

Pallet Tracking System Using RFID



Background

The Client is a leading synthetic rubber company with a business profile of manufacturing and marketing synthetic rubber for use in diverse industries. The client was facing the challenge of effectively managing a huge number of the 'Unit Load Devices' like pallets at their plant in Singapore every single day.

The logistics at the plant involved many phases. At the staging area, it was important to confirm every Pallet ID arriving at the client's facility. As the pallet reached the packaging area, the information was required to be captured automatically and verified before it was passed to MES (Manufacturing Execution System).

The Pallet ID was also required to be captured in the manual packaging area to send the data to the MES.

In this scenario, the client required a technology solution that ensured efficient management of their pallets.

Objectives for the IntelliStride team

- To automatically capture pallet movement
- To confirm pallet id at the staging area
- To capture the pallet's unique id at the packaging area
- To pass the captured data to the backend system

Solution

IntelliStride offered the client automated tracking using RFID technology for their pallets as they went through various stages through their plant. In this case study we'll touch upon the staging area and packaging area mainly.

The following RFID hardware and software components were deployed to implement the solution.

Hardware Components

- Kathrein RFID Reader
- Kathrein RFID Antenna
- Signal Light
- Optical Curtain Sensor
- RFID Handheld

Software Components

- CrossTalk Platform
- OPC Server
- Third party MES (Manufacturing Execution System)

Staging Area / RFID Gate solution enabled automated tracking of pallet movement from the container vehicle to the forklift. This enabled complete tracking of pallets at the staging area.

Pallet Tracking at Staging Area.



In the Packaging Line (Bin fully loaded with finished product), CrossTalk Software was used to integrate with hardware and acted as OPC server for data collection. The data captured was forwarded to MES. Some of the data had to be also captured with a handheld device in the packaging line.

Software integration was achieved with the MES, CrossTalk and OPC server.

Outcome / Results

Overcoming many technical challenges, a full-fledged automation of pallet tracking using RFID technology was implemented to improve client's everyday logistics with following benefits:

- Data on the goods flow helped tracking all materials in production or packaging.
- Real time on-demand location information improved the production efficiencies, improved manufacturing logistics thereby saving costs.
- Improved the customer shipment timelines.