AirSentinel

Smarter Air. Safer Cities.

Real Time Environmental Intelligence, powered by AI, Solar, and Secure Connectivity

What Is AirSentinel?

AirSentinel is an advanced, environmental sensing system designed for indoor and outdoor environments. It Tracks pollution, weather and system health in real-time while enabling smart alerts, carbon reporting, on-cloud and blockchain based logging.

What It Measures

Air Quality
PM.26, M 10 $CO_{-}CH_{c}$ VOCs LPG. NH_7 IAQ CO_a ϵ

Environmental
Temperature
Humidity
Pressure

Power Health
Battery level, solar charge system temperature

AI Events
Smoke-fire pollution source zone alerts. trends

Remotely Controlled Functions

- Sampling frequency
- Sensor power routing
- Charging profiles
- Firmware updates
- Power modes

Adjust fire or smoke before visible signs

Classify pollution types≡traffic industry, indoor)

Adjust sampling rate to save power

Key Features

- AI-powered analysis and alerts (fire, smog, pollution patterns)
- Remote monitoring and controlvia dashboard or API
- LoRaWAN + Wi-FI + BLE communication for flexible deployment
- Tamper-proof blockchain support for emissions tracking
- Secure device identity with encrypted data
- IPBS-rated for rain, heat, and custoo durability
- Deep sleep mode for ultra-low power

Security & Privacy

- Unique-cryptographic ID-per-device (JITP)
- End-to-end encryption on Wi-Fi, BLE: and LoRaWAN
- Digitally signed data to prevent tampering
- Diockchain-compatible for carbon credit applications

Who it's For

Cities
Urban air mapping & smart zaning

Scheols & Hospitals
Protect vulnerable groups

ESC Teams
CO2 Tracking & Carbon Credits

Researchers
High-frequency, alr quality datasets

Summary

Air Sentinel is a cutting-edge environmental sensing system designed to monitor air quality, weather conditions, and device health in real time across both indoor and outdoor spaces. Equipped with AI-powered alerts, carbon impact tracking, and secure data logging through cloud and blockchain, it empowers cities, schools, and institutions to take proactive action against pollution. By delivering transparency, automation, and long-range connectivity, Air Sentinel helps build healthier communities and smarter environments.