Solutions

Vehicle-to-Production line Communication

AGV/AMR

Problem to be solved

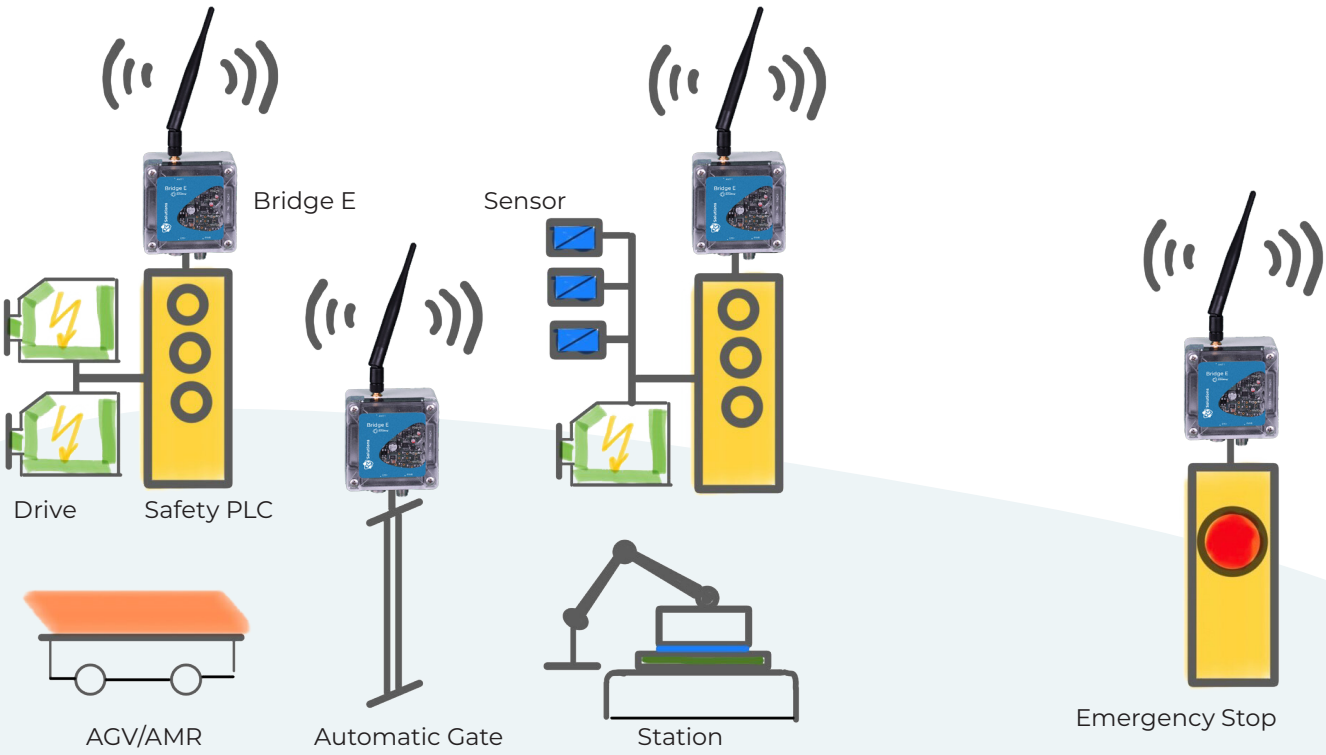
AMR needs failsafe communication to stationary PLC of production line when entering the “production zone”. Roaming the shopfloor AMRs operate in failsafe mode.
When entering certain areas for interacting with machines they need to slow down - loosing their ability to operate in failsafe mode.
A functional safe alternative is required that allows for coordination between the robot and the machine.

Challenge

Standard WLAN is not good eough for wireless failsafe communication - in particular in a centralized topology with access points and clients.

