

► Quick Flow of Materials

The Cognex high resolution Vision system In-Sight 5605 identifies codes on transport trays at Continental in Frankfurt. What has been done by manual scanning before, is now carried out automatically without any manual effort at all. The STEMMER IMAGING experts for image processing actively support Continental with the system implementation.

Traceability has become a key factor in the automotive industry in the last years. Such traceability at Continental in Frankfurt includes several hundreds of thousand of transport trays. The international automotive parts supplier uses these pallets to transport the majority of their components. The standardized trays travel long distances during their life and are the foundation of internal logistics coordination.

► Complex tasks require control

Such an extensively complex production and transport network requires precise control and reliable monitoring. Barcodes or 2D Matrix Codes ensure unique identification of each tray. In order to provide fault-free logistics, the position of a batch of components must be traceable at any given moment. This requires the installation of monitoring systems in regular intervals and at key positions in the logistics chain. Even today employees are frequently being used to manually scan the codes, thus ensuring traceability of the components and updating the position information within the production process.



Time-consuming: Before, barcodes have been scanned manually.

► Position, type and content

Continental in Frankfurt have taken the next big step. In cooperation with the image processing experts at STEMMER IMAGING, manual scanning of individual tray barcodes has been replaced by smart Cognex high-resolution vision In-Sight 5605 systems. With its 5 Megapixel resolution the vision system detects and scans codes on high stacks with differing tray numbers within a few milliseconds.

Marc Wilhelm from Continental explains the station processes developed in cooperation with his design team: "The vision system at first identifies the position of the codes (up to 11) in the stack, detects the code type - whether it is a barcode or a 2D Matrix Code - and scans the information for the logistics system. The bottom code in the stack serves as the master code used to identify the complete stack. Further control points therefore do not need to scan all individual codes again. Scanning the bottom code will therefore be sufficient."

► FACTS

Industrial sector: Automotive supply industry
Task: Identification of codes on transport trays
End user: Continental, Frankfurt

Imaging components supplied by STEMMER IMAGING:

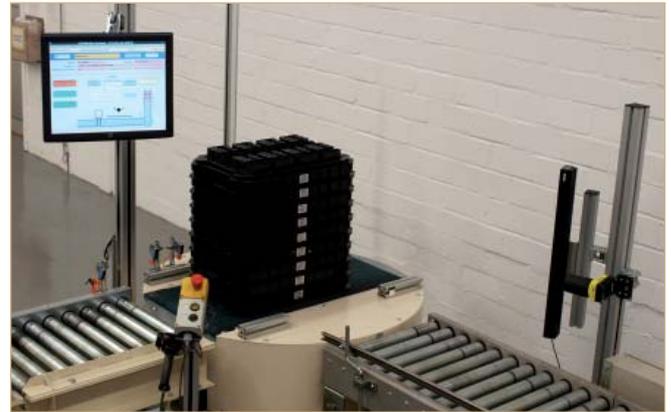
- | | |
|--|--|
| <input checked="" type="checkbox"/> Illumination | <input type="checkbox"/> Acquisition |
| <input checked="" type="checkbox"/> Optics | <input checked="" type="checkbox"/> Software |
| <input type="checkbox"/> Cameras | <input checked="" type="checkbox"/> Systems |
| <input checked="" type="checkbox"/> Cabling | <input type="checkbox"/> Accessories |



► No blind passengers

Code scanning is supplemented by a stack height measurement. It serves to additionally verify the scan result. "If the vision system only scanned one single code, further non-coded trays could slip through unnoticed", Wilhelm says. The height measurement closes this - although very unlikely, yet possible - safety gap in a reliable way.

Compared to manual scanning the new system offers various benefits. The process is much faster and the potential for errors due to manual work has been eliminated. Codes not scanned or scanned twice are now a relict of the past for Continental in Frankfurt.

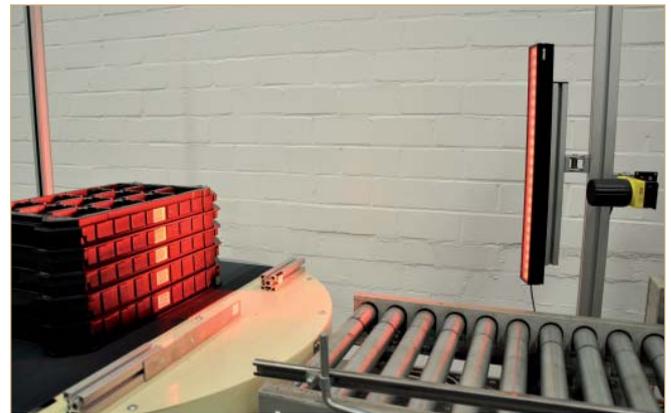


Sharp eye: The high resolution In-Sight 5605 identifies pallets with a height of up to 600 mm in one scan.

► Helpful partners

Wilhelm highlights the close cooperation with STEMMER IMAGING, their partner for planning and implementation of the system: "During the concept phase we were able to test the probable image processing components in the STEMMER IMAGING laboratories and pre-select the desired components. The final decision was made using live testing devices on our premises."

The planning cooperation even went into more detail, as Wilhelm states: "STEMMER IMAGING provided support for software development and held training courses at the end of the project, helping us to improve our knowledge of image processing. Being able to retrieve all required components from a single source and benefitting from the extensive service range were key factors for the success of this projects."



High contrast: The red LED light ensures that the barcodes are clearly visible on the pallet background.

► Challenge mastered

Major issues to be resolved for the STEMMER IMAGING experts were the different tray colors and the short resting times of the codes. Especially those resting times are important for code identification prior to scanning.

STEMMER IMAGING implemented the Cognex PatMax technology to overcome this issue. Christian Berg, sales expert for image processing solutions and the STEMMER IMAGING project lead, explains: "PatMax uses a state-of-the-art technology for geometrical pattern identification to localize components reliably and precisely even under difficult conditions. PatMax analyzes the code geometry using multiple limiting curves which are not dependent

on any pixel grid, and searches for similar patterns in the image without relying on certain grey scales. The result is a huge improvement of localization quality and precision, even with changing angles, sizes and shades."

This way STEMMER IMAGING even managed to scan codes which have been deemed non-scannable before. The innovative and proven Cognex technology In-Sight 5605, PatMax and the support provided by the STEMMER IMAGING experts made this project at Continental a pioneer for secure and quick logistics. Wilhelm claims that similar solutions might even be implemented in further logistics applications at Continental Frankfurt.

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