

9 ways IoT-enabled sensors can make you more efficient.

For technology and business leaders, the Internet of Things (IoT) is virtually impossible to ignore. More cities, buildings, factories, and homes are getting smarter—and they're all powered by this system of interconnected devices.

Advancements in low-power technologies and network standards like narrowband IoT (NB-IoT)—the first **3GPP LPWAN** radio technology standard exclusive to IoT—are driving this evolution and providing scalable value to businesses of all sizes.

Today's IoT-enabled smart sensors collect data faster and with more accuracy than ever before. Businesses can use them to complete jobs that once required manual labor, and that's just the start. The real-time data and insights these sensors provide can help leaders make informed decisions that impact every area of their business.

Here are nine ways businesses can use smart sensors to make more informed decisions and find new efficiencies.

1. Take your machine's temperature.

Technically, sensors have been taking machine temperatures since the refrigerator was invented. But today, smart sensors are making their way into many different types of machinery.

In industrial environments, maintaining an optimal temperature reduces maintenance issues and expensive downtime. IoT-enabled sensors can alert operators to sub-prime conditions or trigger emergency shutoffs to prevent quality and safety issues.

Other useful applications include measuring soil temperature for agricultural purposes as well as monitoring food and pharmaceuticals to help prevent items from spoiling during transport. For example, cold chain managers can prevent spoilage by using data from smart sensors to prevent temperatures from rising or sinking below pre-defined thresholds.

These connected sensors can also be used to remotely monitor and control air conditioning systems in homes, buildings, and other facilities, helping businesses save money and reduce their carbon footprint. Plus, insights from sensors can eliminate the need for in-person monitoring, increasing both accuracy and efficiency.

2. Get a handle on humidity.

Systems used in manufacturing, healthcare, pharmaceuticals, oil and gas, transportation, and other sectors rely on optimal operating conditions. While temperature is a concern, one of the biggest factors determining how well machinery works is the amount of water vapor in the air. That's because too much humidity can result in condensation or mold, which can be as bad for machines as it is for humans.

IoT-enabled smart sensors that detect humidity can help users monitor and make immediate changes to environments when necessary, reducing repairs and replacements.

Additionally, these sensors can also help in the agricultural industry by providing farmers with real-time data about moisture levels in soil. By using data to ensure crops get just the right amount of water, farmers can save money while producing more crops. A bonus: these sensors can leverage weather forecast data and automatically turn on irrigation systems at just the right time, too.

3. Make the most of your space.

Proximity sensors detect the presence or absence of nearby objects. We often see them in newer cars that can detect other vehicles or objects you might back into. They also help keep your mobile phone locked when your ear is near the touchscreen.

Types of proximity sensors include inductive sensors that detect the presence of metallic objects; capacitive sensors that detect non-metallic objects; and magnetic, photoelectric, and ultrasonic sensors that detect all kinds of things.

Proximity sensors are useful for understanding how close something is, how full it is, or how fast it's moving. Retailers can use these sensors to tell how close a customer is to a product and send notifications about offers or new products to their mobile device. This can help businesses reach the right customers in the right places by streamlining digital and physical marketing efforts.

Businesses across various industries can also use these types of sensors to enhance customer and employee experiences by giving users insight into things like parking space availability or product inventory.

4. Test the water.

Connected smart sensors can monitor the quality of water in various circumstances, which is critical in industries like public safety and in industrial systems that rely on water. Among the most common types of water sensors are those that measure the level of chlorine, organic carbon, suspended solids, conductivity, pH, and oxidation/reduction reactions.

These sensors can remotely monitor water used for crop production, drinking water in communities, the cultivation of aquatic plants and fish, and water loss due to faulty pipes. For example, the same farmer we mentioned earlier could use these sensors to ensure crops receive water that meets quality standards.

On the other hand, electrical manufacturing companies can also use these sensors to help business owners find efficiencies in the production of chipsets, which is a thirsty process requiring a large amount of clean water.

5. Stop blowing smoke.

Smoke detectors have been around since the 1900s, but IoT-enabled sensors are taking this basic functionality to new places. Not only do they detect the presence of smoke, but they also provide threshold-based monitoring, alerting users when the amount of smoke present exceeds acceptable limits.

