWave.NET® is the detection of free parking slots for pallets in materials stations or supermarkets. The conventional method is for AGV to check for free slots on their way past. But this information becomes invalid if e.g. an operator parks a pallet in a slot which was previously free, rendering it occupied when the AGV arrives with the pallet intended for that slot.

This task can now be assumed by the wireless RF LDS ZONE laser sensor. This compact sensor uses laser measurements and a matrix of 8 x 4 measuring points to detect objects such as pallets and other load carriers within a predefined area. Its "time-of-flight" measuring principle has the advantage that the switching point of the sensor has next to no



dependence on the colour or material of the object. The ideal measuring distance is within a wide range of 0.4 to 5.0 m.

Bin surveillance – with the SPOT laser sensor

The RF LDS SPOT uses the same measuring principle as the RF LDS ZONE, but detects the objects using points or spots. It can monitor e.g. the stacking height on different load carriers or the fill level in a large load carrier – at distances of up to 10 m. If the quantity falls below a predefined threshold, the system sends a remote notification requesting replenishment.

packages between stationary conveyors and automated guided vehicles (AGV). For these use cases, steute has also developed robust wireless sensors.

One of the major advantages of the wireless system is that these different applications can

be run in parallel – within a shared wireless infrastructure. This enables operators to use the existing system in many different ways to meet diverse material flow requirements.

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