Automated and safe sample handling

RFID systems significantly increase throughput in test laboratories

Our customer:
World's largest laboratory network

The company is one of the world's largest providers of clinical laboratory services to physicians, patients, hospitals and pharmaceutical companies. In the process, it provides customers with laboratory findings for the diagnosis of diseases or the development of new medicines.

The global company with 70,000 employees operates 36 laboratories in the USA alone. More than three million samples are analysed there every week. The scope ranges from Covid PCR to pregnancy tests.

CASE STUDY | PHARMACEUTICAL INDUSTRY

The challenge:

Processing such a large number of samples poses immense challenges for the test laboratories. It is therefore very important that all processes are structured as efficiently as possible in order to ensure fast processing times. Especially during the Covid 19 pandemic, many of the laboratories reached their limits.

Therefore, they had to optimise their processes to work more efficiently and process all orders promptly. Among other things, smart, fast and efficient robots are used for sample handling, which should optimise part of the internal processes. The aim was to speed up the sorting and inventory tracking of sample vials. Despite the support from the robots, many manual tasks were still necessary.

This concerned in particular the often redundant scanning of the barcodes used to identify and sort the sample vials. This activity is not only time-consuming, but also a source of inaccuracies.

The solution – why ifm?

The company's engineering team, together with ifm's product management, has designed solutions to make the processes faster and more efficient. The first step was a matrix sorting machine. Here, blood sample vials are loaded into a feeding hopper, separated, picked, coded, sorted and placed in the appropriate container for specific tests. Each container is provided with an RFID label, and at the individual locations – there are a total of 216 per robot – an RFID reader from ifm identifies the respective container.
The modular concept allows for an adjustable machine size in steps of 36 containers. After equipping the matrix machine, the need for inventory storage, tracking and monitoring of product movement was additionally recognised. This was implemented with a Smart Shelf, this storage shelf for inventory storage is also equipped with RFID readers from ifm in each of the 45 container positions. These identify and track the containers loaded at the respective position, seamless tracking of each individual sample vial is thus guaranteed. The smart storage shelves are located in different areas of the laboratories. Both solutions have been implemented with the same components from ifm, which work with conventional RFID labels. The labels of the sample vials can nevertheless be read via scanner at any time. In the end, the automated solutions result in significant efficiency benefits and also ensure the safety of staff and patients.

Results:

- Increase capacity in the laboratories
- Errors in sample sorting are avoided
- Cost reduction through automation in sample handling
- Standardised RFID components

Increasing the test capacities

Error prevention during sample sorting

Cost savings through automated processes

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ifm electronic gmbh · Friedrichstr. 1 · 45128 Essen