Wireless Solution

Bridge E allows for a functional safe wireless point to point link between the vehicle and the machine.
During approach the link could be established and taken down again upon departure.
PROFIsafe over PROFINET or SafetyNet p



Data Communication for Suspended Trains

Replacement of “mechanical” data connection

Problem to be solved

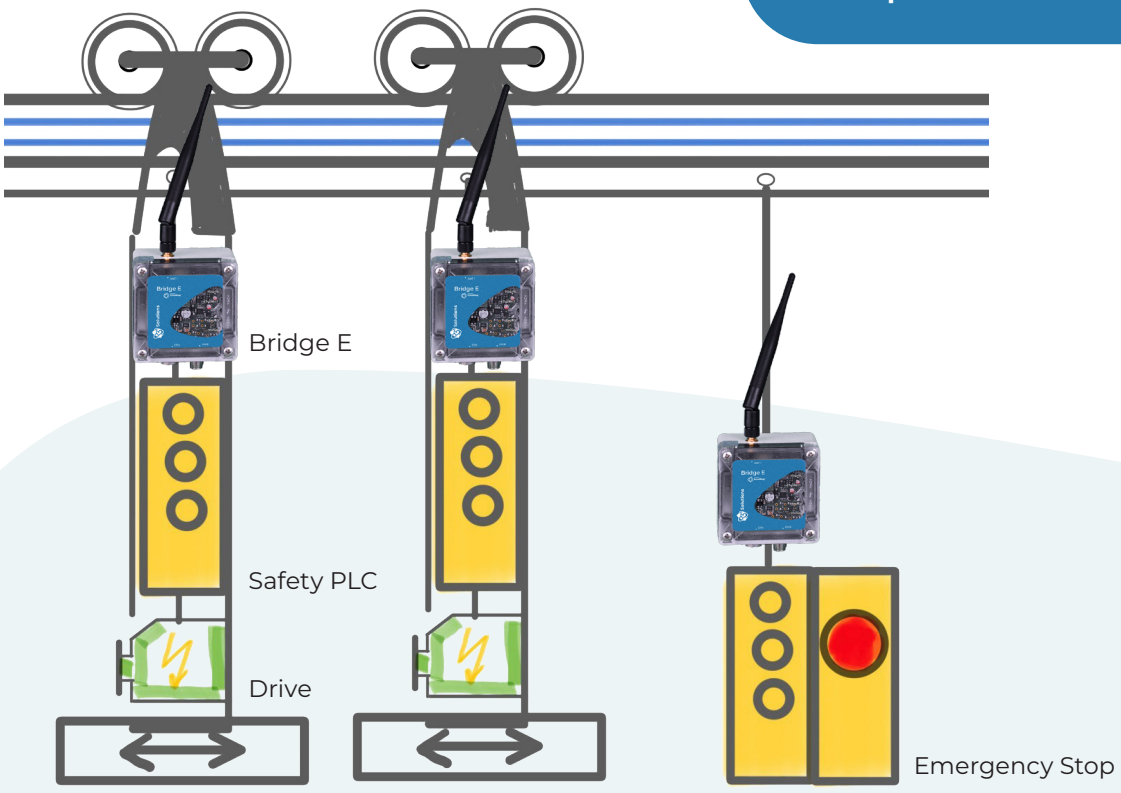
Suspended trains depend on wireless data through slotted waveguide profiles for control and functional safety.
Long travel distances require several RF feeder points and as a result separation of adjacent radio sections.

Challenge

Uninterrupted movement requires seamless roaming.

Wireless Solution

Bridge E carries both control and functional safety data.
Triggered roaming of Bridge E offeres close to zero transition between sections for continoues and uninterrupted movement and thas excellent productivity.
PROFIsafe and LJU UDP-based control protocol.



