

FRAUNHOFER INSTITUTE FOR INTEGRATED CIRCUITS IIS

s-net® SmartTracking

COMBINING TRACKING WITH LOCAL APPLICATION LOGIC

The s-net® SmartTracking technology combines communication, tracking and data logging with application and process logic – all on a single platform. s-net® SmartTracking provides the key components for complete digitization of processes and value chains.

Applications range from monitoring of ambient parameters to parts bin tracking to local process control in digital value chains. Key features of the s-net® SmartTracking technology are low installation costs and long maintenance intervals, due to the self-organizing network infrastructure and power-efficient wireless connectivity of the s-net protocol.

s-net® SmartTracking – Pioneering Sensor Network Technology for Industry 4.0 Applications

Based on a protocol with adjustable parameters, the s-net® technology for extremely power-efficient wireless sensor networks forms the technological basis for s-net® SmartTracking. While the wireless nodes in a sensor network are interconnected, each device acts as an independent system. They can be deployed in large numbers and use sensors and actuators to collect, process and exchange information and to perform actions.

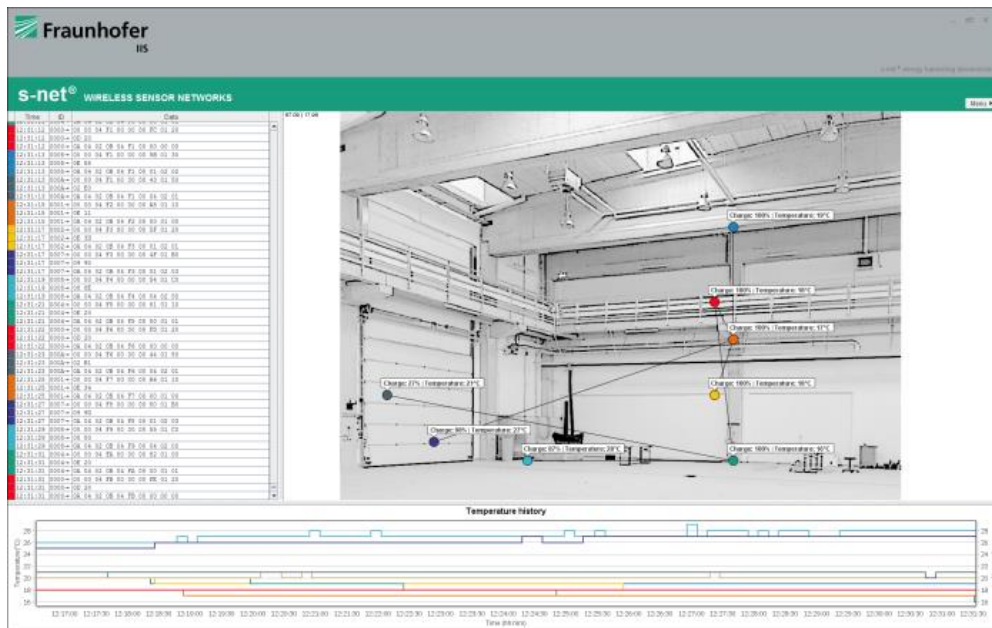
Importantly, the s-net® SmartApplications programming concept allows users to easily implement tailored applications on sensor nodes with no need to engineer specific software.

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The capabilities of s-net® SmartTracking range from ambient monitoring to container tracking to local application of process rules.

Application Examples

Healthcare:

- Tracking of medical equipment
- Temperature monitoring of blood products
- Measurement of patients' mobility in various environments
- Mobility monitoring in dementia sufferers

Smart containers:

- Tracking across production, warehousing and transport
- Fill level sensing and parts counting (automated kanban)
- Temperature, humidity and stock monitoring, etc.
- Ability of containers to perform actions (process logic, support in dealing with process errors):
 - "I'm overheating."
 - "I've been forgotten."
 - "I've tipped over."

Support for assembly processes:

- Tracking of components along assembly line
- Components containing assembly plans
- Support to workers through signaling of required parts
- Traceability and documentation
- Ability of objects to perform actions thanks to process logic
- Support in dealing with process errors