Althen Smart Solutions

End-to-end wireless monitoring systems to deal with the challenges of industries

We provide resolution and awareness on certainties

ALTHEN
SMART SOLUTIONS

End-to-end industrial iot solutions for the future

What can industrial IoT do?

The Industrial Internet of Things (IIoT) is a variant of the IoT environment that is focused on manufacturing and the industrial sector. To optimise production and application processes, large amounts of data and status information are collected and processed in end-to-end analytics solutions. For your company to benefit from this, new opportunities for value creation arise from the IoT solution.

The data obtained should, for example:
- Simplify work processes
- Make maintenance & services plannable in advance
- Reduce manual intervention
- Improve operational efficiency
- Increase product availability
- Increase product quality
- Reduce costs

First carry out a precise inventory and needs analysis inside your company!
Look for solutions that already offer you added value in certain areas of application.

Althen Industrial IoT

Althen develops produces and implements custom hardware solutions in combination with user friendly dashboards that provide valuable information to the customer. By implementing these solutions and coupling them with our secure back-end, we help our customer to get started. This helps us to solve our customers' problems, whether it's their goal to reduce costs, improve quality, increase safety or control their operations.

This will enable you to improve your operations and helps you to make better data driven decisions. Consequently, our customers have reduced their monitoring costs by up to 86%.

PIONEERING MEASUREMENT AND SENSOR SOLUTIONS
Our in-house production and design department, customer specific sensors and measurement systems are created for almost all applications in many different industries. Our experienced specialists advise you professionally and with all required necessary details.

YOUR BENEFITS

- Industry specific knowledge about requirements and certifications
- Development of integrated sensor solutions (also for low volumes)
- Distinctive OEM development trajectories
- Lean project management for OEM and T&M applications
- End-to-end solution development
- Co-creation with end-users
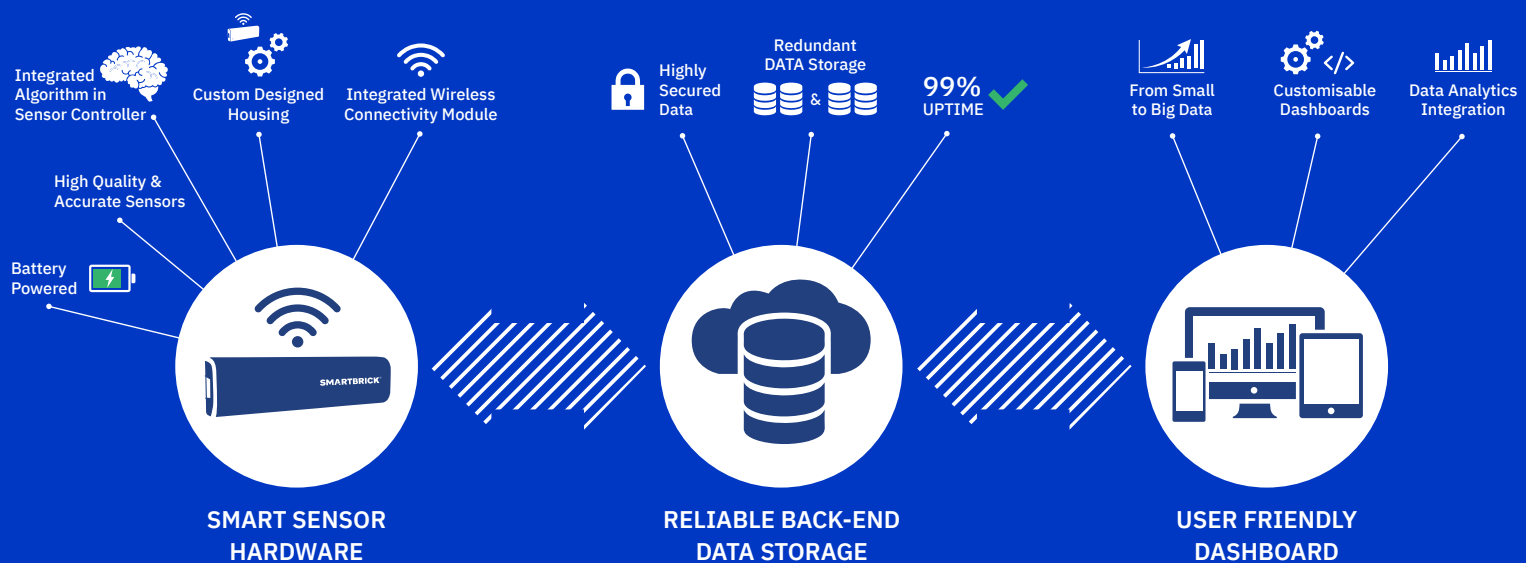
ADDITIONAL INFORMATION
- althensolutions.com/about-us

We love solving challenges

Our Industrial IoT provides continuous, remote and automated monitoring, resulting in cost reductions, quality improvements, and better processes.

