

Revolutionizing IIoT with Bluetooth® Technology

Today's industrial enterprises are leveraging the power of the Industrial Internet of Things (IIoT) to provide the advantages they need to remain competitive. The widespread adoption of IIoT devices are being used in industrial environments for many reasons, including improving condition monitoring, predictive maintenance, device and process control, environment monitoring, personnel and asset tracking, as well as ensuring worker safety. Manufacturers are looking for enterprise IIoT solutions that are reliable, scalable, flexible and secure as well as a low-cost wireless technology solution to provide the connectivity infrastructure. Let's explore why Bluetooth is the wireless technology of choice for today's industrial enterprises.

335

million devices
in 2024

Did you know?

Approximately **335 million annual shipments of Bluetooth smart industry devices** by 2024.

(source ABI research, 2020)

5 REASONS why Bluetooth is perfect for IIoT



UNIVERSAL

As the number of devices using Bluetooth technology continues to increase, today's manufacturers are designing their products to be Bluetooth compatible. Since Bluetooth is a standardized wireless technology, a high level of compatibility among devices is guaranteed, regardless of model or brand. This is beneficial for industrial enterprises using hundreds of different wireless devices in a factory that need to connect to each other.

LOW POWER, LONG BATTERY LIFE

The ultra-low power functionality of Bluetooth allows sensors and tags to run off tiny batteries for months, even years. With Bluetooth, manufacturers can use BLE beacons, tags and wireless sensors to continuously monitor the condition of equipment and track personnel and assets without worrying about battery life.



LOW COST

Bluetooth devices are inexpensive, require minimal power and the technology is cost-effective to implement. Because Bluetooth is already built into nearly every device, the technology offers low deployment costs and large economies of scale. Now, IIoT deployments leveraging Bluetooth technology can avoid having to build a new proprietary solution, allowing for greater cost savings.

WITH BLUETOOTH, SECURITY IS BUILT IN

Manufacturers need to protect sensitive industrial data from theft and/or exposure. Bluetooth offers advanced AES 128-bit encryption to ensure that all data is secured and protected. Bluetooth devices also use frequency hopping to reduce interference from other wireless devices, whether they are Bluetooth or not, allowing for more secure communications.



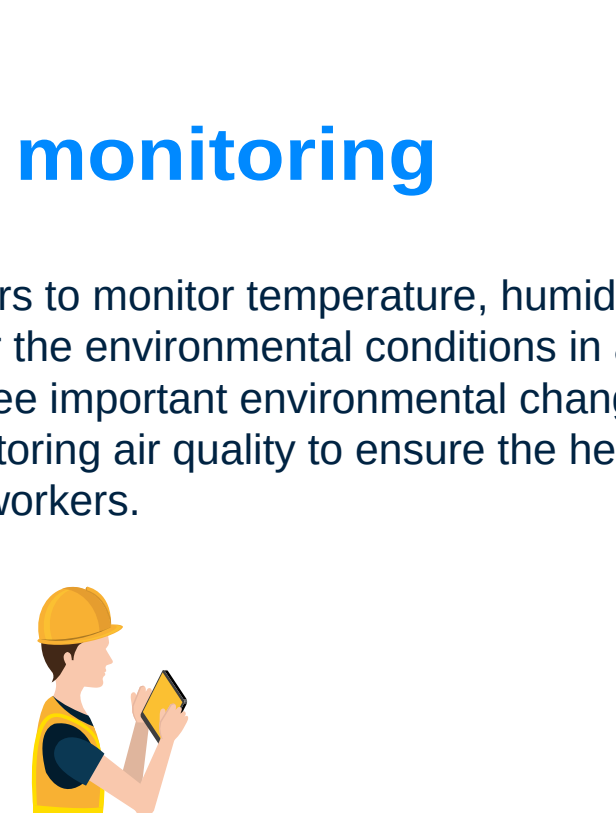
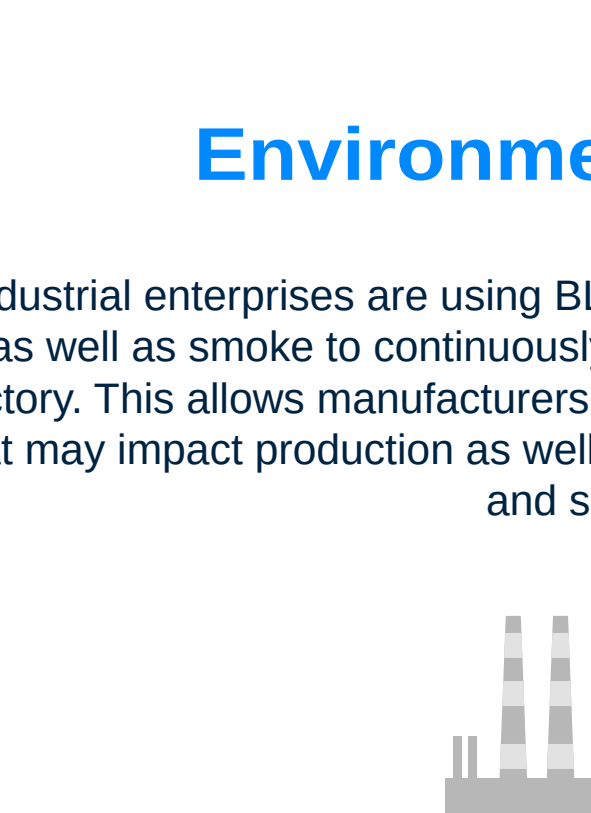
HIGH IMMUNITY TO INTERFERENCE