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Use of AGVs for assembly line flexibility

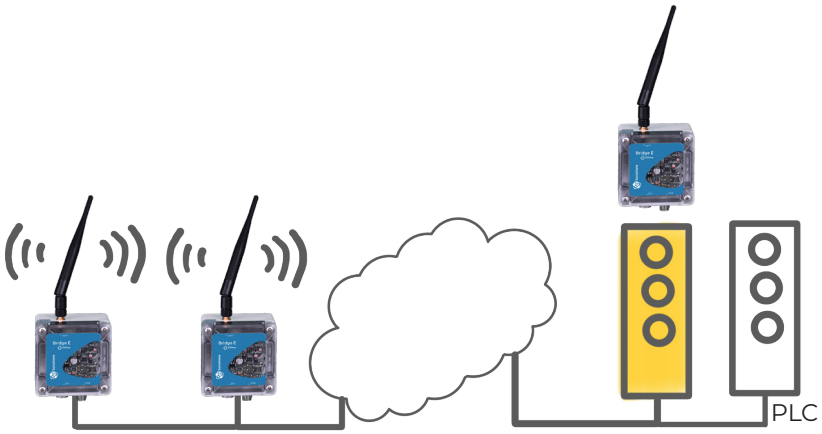
AGV/AMR

Problem to be solved

Skillets moving through a production line are required to keep a pre-defined separation distance. In addition an emergency stopping function has to operate in a functionally safe manner.

Challenge

Control and Safety-related data traffic needs to be transmitted continously for several applications in parallel. Uninterrupted, continous movement of AGVs is a prerequisit for high productivity and optimum production output.



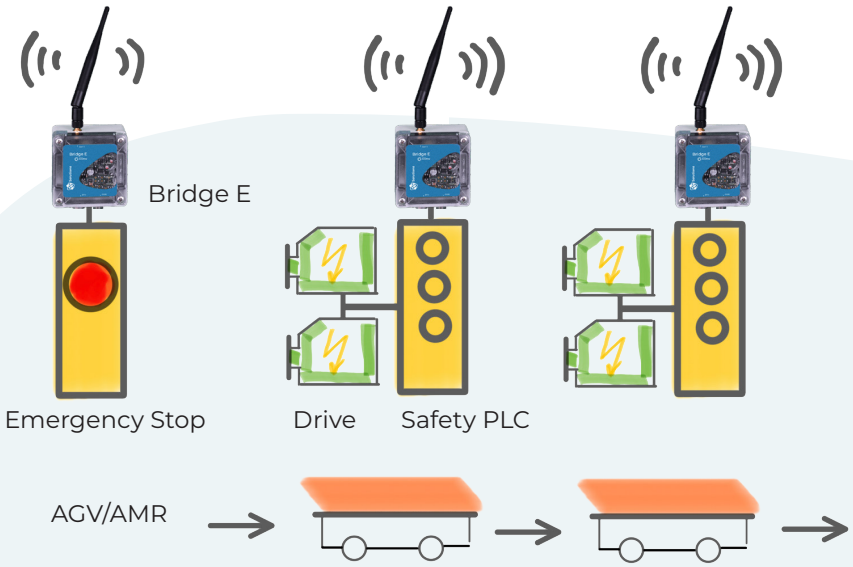
Wireless Solution

Control: Bridge E enables vehicles (AGVs) to share low-latency controls amongst them and thus move in “lock-step”.

PROFIsafe over PROFINET

PROFINET cycle time of 32ms.

Functional Safety: Wireless Emergency Stopping for the “platoon of vehicles” could be included.



