

Sensors2Net – Industry 4.0 in water management

“ *Sensors2Net – wireless data transfer from sensors to server with realtime monitoring and AI-aided analysis*

Sensors2Net solution

- ✓ Urban water circularity management
- ✓ Urban waterways and canals (real estate valuation)
- ✓ Water and sewage water monitoring
- ✓ Water pump shafts monitoring (predictive maintenance)
- ✓ Water loss monitoring (Non Revenue Water Savings)
- ✓ Wastewater, desalination and materials-recovery facility design and maintenance
- ✓ Urban and rural aquaculture. Urban vertical farms control & maintenance



Sensors2Net benefits - urban

- ✓ Superior accuracy and analysis for the design & build of smaller, more efficient, community-friendly, water facilities.
- ✓ Allows for urban integration of all municipal and industrial water needs.
- ✓ Allows for superior urban water quality in canals, ponds, creating maximum commercial real estate value.
- ✓ Allows municipalities maximum water and financial savings through eliminating system water waste.
- ✓ Provides even the largest communities with one, easy to use application to maximize circularity and accurate planning in all their water needs.



Sensors2Net benefits – rural and suburban

- ✓ Suburban and rural water value management integrated into one system
- ✓ Creates maximum yield and profitability in water reuse and aquaculture, including algae farming, fish farming and resource recovery.
- ✓ Allows for previously unseen accuracy in quality and biological monitoring of large, rural water bodies such as rivers and lakes.
- ✓ Creates a highly accurate and secure system of monitoring for maximum water security.





Challenges and solutions

Challenges

- ✓ Many sensors are operating in one location, over great distances
- ✓ GSM/LTE service is not cost-effective, insufficient or not available
- ✓ Installation of cable network would require huge investments
- ✓ Low operation and maintenance costs are essential

Solutions

- ✓ Quick and easy installation, even on „white spots on the map”
- ✓ Simultaneous handling of large number of sensors in large area
- ✓ Low operation and maintenance costs
- ✓ Server-side data processing with AI BIG DATA analysis





Sensors2Net system elements

- ✓ S2N Smart Node developed for data collection and their wireless transfer. For standard sensors (pH, DO, Orp, etc.) and connections (Modbus, 4-20mA, etc.)
- ✓ Wireless communication from S2N Smart Nodes to server via LoRa or NB IoT
- ✓ Dedicated local or cloud server or own server
- ✓ Big Data analysis by BI/AI for trends and condition and predictions
- ✓ Visualisation, technical suggestions, strategy support

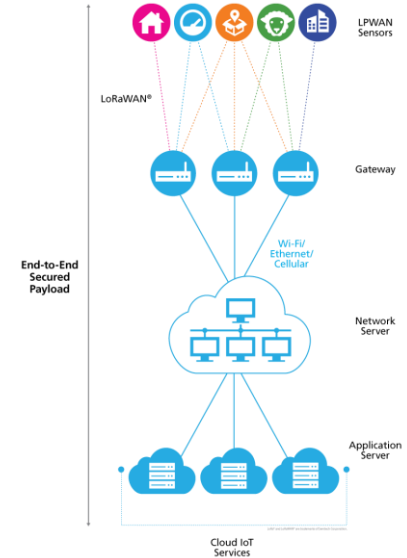




The connection – LoRaWAN and NB-IoT

Long range, low energy consumption network technology

- ✓ Simple, flexible, user friendly
- ✓ Operates with extremely large number of connections
- ✓ Effective solution on areas with poor infrastructure
- ✓ Modern and reliable data protection
- ✓ Low costs, low energy needs
- ✓ Long life battery operation





Sensors2Net elements





S2N Smart hydrant

S2N Smart Hydrant Light

Event driven monitoring:

- ✓ open – closed status
- ✓ identification of water intake:
legal – illegal
- ✓ alarm functions
- ✓ external measurement

S2N Smart Hydrant Master

S2N Light functions, plus:

- ✓ network pressure measurement
- ✓ detection of water load
- ✓ detection of water unload

S2N Smart pressure monitoring device

- ✓ shaft-deployed version
- ✓ network pressure monitoring
- ✓ Special data conversion

Smart hydrant





Pressure zone management by S2N

- Monitoring and optimization of pressure in the zones
- Reduction of network load, safe and efficient network operation
- Leak detection and failure alarm
- Realtime information on system's operation
- Trend and user habit analysis
- More efficient workforce management – repair and maintenance



Artificial Intelligence aided data and trend analysis.



Water quality monitoring

S2N Smart monitoring – custom made

S2N fixed measurements as per customer needs:

- ✓ Standard sensed measurements
- ✓ Integration of already available sensors
- ✓ Wireless data collection and communication
- ✓ Set up of new measurement sites
- ✓ Data visualization and analysis

Out-of-the-box: S2N Smart Buoy

- ✓ temperature
- ✓ dissolved oxygen
- ✓ conductivity
- ✓ ORP
- ✓ pH





Water and waste water management

- ✓ Monitoring of water and wastewater systems
- ✓ Measurement of physical and chemical parameters
- ✓ Monitoring of measurement sites scattered over a large area
- ✓ Data collection as workflow requires
- ✓ Energy monitoring of equipments
- ✓ Supervision of the effectiveness of filter systems
- ✓ Data transfer without cabling, GSM or internet connection
- ✓ Low operational cost, customized data visualization

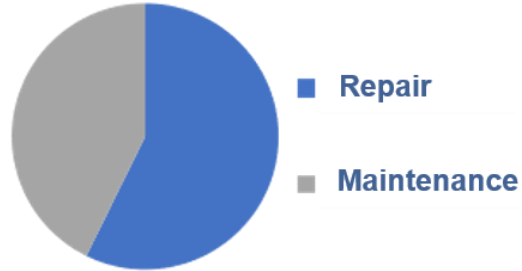




S2N S2N Sewage water pump shaft monitoring

Measured parameters:

- ✓ pump shafts' operating time and energy consumption
- ✓ pressure values
- ✓ water flow
- ✓ water level
- ✓ operating condition



Result:

- ✓ monitoring of operation and condition
- ✓ optimized maintenance and repair
- ✓ predictive maintenance vs preventive maintenance



Easy integration into already existing systems!

Contact us

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