This is important for industries where people work in high-risk environments, like manufacturing facilities with equipment that could malfunction when too much smoke is present. Managers can receive alerts and make necessary adjustments to prevent malfunctions, potentially saving thousands of dollars in repairs.

Some of these sensors add even more value by detecting gases and flame. Gas sensors are specifically used to monitor changes in air quality and detect the presence of gases that might be toxic or combustible, helping a business protect their products and the general public. Industries that could benefit from these sensors include manufacturing, oil and gas, and mining.

6. Stay chemically balanced.

Chemical sensors detect changes in the chemical composition of air and liquids that might indicate a problem, or present dangers, to the local environment.

These connected sensors are particularly useful in the public sector, where they can remotely alert public safety officials to toxins in water supplies or unhealthy air. Public officials can then use this information to make proactive decisions and correct imbalances as needed.

Chemical plants and facilities handling hazardous waste can also use these sensors to help maintain safe and optimal conditions, preventing costly emergencies.

7. Go where wires can't.

Businesses across many industries can leverage these IoT-enabled sensors to detect a variety of motions, helping them "see" assets from virtually anywhere. These sensors use ultrasonic, microwave, and passive infrared technology to detect physical movement and transmit data about the nature of the movement back to users like security personnel.

Companies of any size can use motion sensors to detect whether there is movement in restricted areas in real time. They can also be used to alert personnel when assistance is needed, helping businesses find new efficiencies in both their security and customer service practices.

Another use case is shipping high-value equipment and time-sensitive deliveries, like organ donations. These sensors can help employees detect how long an object is idle and can send alerts when the object moves, helping to prevent loss or damage.

8. Get your fluids.

Smart sensors that measure the level or amount of fluids in an open or closed system can be used to remotely measure fuel levels in sectors such as oil and gas, manufacturing, food processing, healthcare, and municipal government. Just about any industry that uses liquid materials and needs to track levels can benefit from them.

By sharing data through wireless connections, these smart sensors can help remote employees understand exactly how much liquid is in a certain location, check inventories of fluids for sale, maintain equipment, and more. And by providing insight into locations that wired connections can't, these IoT-enabled sensors can also help businesses cut costs on infrastructure implementation.

Having real-time level measurement in tanks, bins, and other containers can also be useful for monitoring fuel levels in generators, helping to prevent the loss of perishable goods and interruptions to critical services.

9. See the light.

Optical sensors, which measure the physical quantity of light rays, detect changes in light. These sensors monitor electromagnetic energy and have potential uses in sectors such as energy, mining, healthcare, and any environmental monitoring that involves light.

As one example, logistics and transportation companies can use these sensors to detect package tampering on shipments, helping secure assets and prevent loss or damage.

As advances in wireless connectivity and bandwidth continue to bring more IoT-based applications and use cases to life, smart sensors will be able to monitor even more processes, continuing to reduce costs, speed up measurements and repairs, and deliver more efficiencies for businesses.

[Learn more about T-Mobile's NB-IoT solutions.](#)

Want even more trends, insights, and success stories?

[Browse our Business Insights hub](#)

[Contact us](#)



CONTACT AN EXPERT

Find a store
Talk to an Expert 1-844-632-6627
Email an Expert
Become an Authorized Reseller

CUSTOMER CARE

Online Support Site
Call a CARE Expert 1-877-347-2127
Manage My Account
Feedback

BUSINESS RESOURCES

Small Business
Enterprise
Government
Plans
Internet of Things
DIGITS
Trends & Insights

[ABOUT](#) [INVESTOR RELATIONS](#) [PRESS](#) [CAREERS](#) [DEUTSCHE TELEKOM](#) [PUERTO RICO](#)

[Privacy Policy](#) [Interest-Based Ads](#) [Consumer Information](#) [Public Safety/911](#) [Terms & Conditions](#) [Terms Of Use](#) [Accessibility](#) [Open Internet](#) [Do Not Sell My Personal Information](#)
[Privacy Center](#)



©2020-2020 T-Mobile USA, INC.