

Smart Air Quality Monitoring Using IoT & LoRaWAN

Transforming environmental health and safety with advanced IoT solutions for comprehensive air quality monitoring and management.



Where Smart Air Quality Monitoring Makes a Difference

Our IoT-powered air quality monitoring solutions deliver real-time insights across various environments, enabling proactive management of indoor and outdoor air quality.



Underground Parking

Monitor CO and NO₂ levels to prevent dangerous accumulation of exhaust fumes in enclosed parking structures.



Industrial Zones

Track particulate matter and VOCs to ensure worker safety and regulatory compliance in manufacturing environments.



Educational Facilities

Maintain optimal CO₂ levels in classrooms to improve student concentration and overall cognitive performance.



Healthcare Settings

Ensure pristine air quality in hospitals and clinics to protect vulnerable patients and support healing environments.



Office Buildings

Monitor indoor air quality to enhance employee wellbeing, productivity and reduce sick building syndrome.



Smart Cities

Deploy networks of sensors across urban areas to create comprehensive air quality maps and inform public policy.

Key Parameters Monitored

Our comprehensive solution monitors a wide range of air quality parameters to deliver a complete picture of environmental conditions.



Carbon Monoxide (CO)

Deadly, odourless gas produced by incomplete combustion. Our sensors detect levels as low as 1 ppm for early warning.



Carbon Dioxide (CO₂)

Indicator of ventilation efficiency. Elevated levels can cause drowsiness and impaired cognitive function.



Volatile Organic Compounds

VOCs from paints, cleaners and furnishings can cause respiratory irritation and long-term health effects.

Particulate Matter

- PM1.0 (ultrafine particles)
- PM2.5 (fine inhalable particles)
- PM10 (inhalable particles)

