



# Driving Excellence: Mercedes-Benz's Safety Achievements and Digital Manufacturing Advancement



1055  
Anchors



500  
Trackers



65  
Forklifts



41  
Sensors



## Customer Overview

Mercedes-Benz, a global leader in automotive innovation, constantly seeks ways to enhance efficiency and safety in its manufacturing processes. This success story highlights the innovative safety solutions delivered by Trio Mobil, driving Mercedes-Benz towards its objective of establishing a zero-accident work environment, contributing to heightened operational efficiency and substantial cost reductions for the company.



## Safety Challenges

### Forklift- Door Collisions

The production facility, housing 28 warehouse doors, is at risk of encountering accidents that might result in a significant financial impact.

### Lack of Real Time Data

Without a digital infrastructure, tracking vehicle locations may lead to inefficiencies, causing delays in managing production processes.



## Project Achievements



### Enhanced Safety

Mercedes-Benz implemented a cutting-edge forklift safety system utilizing UWB technology to minimize human error and prevent possible forklift-door collisions. Potential accident risks at the gates were eliminated to reach the zero-accident goal.



### Streamlined Operations

The forklift safety system helped prevent possible accidents, reduced down-time and enhanced overall operations. RTLS solution has set the stage for a comprehensive digital transformation in Mercedes-Benz's end-of-line operations.



### Reduced Costs

Proactively preventing possible accidents not only spared the company repair costs and potential damages but also played a crucial role in minimizing expenses by eliminating production stoppages.





## Tailored Solutions for Achieving Operational Efficiency and Safety

After careful inspections by our seasoned teams on the field, we crafted and tailored innovative solutions utilizing IoT and UWB technologies, ensuring a unique and cutting-edge approach to meet Mercedes-Benz's safety requirements.

### TRIO SAFE Forklift Safety System



Mercedes-Benz incorporated our advanced forklift safety system to take precaution for reckless or inattentive behavior by forklift operators. This system features an accident prevention mechanism that operates independently of the forklift operator, reducing the likelihood of human error and lessening the occurrence of severe collisions at warehouse doors.



The forklift's gateway communicates with anchors and door sensors strategically placed nearby. If the door is not fully opened, the forklift is automatically slowed down, potentially averting severe collisions. This system aims to facilitate that the approaching forklift remains stationary until the door is fully opened.

### Digitizing Vehicle Production with RTLS

To meet project needs, we established a robust 8,500 m<sup>2</sup> indoor and outdoor tracking system. Integrated with UWB and P56 GPS trackers, complemented by 114 anchors and 2 gateways, the system provides precise vehicle location tracking with a deviation of 20-30 cm. It automates the calculation of essential parameters such as vehicle wait times, routes, and overall station durations.



Integration with SAP has eliminated manual data entries, allowing seamless transfer of vehicle stage information from the IoT infrastructure to ERP. Additionally, GPS-enabled trackers simplify locating vehicles in the parking lot, offering efficiency in managing vehicle positions.

Mercedes-Benz's commitment to safety and efficiency is evident in successfully implementing tailored solutions. The forklift-door collision prevention system **aimed to minimize accidents, leading to potential cost savings and operational enhancements**. Simultaneously, the RTLS tracking solution **digitally transformed** the Finish Department, providing **real-time visibility** into vehicle locations and **streamlining processes**.