Your end-to-end Industrial IoT solution partner

Integrated Algorithm in Sensor Controller

Custom Designed Housing

Integrated Wireless Connectivity Module

High Quality & Accurate Sensors

Battery Powered

Highly Secured Data

Redundant DATA Storage

99% UPTIME

From Small to Big Data

Customisable Dashboards

Data Analytics Integration

SMARTBRICK

SMART SENSOR HARDWARE

RELIABLE BACK-END DATA STORAGE

USER FRIENDLY DASHBOARD

From hardware expert to full service IoT partner

END-TO-END SOLUTION

A custom solution to your problem. Fully integrated with a data collecting dashboard to monitor your machinery, infrastructure or hardware.

DATA-AS-A-SERVICE

Analyze data from one of our innovative hardware solutions to reduce monitoring costs, improve your operations and data driven decisions.

CUSTOM DEVELOPMENT

A completely new, fully wireless, IoT measurement solution can be developed and installed from scratch within 3 months.

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The perfect Industrial IoT solution for your company

When is digital data useful?

The collection and analysis of digital data offers advantages especially in case of increasing networking and remote monitoring of decentralised structures. Structures such as infrastructure facilities, buildings, machines, and installations. Many structures can be monitored simultaneously at many individual measuring points.

The data and status information are collected in real time, stored on a central server and evaluated by software. From the analysis over a longer period of time, changes in the structure as well as material fatigue can be recognised. In addition conclusions can be drawn to prevent further damage, possible future failure, and for instance possible unplanned downtime.

What is your measuring task exactly? For example, do you need just an alarm signal? Or do you have many decentralised structures, and a large number of analytical tasks?

Define your requirements! Too much data ties up valuable resources in your company. Our experts take care of the specific settings of the measuring ranges and the settings of adjustment parameters. As well as possible mathematical calculations and alarm settings.

How do you find the right IIoT solution for your company?

An IIoT solution must fit your company and its goals. There is no standard solution that covers all the aspects of every project. Therefore, a good analysis of the requirements and your goals is important, especially at the beginning. The appropriate components must be selected and combined from a multitude of suppliers and products. We develop practicable solution proposals for your ongoing operation, which can be implemented quickly and with manageable effort. Of course, we also monitor return on investment estimates and costs very closely.

In order to achieve the best possible result for you, we work together with selected partners who contribute their special know-how. We take care of the data acquisition, connectivity solutions, as well as remote configuration, evaluation software and dashboarding.

DO YOU HAVE A COMPLEX MEASURING ISSUE? PLEASE CHALLENGE US!
With our multi disciplinary team and long-term sensor experience, we haven't found a measurement problem that we couldn't handle yet. Therefore, we dare you to challenge us with your measurement complications. It doesn't matter if the problem seems too big or hard. We say what we do and do what we say. With our mix of teamwork, hard work, dedication and experience, we are positive that we can make the impossible possible!

