

CASE STUDY

NEXT-LEVEL EFFICIENCY IN AUTOMOTIVE MANUFACTURING WITH INTEGRATED RTLS AND RUGGED MOBILITY

CUSTOMER

Ubisense

CHALLENGE

German tier-1 OEMs rely on real-time visibility to manage high-volume, fast-paced automotive production. Traditional tracking methods such as barcodes and RFID often fall short in accuracy and reliability, especially in complex, metal-rich environments.

SOLUTION

The integrated Durabook U11I tablet with Ubisense UWB technology delivers a rugged, mobile, and precise RTLS solution tailored for the demands of modern automotive manufacturing.



INTRODUCTION

In the high-stakes environment of automotive manufacturing, efficiency, accuracy, and real-time visibility are essential. German tier-1 automotive OEMs, known for setting global benchmarks in quality and innovation, are constantly looking for technologies that improve production performance while reducing operational complexity. To support these goals, Ubisense, a global leader in real-time location systems (RTLS), partnered with Durabook, a provider of rugged mobile computing solutions, to deliver a powerful and mobile high-precision tracking system. The solution was realized and coordinated by Logic Instrument, Durabook's trusted distribution partner in Germany, whose local expertise and integration capabilities were key to successful deployment.

At the heart of this solution is the Durabook U11I rugged tablet, integrated with the Ubisense Dimension4 UWB tag module. Together, they provide real-time location tracking in complex automotive production environments. This collaboration is transforming how German tier-1 automotive suppliers manage workflows, monitor high-value assets, and maintain traceability, supporting their transition into a fully connected and intelligent manufacturing ecosystem.

U11I Tablet





CHALLENGE

German tier-1 OEMs rely on real-time visibility to manage high-volume, fast-paced automotive production. Traditional tracking methods such as barcodes and RFID often fall short in accuracy and reliability, especially in complex, metal-rich environments.

To achieve precise tracking, a mobile platform with integrated ultra-wideband (UWB) technology was required. However, embedding the Ubisense Dimension4 UWB tag into a rugged tablet introduced several challenges. These included managing power, accommodating limited internal space, and ensuring the overall durability of the device.

"Integrating our Dimension4 UWB technology with the Durabook U11I tablet allowed us to deliver a truly mobile RTLS solution without compromise. The rugged design, customizability, and performance of the U11I made it possible to meet the exacting demands of automotive manufacturing environments. This collaboration enabled our customers to gain real-time visibility where it matters most—on the move, on the floor, and in the moment."

Chris Mitchell,
Senior Enterprise Account Director,
Ubisense

The solution also needed to support extended field use with long battery life, stable connectivity, and a design suited for hands-on use in industrial settings. Meeting these requirements demanded advanced engineering and a flexible approach to hardware customization. Durabook worked closely with Ubisense and Logic Instrument to deliver a rugged, mobile platform that seamlessly integrates real-time tracking with dependable performance in the most demanding environments.

SOLUTION

At the center of the solution is the Durabook U11I tablet, a highly durable, high-performance device designed for industrial fieldwork. The U11I was customized to incorporate the Ubisense Dimension4 ultra-wideband (UWB) tag module directly into its chassis. This integration eliminates the need for external tracking hardware, enabling a compact and efficient platform for real-time location and task execution.

Enhanced Durability and Reliability

The Durabook U11I is purpose-built for industrial use, certified to MIL-STD-810H and IP66 to withstand drops, vibration, dust, and water. Its 11.6-inch FHD display offers excellent visibility,

supported by four touch modes: glove, stylus, water, and finger for reliable input in any condition. Powered by an Intel® Core™ processor, the U11I delivers strong performance for real-time applications. Features like hot-swappable batteries, a fanless design, and Wi-Fi 6E and optional 5G/4G LTE ensure uninterrupted, flexible use across production environments. With the Ubisense Dimension4 UWB tag integrated in a chassis, which is directly attached to the U11I tablet, this solution functions as a single, ruggedized unit, engineered and tested for high reliability on the factory floor.

Improved Workflow and Mobility

Unlike setups that rely on separate computing and tracking devices, the integrated U11I solution enables operators to carry only one compact tool. This simplifies task execution on the move, whether scanning inventory, performing inspections, or tracking assets.

The absence of extra devices or cables improves ergonomics, reduces setup time, and minimizes the chances of misplacement or system misalignment. Operators can carry out multiple tasks such as data entry, system diagnostics, and process checks while location data is continuously transmitted in the background.



DURABOOK U11I WITH UBISENSE UWB DELIVERS A RUGGED RTLS SOLUTION FOR AUTOMOTIVE MANUFACTURING.

By combining mobility with location intelligence, production teams gain greater agility and real-time insight without disrupting their workflows.

Better Real-Time Sync

The close integration of UWB tracking within the tablet enables seamless data synchronization. Location information from the Dimension4 tag is directly linked with the applications running on the U11I, ensuring that position-based events are captured and acted upon instantly. This eliminates delays or errors that can arise from using separate devices, such as mismatched timestamps or dropped data. Whether identifying misplaced tools or verifying task completion in a specific location, the system responds in real time, enabling faster decisions and higher accuracy. Additionally, the integrated design reduces IT overhead. There is no need for pairing, external calibration, or separate updates. The solution runs as one system, managed through a unified interface.

Applications in Automotive Production

The RTLS-enabled U11I tablets play a central role in daily operations across automotive production lines. Key applications include:

- **Asset and tool tracking** to ensure the right equipment is available at the right station.
- **Work-in-progress monitoring**, providing visibility into the status and location of vehicles as they move through each production stage.
- **Process verification**, ensuring that tasks are performed in the correct sequence and location, supporting compliance and quality control.
- **Mobile diagnostics and maintenance**, enabling technicians to locate and service machinery quickly using live location data.
- **Operator guidance and training**, where tablets deliver real-time instructions and feedback based on positional context.
- **Personnel positioning for safety and efficiency**, with UWB functionality integrated into the tablet, the system also supports real-time personnel positioning, helping manufacturers enhance workplace safety and operational awareness.

RESULTS

The integrated solution has significantly improved efficiency and reliability across automotive production lines. The Durabook U11I, with its rugged design, ensures uninterrupted performance in harsh factory conditions, resisting dust, shock, and temperature extremes while maintaining consistent connectivity and responsiveness. By combining real-time location tracking and computing in a single device, the solution simplifies workflows and reduces the time spent searching for tools, equipment, and vehicles. Operators can complete tasks more quickly, while maintenance teams respond faster to issues, minimizing downtime. Real-time visibility also drives process optimization. Teams can track work-in-progress, verify task completion by location, and adapt quickly to changing production needs. This precision enhances coordination and reduces bottlenecks. In addition, the RTLS-enabled platform helps lower operational costs. It reduces losses from misplaced assets, cuts unnecessary delays, and supports leaner staffing and maintenance strategies. Together, these benefits deliver a measurable return on investment in high-volume manufacturing environments.