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Vehicle-to-Vehicle Communication

AGV/AMR

Problem to be solved

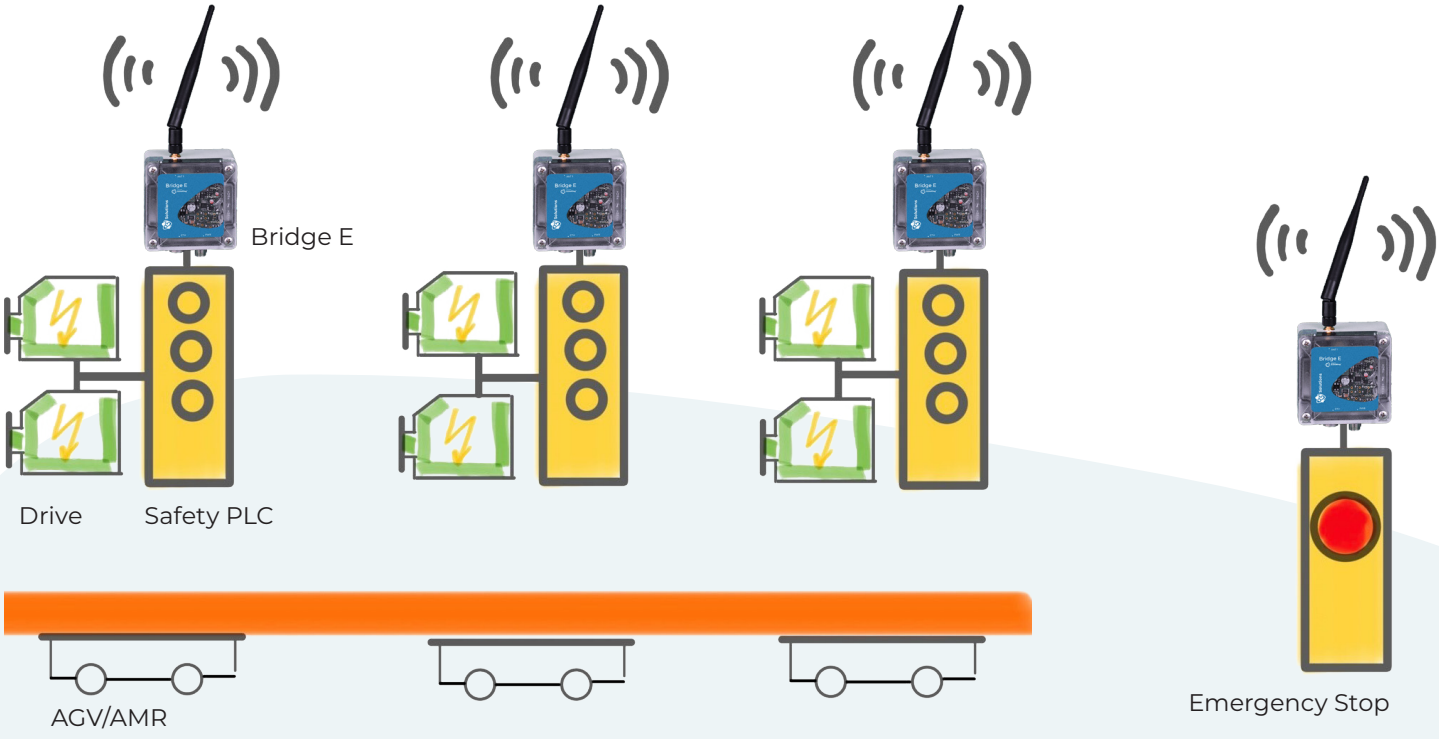
Oversized payload shall be transported by two or more AGVs moving in lock-step.

Challenge

If drives of cooperating AGVs are not synchronised in real-time, the whole application fails.

Wireless Solution

Control: Bridge E enables vehicles (AGVs) to share low-latency controls amongst them and thus move in “lock-step”.
PROFIsafe over PROFINET
PROFINET cycle time of 32ms.
Functional Safety: Wireless Emergency Stopping for the “platoon of vehicles” could be included