Structural Health Monitoring

Industries

Machinery

Renewable Energy & Fossil Fuels

Automotive & Heavy Machines

Civil & Construction

Maritime & Offshore

Health Care & Medical

Railway & Hyperloop

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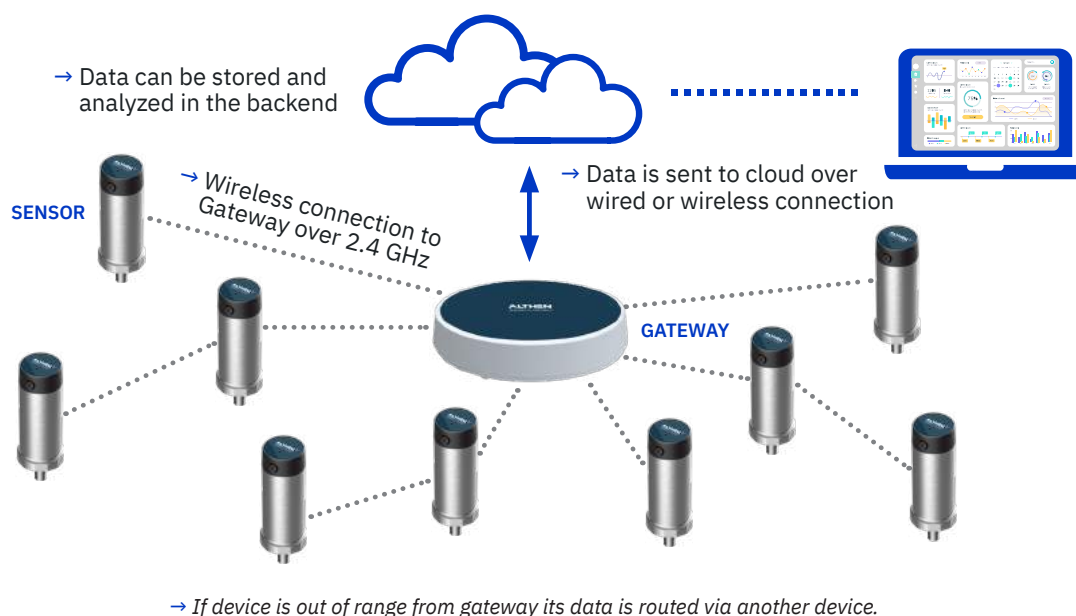# Wireless vibration and temperature monitoring

Excessive vibrations or high temperatures are often caused by component imbalance, misalignment, wear or improper equipment use. They can be early signs of impending machine failure. These can now be identified effortlessly without manual measurements or expensive wired equipment. The wireless measurement points measure triaxial vibrations and surface temperatures of rotating equipment such as pumps, motors and compressors.

FROM WIRELESS NETWORK TO ANY CLOUD PLATFORM
We provide a smart, industrial IoT measurement solution for condition monitoring applications.

The system consists of wireless, battery-powered industrial measurement nodes and a gateway for communication to send data to the cloud. The nodes send data directly or via other nodes to the gateways.

Data can therefore be sent to any cloud platform through a wired or wireless network. This way, you quickly and easily increase the availability of your machine. In addition, you can prevent breakdowns, better anticipate preventive maintenance, and extend the technical life of your machines.

→ Data can be stored and analyzed in the backend

SENSOR

→ Wireless connection to Gateway over 2.4 GHz

→ Data is sent to cloud over wired or wireless connection

GATEWAY

→ *If device is out of range from gateway its data is routed via another device.*

YOUR BENEFITS

- Cost-effective method for continuous acquisition of vibration and temperature data for predictive maintenance of a large number of rotating machines.
- Easy installation on existing or new machines - completely without wiring.
- Suitable for demanding industrial conditions.
- Dust and waterproof and able to operate in a temperature range from -40°C to +85°C.

ADDITIONAL INFORMATION
- althensensors.com/custom-solutions/iiot-custom-sensor-solutions

Wireless condition monitoring in practice

Application examples from our partners

COST-EFFICIENT SOLUTION TO CAPTURE VIBRATION AND TEMPERATURE DATA ON FULL OPERATIONAL PUMPS
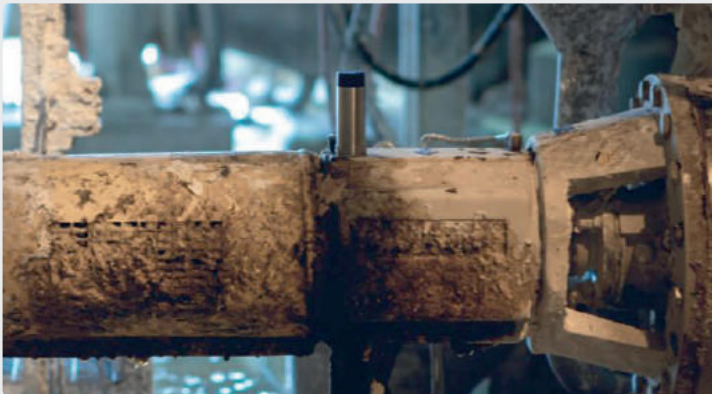

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Wireless Industrial IoT Vibration Sensor Node

Wireless IoT Vibration and Temperature Measurement Solution.

EASY DEPLOYMENT TO EXCISTING MACHINERY. FULLY WIRELESS, NO NEED FOR WIRING, PLUG AND PLAY

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Industrial IoT Gateway

For a wired or wireless connection of sensor nodes to backends.

INDUSTRIAL ATEX NODE DESIGNED FOR DEMANDING CONDITIONS (EXPLOSION PROOF ENVIRONMENTS)

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Wireless Industrial Iot Vibration Sensor Node 6 ⟨Ex⟩

Wireless IoT Vibration and Temperature Measurement Solution.

