INDUSTRY 4.0

Multipurpose Radars

Globalization and competitiveness are forcing companies to rethink and to innovate their production processes. It means using new production technology, new machinery, new materials, and new inputs. The industry is undergoing transformation and evolution toward complete digitization, applying the intelligence of production processes to ensure high efficiency and increase quality. We are in the fourth industrial revolution where knowledge has become a crucial input.

A4Radar Sensors allow digital transformation processes, connecting man and technology to improve efficiency and increasing productivity to optimize management on collaborative value chains, becoming factories in highly connected entities, with different sensors being able to interact with one another and adjust asset performances.

INDUSTRY 4.0 SOLUTIONS

A4Radar Industrial Solutions drive autonomous and highly cognitive ecosystem, providing radar-based sensors that enable the collection of data for learning systems and automatic decision making with acquisition and processing in real time to reliably detect moving or stationary targets, enable manufacturers to rapidly respond to shifting environment, adapting their resources, turning processes more efficient and profitable.

Radar Systems proposed are optimized for high accuracy and ultra-low power, delivered as one package solution, will enable easy integration as a sensor into any customer application or as a stand-alone module, providing robust performance against interferences and remaining uncompromised by adverse ambient environmental (smoke, fog, dust, mist …) or poor light conditions
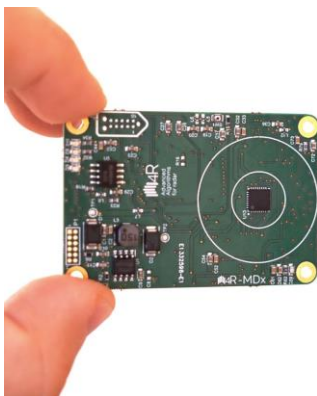
A4R Radar Key Performances

- FMCW Radars; ISM bands (no licensing required)
- Short and Medium Range (up to 200m)
- No maintenance – No recalibration
- Multitarget
- Real Time Processing
- High frame rate (thousands of fps)
- Resolutions up to cm, Accuracy <1mm
- Ultra-low power < 1Watt@100% work cycle

A4R Industry 4.0 Applications

Distributed Robotics Radar Sensing: allowing areas of safe coexistence between humans and robots.

Indoor Positioning System: providing a complete digitalized map for positioning and maneuvers.

Maintenance and Infrastructure Monitoring Systems: Inertial vibration and movement detectors, to optimize and prevent failures, detecting structural health using real time data.

Smart Waste Container/Tank Level: fill level control to make waste and liquid/solid management convenient and efficient.

Collision Avoidance (Autonomous Vehicles): Obstacle detection, approach velocity and distance measurement for safety transport of goods.
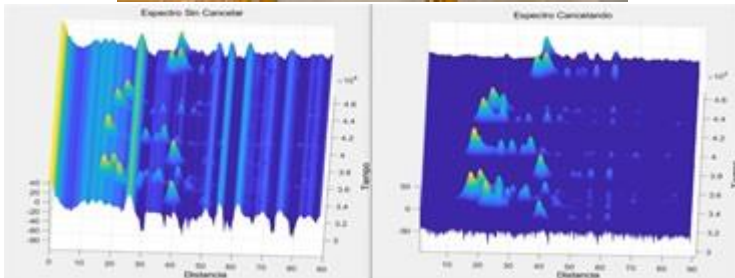
INDUSTRY 4.0
Use Cases

- ✓ Indoor Positioning System
- ✓ Distributed Robotics Radar Sensing
- ✓ Predictive Maintenance and Monitoring Systems

Indoor Positioning System

Radar-based sensors that enable the collection of data for Building Information Modeling (BIM) and Digital Twin Platforms

Distributed Robotics Radar Sensing

High-resolution radar systems allow to create areas of safe coexistence between humans and robots. Radar sensors provide data for the detection of static and moving objects, as well as generating alerts of human presence in potentially dangerous environments.

Maintenance and Infrastructure Monitoring Systems

High resolution radar systems are capable of monitoring and detecting situations of improper operation or breakdown, by non-contact sensing in real time of vibrations and displacement of parts and systems, generating alarms that allow optimization and prevention of failures, detecting structural health of the element under supervision.