In large industrial environments equipped with hundreds of wireless devices, the need for reliable connectivity is critical. Despite using a very busy 2.4GHz frequency band, Bluetooth technology uses frequency hopping to eliminate network interference to ensure that data is successfully transferred despite noisy environments.

TOP 5 IIOT Use Cases

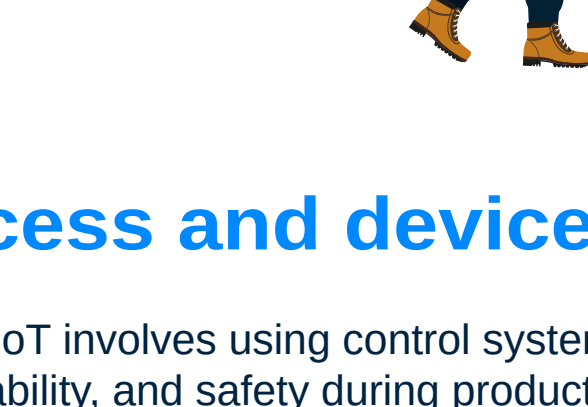
Predictive Maintenance and Condition Monitoring

Sensors and other BLE devices can be added to new or existing equipment to monitor key parameters like vibration levels, pressure, speed and temperature. Data is collected and then wirelessly sent to a central application for analysis. If a problem is identified, the factory can plan for a timely repair or replace the equipment if necessary, reducing costs and avoiding equipment downtime.



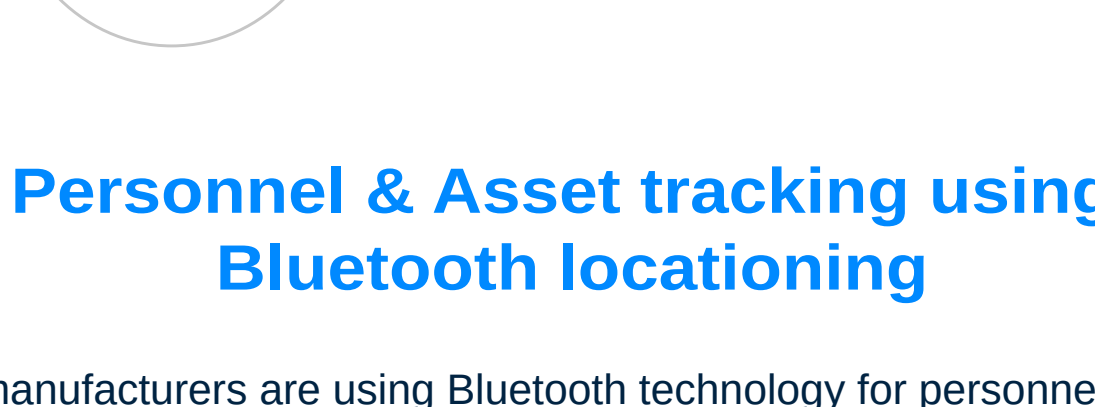
Environmental monitoring

Industrial enterprises are using BLE sensors to monitor temperature, humidity, as well as smoke to continuously monitor the environmental conditions in a factory. This allows manufacturers to oversee important environmental changes that may impact production as well as monitoring air quality to ensure the health and safety of workers.



