Case Study
NGK Ceramics

NGK

ThinkIN for Industry 4.0 is an advanced IoT solution for the Smart Factory. Thinkin uses Real-Time Locating Systems based on BLE technology to monitor in real-time and with high accuracy the position of workforce and industrial assets in the environment. Such raw data is processed to extract actionable knowledge on the execution of industrial processes and to optimise the factory efficiency.

View the full case study from ThinkIn: https://thinkin.io/

BACKGROUND

NGK Ceramics is a global leader in the manufacturing of ceramic substrates used in catalytic converter applications for automotive, truck and off-road vehicles. The US manufacturing facility, located in Mooresville in North Carolina, covers more than 500k square feet and it is running 365 days a year, twenty-four hours a day.

CHALLENGE

With business growing faster than expected and more areas being served by the same production plant, NGK faced a major challenge: how to grow the capacity of the North Carolina industrial plant, in order to keep up with the market demand. During production peaks, the pallets transporting both raw materials and semi-finished goods were temporarily stored all around the shop floor - at least two workers per shift were assigned to only searching for and moving pallets. In addition at least once a year a complete plant inventory is required to verify all materials stored in the facility, but not yet shipped or sold. This activity could take up to one week, with the slow down (if not interruption) of the production activities.

SOLUTION

In 2017 NGK Ceramics decided to explore how solutions based on a Real Time Locating System (RTLS) could help by providing a Digital Twin of the manufacturing plant: the location of every pallet would be tracked continuously and that data would be synchronized with NGK's MRP systems. This tracking of pallets provides a real-time view of where they are located in the industrial plant, with a number of supporting services to easily and rapidly search them and manage the production cycle.

+ Configurable tracking
+ Reasonable infrastructure cost
+ Asset search and location functionality
+ Enterprise ready solution

ThinkIN shop floor solution based on Quuppa RTLS for the high precision location of assets proved to be the best match to these requirements. ThinkIN platform provides a comprehensive set of services ranging from real-time support to Industrial IoT analytics. It also includes a number of tools to support the active monitoring of the infrastructure and a comprehensive set of user interfaces to explore the data collected and used to locate assets in real-time in the shop floor

RESULTS

The efficiency of the shop floor was significantly increased - the ThinkIN solution is integrated with the production control system adding value to the manufacturing process by making the pallet searching process more effective. ThinkIN's platform has allowed NGK to digitize the shop floor by recreating the plant on screens accessible to all workers. In the first year, NGK Ceramics reduced the costs of wasted time searching for pallets and of the time spent doing the annual inventory. Thanks to the new solution, the inventory is constantly up-to-date. Also the accuracy in tracking reduced the risk of accidents caused by the movement of pallets with forklifts in the shop floor searching for the needed pallet.

"We now have complete accountability of the product throughout the manufacturing process... We're just scratching the surface of the potential of what this can do within our facility; it's all about location, location, location.

BOB GRIMM
IT Enterprise Architect
NGK Ceramics USA, Inc.

NEXT STEPS

Evaluate the value of the data generated from the system to look for potential process improvement initiatives. (i.e. Pallet distance traveled in facility, Production pallet quality holds, non-standard travel deviations).