FIRST ELECTRONICS

Founded in 1955, **The First Electronics Corporation (FEC)** specializes in the manufacture of over-molded, extra-flexible, multi-conductor, fully EMI-shielded cable assemblies, harnesses and electro-mechanical assemblies, custom-built for Aerospace/Defense applications and harsh environments. Customers range from leading Prime Defense Contractors to Government Agencies supporting the War on Terror.

THE CHALLENGE

First Electronics had a challenge with visibility in their production line. Jobs were being tracked manually in the organization. And once a job went into the production line and through the 15 process areas, there was very little -- to no visibility, in regards to its location and status.This was creating major problems for management and the customer support team.

Connecting the items that flow through the production line (e.g. product number, job number, PO, customer and other key manufacturing details) with a digital dashboard showing jobs in stages of production is a critical step in developing a modern manufacturing process. It's this real-time data about the products and materials on the manufacturing floor that enable informed business decisions for a competitive edge.

Thousands of cables are processed through the 15 stages of a Work in Process (WIP)

The Customer Support team at FEC was demanding that they improve visibility on the production floor. The current manual system was unable to meet the customer's expectations of frequent updates to their jobs during the production cycle.

When a customer wanted an update on their project someone would have to visit each step in the production process and tediously follow the breadcrumbs, until the job was located. This investigation could easily take more than an hour - which amounted to a significant amount of wasted labor hours each week.

THE SOLUTION

The leadership team at First Electronics knew that they needed a modern asset management solution that could provide a high level of accuracy and visibility.

Furthermore, it was clear to management that the asset tracking system needed to take advantage of RFID automation in order to improve the production efficiencies. The team had accepted the fact that capturing barcodes at each station in the production process would be too inefficient, slow and disruptive to employees performing their jobs. It was obvious that the advantages of automated RFID asset tracking was the way forward.

First Electronics chose the A2B Tracking RFID Asset Management solution to provide total visibility into their manufacturing process.

A2B Tracking implemented a solution that uses Zebra RFD8500 handheld RFID readers coupled with Android smartphones. These mobile RFID readers allow users to scan the entire 50,000 sq ft facility in 20-minutes to capture all items and update the A2B Tracking platform with their current location and a time stamp.

Selecting the appropriate RFID tags was a critical step in the implementation process at First Electronics. The environmental conditions in the facility included a significant amount of metal, not only

RFID tag selection was key to ensure that tags could be easily read when stacked on top of each other, or when placed within storage bins/totes and hidden from line of sight

in the equipment but, also in the cable assemblies themselves. Metal has a tendency to interfere with the RF frequency and requires specific tags and in this case some custom tuning to get the tags to perform appropriately. This extra R&D work paid off handsomely with the end result having excellent read range and high read rates for both the mobile and the fixed readers.

The A2B Tracking solution also included Fixed RFID Gateway readers from Impinj (xSpan) to automatically monitor their inventory and track the movement of items without human intervention. The fixed gateway readers were strategically placed in the facility to provide visibility when items were moving in and out of key production areas.

The A2B Tracking RFID platform is hosted in the cloud and instantly updates all of this asset and location data as it's being captured. The last known

location of each item is recorded in the database and added to the asset history providing a robust audit history of all transactions of the item, from cradle to grave. Furthermore, the secure, cloud-based tracking engine is centralized and can be accessed by users from anywhere -- providing the same valuable information to anyone with appropriate access.

A2B Tracking's Pro-Locate feature uses mobile RFID readers and smartphones to locate within minutes a single product that is hidden amongst hundreds spread across the factory floor.

Fixed RFID readers from Impinj are used to detect products autonomously as they move between locations, updating the A2B Tracking asset dashboard with the latest date, time and location

When necessary, workers can also take advantage of the A2B Tracking Pro-Locate functionality to find specific assets. Using the RFD8500 mobile reader and the A2B RFID Tracker app on the smartphone, employees can walk the production floor using the Pro-Locate feature.

The Pro-Locate feature hones in on the specific RFID tag and searches for only that one unique RF frequency and ignores all of the others. As the employee walks the facility the app provides visual and audible chirps to indicate a stronger signal and closer proximity - until the user is essentially on top of the missing item within minutes.

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> **The A2B Tracking RFID solution has provided incredible value for us. Having the information at our fingertips to know exactly where a particular job is currently located, how long it's been in that location in addition to all of the relevant history is very powerful.**
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> *- Alex Durso*

THE BENEFITS

The A2B Tracking RFID solution has added tremendous value to the entire FEC organization. With the combination of fixed RFID gateways and mobile RFID handheld readers the organization is able to maintain 100% inventory accuracy in their facility.

The real time production visibility has created noticeable improvements in the production process and has exceeded everyone's expectations by improving accountability, as well as communication, throughout the organization and with their customers.

Using a smartphone to manage the RFID reader made training fast and simple for any user responsible for inventorying or locating products throughout the day

The leadership team at First Electronics was surprised at the level of granularity that the RFID platform was able to provide. Not only could they monitor as jobs moved through the production process in real time -- but, they could also identify bottlenecks and locations

where jobs were being held up. The A2B Tracking platform exposed a number of process adjustments that have made significant improvements to their overall efficiency.

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> **We were blown away by the amount of visibility that A2B Tracking achieved. We expected to be able to see jobs as they moved through our production process -- but, the A2B Tracking system also provided visibility when jobs went missing or stalled in the process. Which added another level of value that we did not expect and really improved our operational efficiencies.**
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> **- Alex Durso**

THE RESULTS

First Electronics has been able to achieve total asset visibility with fast and efficient mobile inventories and automated fixed RFID reading. The A2B Tracking solution has significantly improved First Electronic's inventory accuracy and empowers the customer service team to share project updates with customers in real time.

As for the future, First Electronics would like to integrate the A2B Tracking RFID solution into their Oracle ERP to provide an even higher level of integration and allow for the information to be shared even more efficiently throughout the organization.

Alex Durso, AVP at FEC, monitors all customer jobs with a level of precision and visibility that provides a significantly improved manufacturing process and customer responsiveness.