

Radicos



Source / Link: <https://www.radicos.com/> and a personal interview

Technology area:

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

Type of good practice:

- Company
- Project
- Initiative
- Programme
- Other

Target group:

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

Summary:

Radicos is an OEM company founded in 2011 to develop, market and globalize the TWIN technology. TWIN stands for the Two Wire Integrated Network. It is the world's first integrated digital asset monitoring system. The TWIN System is a powerful and fault-tolerant sensor-actuator-network optimized for Industrial IoT applications in harsh environments. It is especially designed for monitoring assets of up to 10km². TWIN is able to collect data from thousands of sensors over kilometre distances, process them locally or in the cloud, and reversely drive actuators at the site of the sensors. At its core is the patented Computer-In-Cable-Technology™.

TWIN is a major building block for the Industrial IoT. Consequently, it may be used across a wide range of industry sectors, one of which is agriculture and horticulture. Population growth and urbanization drive a permanent increase in global food production. As a consequence, the size of production facilities such as greenhouses are significantly growing. The average surface of a vegetable greenhouse in The Netherlands is currently more than 5 soccer fields. Smart and Digital Farming enables the operation of such massive production plants. TWIN provides a unique solution to monitor the climates in greenhouses and livestock housing. Additionally, there are many more agricultural potential monitoring applications in Agriculture, such as temperature and gas monitoring in silos or temperature monitoring in warehouses and cold storage.

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Detailed description

Deploying the TWIN Greenhouse & Livestock Housing Monitoring System leads to creating the perfect climate for the welfare, health and quality of plants and livestock. Radicos' tailor-made climate monitoring solution for greenhouses and livestock housing boosts smart farming to a new level and enables farms and greenhouse operators to use hundreds of sensors instead of just a few at an affordable price. By using those sensors, organizations benefit from a range of key features that the system offers. On the one hand, by using the TWIN system and the data from the sensors, the operators receive complete information, which can then use to create the perfect climate for the crops and the livestock. Mastering the climate is a complex task and absolutely decisive for the welfare, health and quality of plants and livestock.

On the other hand, the data that stems from the system allows farms and greenhouses to save money by empowering them to make more educated and accurate control measures, which lead to significant savings in energy and materials, and to ultimately increased production yields.

Currently the TWIN Greenhouse & Livestock Housing Monitoring Solution covers the measurement of: Temperature Humidity CO₂ (carbon dioxide) NH₃ (ammonia) H₂S (hydrogen sulphide). In addition, Radicos has existing concepts for the integration of further sensors like airflow and light sensors.

Beneficial Results

Implementing Radicos' solution could be very successful and beneficial not only for farms and greenhouses but also for other organizations from a number of different industries, such as maritime, mining, minerals & cement, transportation, oil & gas, energy & utilities etc. Some of the benefits that are usually achieved are:

- Easy and cheap installation of the sensors in comparison to other alternatives
- TWIN works completely reliable even in the dustiest atmosphere or at relative humidity levels above 90%, which makes it perfect for challenging environments
- Visualization: The TWIN Dashboard comes with high resolution heat- and humidity maps. The value of each single sensor is easily accessible. Furthermore, the dashboard provides many kinds of configurable graphs and diagrams, including alarms and SMS alarm notifications to the operator's mobile phone
- Ultra-low power consumption of the TWIN system
- The system is deployed via a single, fault tolerant continuous cable (no star wiring required)
- Data can be collected from any digital source, typically via a sensor or interface to an existing but not yet connected component or machine
- Connect thousands of digital sensors with multi-sensor support and high-speed polling (3rd Party Support, 1000 sensors/s with 12 bits resolution)
- Each sensor node can be used as an actuator via e.g., a photocoupler
- Lightweight twisted pair cable (20-60g/m)

Access date: 15/07/2021

Provided by: INI-Novation GmbH

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