Process and device control

Process control in IIoT involves using control systems to achieve a high level of consistency, reliability, and safety during production. These systems have evolved with their use of wireless sensors and data systems to reduce manual operations, improve control and automate industrial processes. Device control involves managing all the IIoT devices from a central location and is critical to establishing and maintaining the health, connectivity and security of these devices. Bluetooth technology is well suited for many industrial applications, including device control, and is being used for real-time monitoring of key assets to improve efficiency and reduce costs.



Personnel & Asset tracking using Bluetooth locationing

Today's manufacturers are using Bluetooth technology for personnel and asset tracking to monitor workers as well as the location and inventory of critical assets. With BLE tags, manufacturers can easily locate, track and monitor key assets, including those along the supply chain (e.g. raw materials and finished goods) to maintain inventory levels, minimize quality issues and even prevent theft.



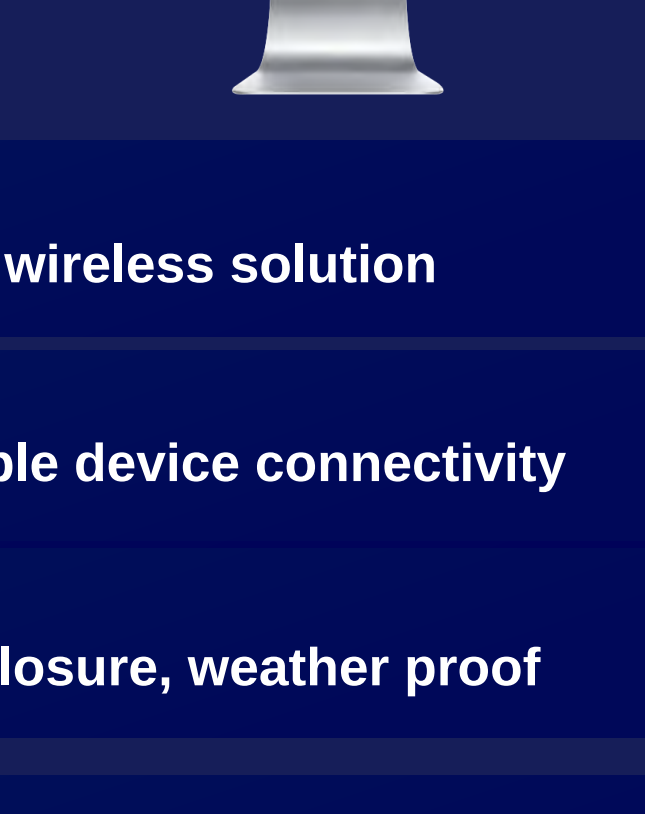
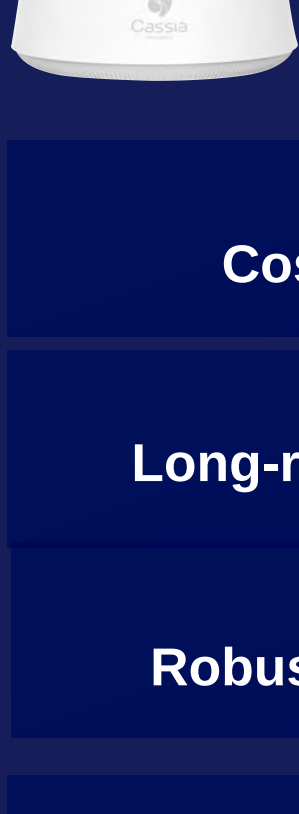
Keeping workers safe

Bluetooth sensors and wearables are being used in factories to assess environmental conditions and track key biometric vitals of workers. Real-time data from environmental sensors can help determine if working conditions become too dangerous. Wearable sensors are being used to remotely monitor key vitals such as heart rate and skin temperature to determine if a worker becomes fatigued or at risk of a heat stroke. The end result is safer, more productive workspaces.



Cassia Networks Bluetooth IoT Solutions

Simplify IIoT Deployments and Reduce Time to Market with Cassia's **Bluetooth** IoT Gateways and Access Controller



Cost-effective wireless solution



Long-range multiple device connectivity



Robust IP-65 enclosure, weather proof



End-to-end security



Edge computing support



Bluetooth roaming support

Personnel & asset tracking using Bluetooth locationing technology

Avoid 2.4GHz Wi-Fi interference



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