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Other IoT sensor solutions

SmartBrick

Smart structural health monitoring solution for civil infrastructures

SmartBrick is a new IoT sensor designed for accurate and affordable monitoring of civil infrastructure. SmartBrick detects and monitors inclination and other physical parameters with high accuracy. It transmits this data wirelessly to an online platform. The combination of accurate daily measurements, integrated AI and ultra-low power consumption makes SmartBrick a unique scalable measurement system. Creating a fully wireless, easy-to-implement, battery-driven and low-cost measurement solution.

The SmartBrick permanently monitors changes, damage and imminent danger of collapse. With SmartBrick it is possible to make solid predictions about the state and condition of civil infrastructure. Uncertainty, panic, and all sorts of ad-hoc emergency constructions are things from the past. It is possible to predict and

manage maintenance activities and help you to prioritize them, no more surprises! AI and the algorithm provide machine learning. As a result the SmartBrick measuring system will continuously improve itself. SmartBrick can be attached to any surface using epoxy. It will start monitoring right away (Stick & Play). The data is displayed in a low-code big-data dashboard, where users can analyse large amounts of data independently or have it analysed automatically by AI.
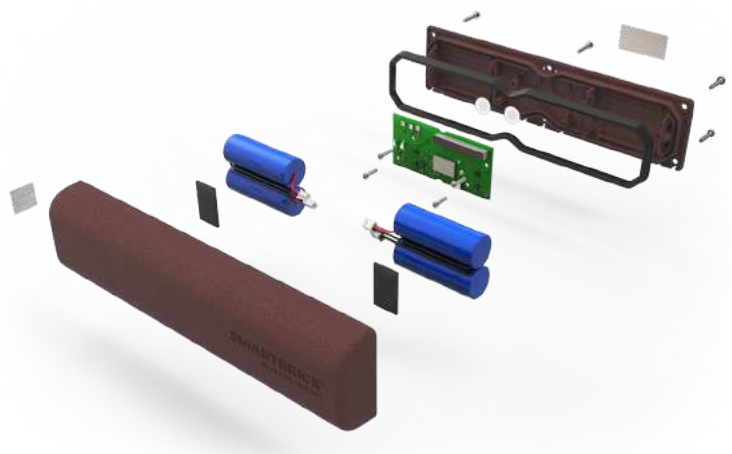
SmartBed & SmartMatras

IoT sensor solutions for healthcare beds

SmartBed and SmartMatras monitor the position, absence or presence of the health care client in bed. Nursing is short of hands and is under constant pressure, especially at night, due to a shortage of qualified care staff and financial constraints. This sensor solution can reduce workload of nursing personnel and improve care for clients. With these innovative solutions an extra pair of eyes is watching.

SENSOR TECHNOLOGY AND CLIENT SAFETY
Monitoring leads to work pressure reduction and improved care. SmartBed and SmartMatras contain sensors that determine the presence and absence of the client in bed. The solutions can also detect whether a client sits on the edge of the bed. By monitoring these movements false alarms are minimized and workload is reduced. The prevention of bedsores (decubitus) is an

important focus point in healthcare. Preventive measures, when clients turn over every 3 to 4 hours, are very labor intensive. SmartBed and SmartMatras monitor which clients turn on their own, because the sensors register the posture of the client.

LINKED TO IT-SYSTEMS
The signals reach the caregiver, and the attached smart modules can be linked to any IT-system in the care sector. Either existing or new IT-platforms. Via the device (e.g. the caregiver's cell phone) the desired alarm eventually reaches the end point.

SCALABILITY
The scalability of these concepts are unique. Care institutions can use these smart functionalities at any time with a data subscription model at low costs.
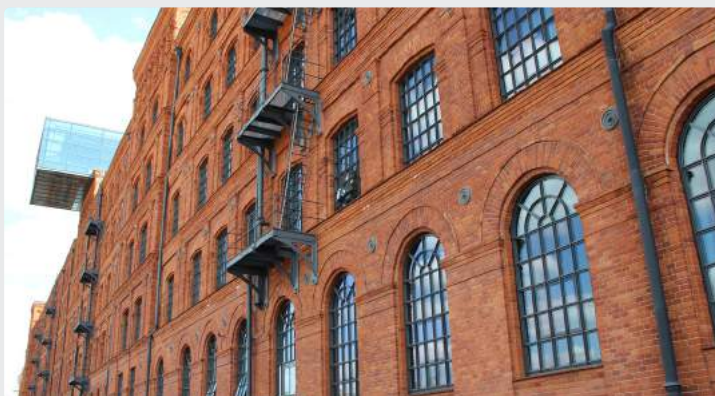
SMART STRUCTUAL HEALTH MONITORING SOLUTION FOR CIVIL INFRASTRUCTURES

SmartBrick

Wireless, battery-powered, IoT and high acurate inclination sensor.

