

R3 Communications



Source / Link: <https://www.r3.group>

Technology area:

- Artificial Intelligence
- Big Data
- Digital Twins
- IoT and IIoT
- Cybersecurity
- VR/AR
- Robotics
- Automation
- System Integration
- Smart Sensors
- Additive Manufacturing
- Other: Connectivity

Type of good practice:

- Company
- Project
- Initiative
- Programme
- Other

Target market segments:

- Discrete (smart) manufacturing
- Automotive
- Aerospace
- Metal processing
- Consumer goods
- Pharmaceuticals and chemistry
- Food and agriculture
- Health
- Textiles
- Others

Summary:

R3 develops WiFi-based ultra-reliable low latency communications (URLLC) technology to meet the highest industrial requirements. Their patented solution EchoRing is a deterministic and decentralized wireless network that delivers cable-like reliability and performance. The result of extensive research and development, EchoRing is plug and play (PnP), 100% software-based, and compatible with standard industrial interfaces and commercial off-the-shelf (COTS) hardware. Representing a keystone technology for IoT and Industry 4.0, EchoRing enables fast and easy deployment and system changeovers while greatly reducing the errors and maintenance downtimes that currently result from wear and tear on fragile components. R3's solution opens the door for highly optimized production layouts as well as innovative new business models and product concepts.

Detailed description

In manufacturing and industrial environments ensuring that all machines and equipment are operational, and working is of the highest importance since downtime usually leads to significant financial losses. Therefore, due to the high demands of real-time capability, reliability and availability, cable technologies continue to dominate automation technology primarily due to their robustness and reliability. However, both internal and external cables, trailing cables and tool connections wear out due to the constant movements of robots and other types of machinery, resulting in wear, malfunctions and defects. This in

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turn interrupts the communication, which then leading to the industrial processes stopping and most often this affects the company financially in a negative way. R3's EchoRing solution could address this challenge by acting as an emergency kit. In other words, when the wired connection fails, EchoRing and the Robot Emergency Kit come into play as an easy-to-install emergency kit until the next scheduled maintenance takes place. Ultimately, this significantly reduces machine downtime, with undoubtedly improves the financial performance of the company. The R3 Robot Emergency Kit can be used for all common robots such as ABB, FANUC and KUKA.

Beneficial Results

Using R3's EchoRing and Robot Emergency Kit can benefit the companies using the solution in a few ways. Firstly, in case of downtime due to a worn-out cable or other connectivity component, the industrial processes can be restored almost instantly by switching the connectivity method to R3's EchoRing. The solution can be used as long as needed and until the defective cables can be replaced, which ultimately also allows the company to be flexible when it comes to scheduling the maintenance.

Secondly, in large industrial and manufacturing areas, finding the faulty cables or components could be extremely time and resource consuming. EchoRing can be used to narrow down and localise the faulty connection or cable, which again has the potential to save a lot of time during maintenance.

Last but not least, EchoRing can also be used on-demand, which significantly facilitates the plannability of repairs and maintenance. In other words, in some cases, a planned maintenance could be conducted without the need to stop operations, simply by choosing EchoRing as a communication route instead of the cables.

Access date: 08/02/2022

Provided by: INI-Novation GmbH

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