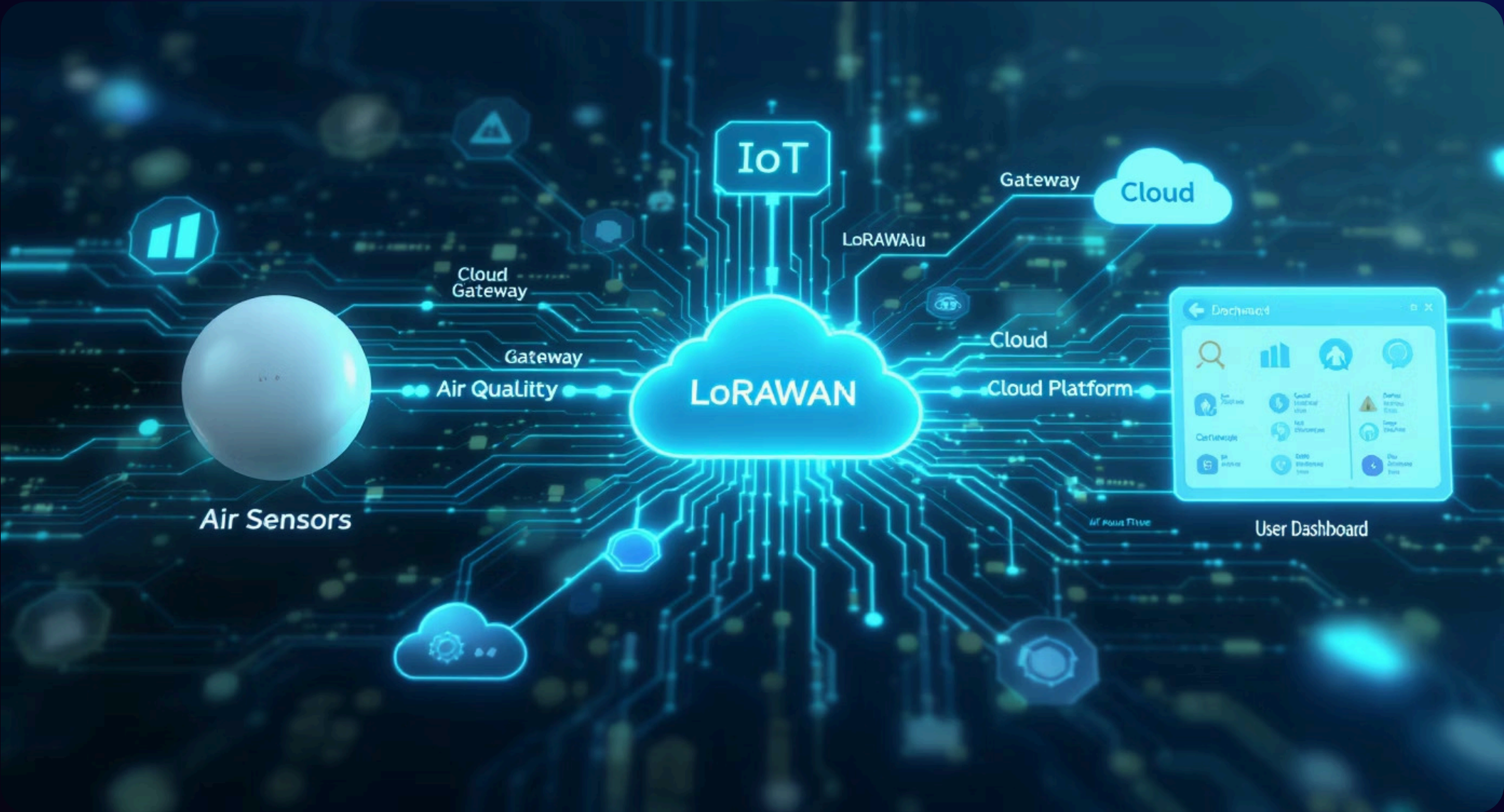
Environmental Conditions

- Temperature (°C/°F)
- Relative Humidity (%)
- Atmospheric Pressure (hPa)

 Our advanced calibration algorithms ensure measurement accuracy within $\pm 3\%$ across all parameters, exceeding industry standards.

LoRaWAN-Powered System Architecture

Our solution leverages LoRaWAN technology to deliver long-range, low-power connectivity that dramatically reduces deployment and operational costs.



IoT Sensors

Battery-operated sensors with 5+ year battery life, requiring no external power. IP67-rated for deployment in harsh environments.



LoRaWAN Gateway

Single gateway covers up to 15km radius in urban environments, dramatically reducing infrastructure costs compared to WiFi or cellular.



Cloud Platform

Secure, scalable cloud platform processes and analyzes data, applying machine learning for predictive analytics and anomaly detection.



Interactive Dashboard

Customizable dashboard with real-time alerts, historical trending, and detailed reporting capabilities for comprehensive air quality management.

"LoRaWAN technology enables deployment of sensors in locations previously considered impractical or cost-prohibitive, creating new possibilities for comprehensive environmental monitoring."

Key Benefits

Our smart air quality monitoring solution delivers measurable value across multiple dimensions:

Enhanced Health & Safety

- Reduce sick days by up to 23% through improved air quality
- Prevent dangerous gas accumulation in enclosed spaces
- Identify and address air quality issues before they affect occupants

Data-Driven Decision Making

- Optimize HVAC operations based on real-time air quality data
- Identify patterns and trends to improve facility management
- Quantify the impact of air quality improvement initiatives

Regulatory Compliance

- Automated documentation for health and safety regulations
- Evidence-based reporting for environmental compliance
- Meet increasingly stringent indoor air quality standards

Cost-Effective Implementation

- 70% lower deployment costs compared to wired systems
- Minimal maintenance with long-life battery operation
- Rapid installation with no disruption to operations
- Easy scalability from single buildings to entire campuses



Energy Savings

Average reduction in HVAC energy consumption



Customer Satisfaction

From over 500 deployments worldwide