PERMANENT AND ACCURATE MONITORING OF LISTED BUILDINGS

SmartBrick Dashboard

User-friendly data analytic solution to meet all measurement needs.

HIGH-TECH, SCALABLE SENSOR SOLUTION FOR HELATH CARE IMPROVEMENT AND WORKLOAD REDUCTION

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SmartBed & SmartMatras

IIoT sensor solutions for healthcare beds to monitor the position, absence or presence of the client.

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Other IoT sensor solutions

SmartCrackr

World's only industrial IoT 3D crack monitoring system

SmartCrackr accurately and remotely monitors a crack in 3 dimensions, for up to 10 years. Installation is very easy. Monitoring is made easy with our online dashboard and alerts. You can also integrate it in your operations using our API.

HOW SMARTCRACKR OPERATES
SmartCrackr has a number of magnetic sensor elements in a specific array above a magnet. Using mathematical algorithms, three vectors are calculated that show the 3D movement of a crack. The Smartcrackr turns on at an adjustable measuring interval and transmits the collected sensor data. Depending on the interval the battery can last up to ten years.

ADVANTAGES
Smartcrackr is very easy to install. Data is stored from the moment of installation and provides valuable data immediately. Users can receive automatic alerts by e-mail. Sensor data can also be combined with project data due toecause of our API interface. All project data remains permanently available on demand via our web application or API interface in your platform.

SmartBolt

IoT fastening solution

A cost-effective, wireless and retrofit-ready bolt monitoring solution is the holy grail in offshore and infrastructure bolt connection monitoring. With our sensing solution, we believe we can make this a reality. SmartBolt gives early warnings when changes occur or when they get relatively loose. It is the IoT fastening solution for expensive and safety critical applications, or for facade elements where fasteners cannot be seen or monitored easily afterwards anymore.

SCALABLE AND EASY TO INSTALL
Using a new magnetic sensing technology we're developing an industrial IoT solution that is scalable and very easy to install. This remote and automated bolt monitoring will result in huge safety improvements, in cost reductions, quality improvements, and better operational processes.

Our product scope

bar PRESSURE	mm DISPLACEMENT	m/s^2 VIBRATION	AUTOMATION
N FORCE	α ROTATION	°/s ANGULAR RATE	A TURN-KEY SYSTEMS
Nm TORQUE	JOYSTICK	°C TEMPERATURE	
ε STRAIN	INCLINATION	SIGNAL CONDITIONING	
kg WEIGHT	g ACCELERATION	DATALOGGERS	

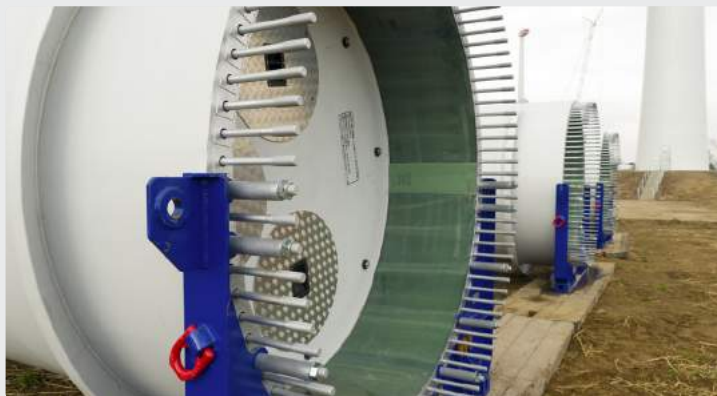**CRACK OBSERVATION TO ASSES STRUCTURAL DAMAGE OF BUILDINGS**
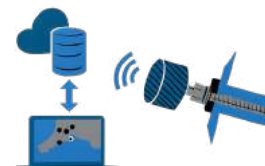

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SmartCrackr

Accurate and remote monitoring solution
for cracks in 3 dimensions.

WIRELESS IOT BOLT MONITORING SOLUTION FOR TURBINES

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SmartBolt

Highly accurate, wireless,
IoT fastening solution.

Your integrated IoT measuring solution?

DO YOU HAVE A MEASURING PROBLEM? PLEASE CHALLENGE US!
We offer custom development and
fully integrated solutions to any
measurement challenge.

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