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Carousel

Replacement of “mechanical” data connection

Problem to be solved

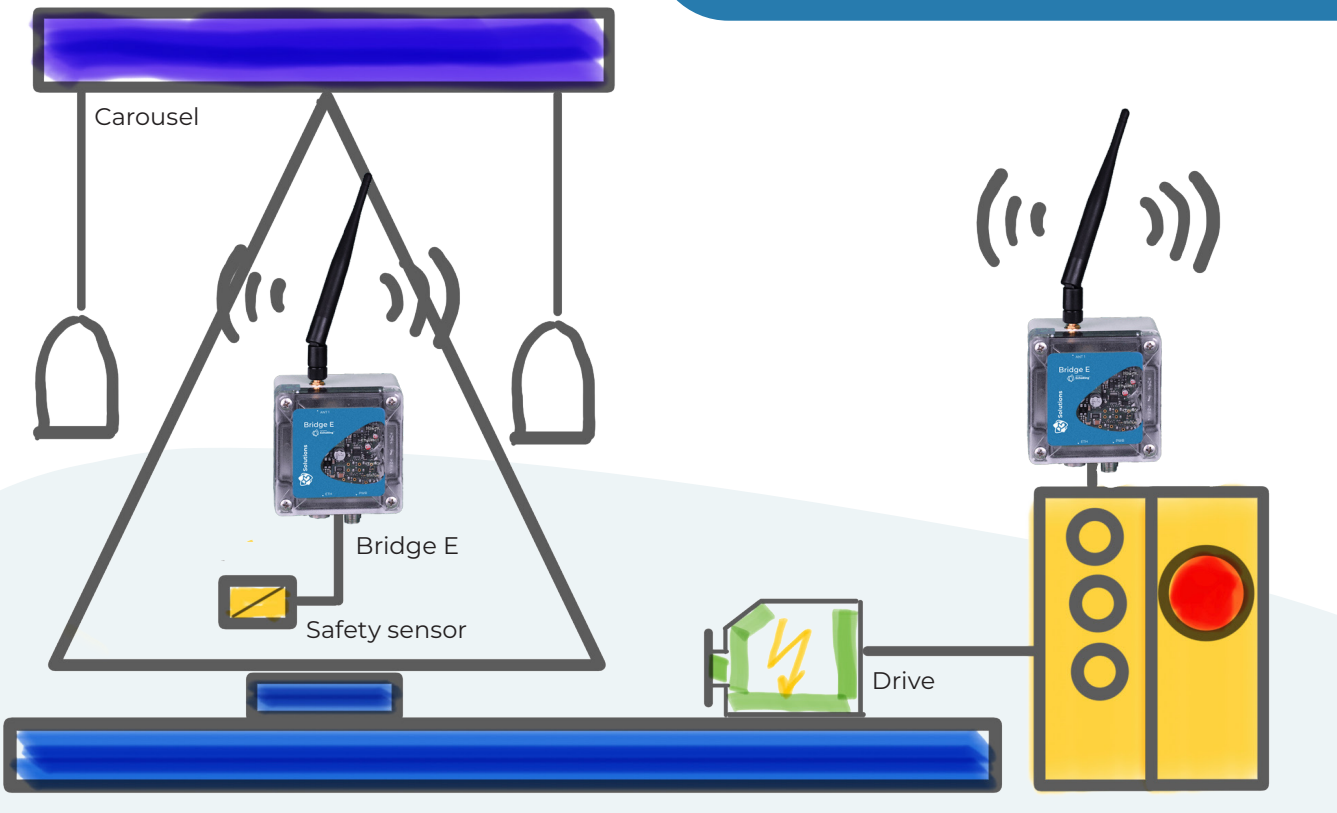
Outdated PLC and obsolete wireless connectivity solution needed to be replaced. Wireless data is the reliable alternative to data over slip ring(s). Same applies for green-field deployments.

Challenge

Decentralized (wireless) sensor data acquisition for a functionally safe appliction.
Maintenance crews cannot exchange any parts without the need for TÜV-recertification.

Wireless Solution

Safe sensor I/O ports are being connected to a Pilz PSS4000 Safety PLC utilizing **SafetyNet p over wireless** with the help of Bridge E.



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