.steute

Managed by wireless network

Efficient provision of replenishments – with eKanban

Providing e.g. assembly workstations with replenishments using an eKanban system requires sensor technology in the Kanban racks and communication with superordinate IT/OT systems. For this an "out of the box" solution is now available with simple-to-configure applications.

Seventy years ago, Japanese inventor Taiichi Ohno developed the Kanban principle, and with it a whole new and simple method of managing replenishment supplies for his employer, Toyota. At the same time, he introduced the "pull principle" to intralogistics: replenishments are not "pushed" into the production or assembly by central control systems; instead, the Kanban cards facilitate a steady flow of materials, pulled into the production area as and when they are actually needed.

This principle is still as relevant now as it was in the 1940s. Today, however, it is

In a nutshell

At the LogiMAT 2019, steute launched a significant addition to its wireless network concept: the network is now open for other wireless technologies, fundamentally permitting the acquisition, transmission and management of sensor data in superordinate IT systems or the Internet of Things. Also new is an eKanban application for the wireless network which can be easily configured without any need for programming, thus requiring only a short initial set-up time.

Wireless communication is ideal for mobile eKanban systems

Access Points receive wireless signals from individual switching devices or sensors and pass them on to the customer IT infrastructure via e.g. Wi-Fi or Ethernet

Wireless sensors developed especially for eKanban racks manage the replenishment of materials in modern factories

more usual to signal that materials are required not by paper card, but electronically. The messages can be triggered manually via a terminal or automatically, via switches or sensors monitoring the occupancy of the Kanban rack. This eliminates the necessity of handling paper Kanban cards, and the supply data can be integrated directly in the IT system.

A brand new development is the trend towards mobile eKanban racks. They bring additional flexibility to in-house materials supplies and also facilitate completely new production concepts. This trend is being driven in particular and very intensively by the automotive industry – in 1947 the pioneer of the classic Kanban principle. But eKanban solutions are increasingly becoming established in other areas, too, both for consumer goods and for capital goods. Manufacturers and users of such solutions are now faced with the question of how to integrate these location-independent systems in an uninterrupted information flow.

Information carrier: wireless signals replace Kanban cards

The answer is a wireless network, provided by the steute business unit Wireless. It is intersected by Access Points, each connecting up to approx. 100 network-compatible terminal devices (position switches, foot switches, magnetic sensors...). The signal range is up to 700 m outdoors and around 60 m indoors. Numerous Access Points can be integrated within one network.

As an interface to the customer application, a middleware called "Sensor Bridge" is used. It provides a guaranteed connection between the data generated at shop floor level and the customer IT infrastructure (PDA, ERP, WMS, MES...), and if required also to cross-site data services via web services. This set-up is a central prerequisite for device interoperability and the rapid implementation of IoT applications at every location. Configuration via a central dashboard facilitates rapid adaptation of the network to changing requirements, e.g. the integration of new wireless switches and sensors in the network.

Hardware for eKanban applications

In addition, a wireless sensor is available which steute has developed especially for such eKanban applications. It detects via a rocker whether a container or box has been removed from a shelf and sends a corresponding (wireless) message to the next Access Point. These wireless sensors can be mounted in the rack systems of leading manufacturers without any need for tools. Because the intralogistics sector is price-sensitive and often requires a larger number of sensors, the steute wireless sensors have also been cost-optimised.

Initially, these wireless networks could only be operated using the steute low-energy sWave.NET wireless technology, which has specific advantages for such applications. At the LogiMAT 2019, steute launched a significant addition to its wireless network concept: the network is now open for other wireless technologies, fundamentally permitting the acquisition, transmission and management of sensor data in superordinate IT systems or the Internet of Things. For customer-specific complete solutions offered in connection with add-on services, steute has created the umbrella brand "nexy". One reason behind this development was the wish of several customers to use their own existing wireless standards, such as their company Wi-Fi, for signal transmission.

New: easy-to-install eKanban application

Also new is an eKanban application for the wireless network which can be easily configured without any need for programming, thus requiring only a short initial set-up time. Several basic configurations can be selected: eKanban with one shelf sensor per chute, eKanban for rapid-moving articles with three sensors per chute, and eKanban with manual messaging.

Users of such eKanban solutions – which can also be installed in existing systems – profit long-term from the advantages of the wireless network: paper-free and uninterrupted communication, transparency regarding supplies and consumption, material flow on demand, robust data transmission and simple adaptation to changing conditions. Clear visualisation of the current status of all eKanban stations via a central nexy dashboard provides additional transparency. Applications for further nexy applications – for example AGV fleets – are in preparation.

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