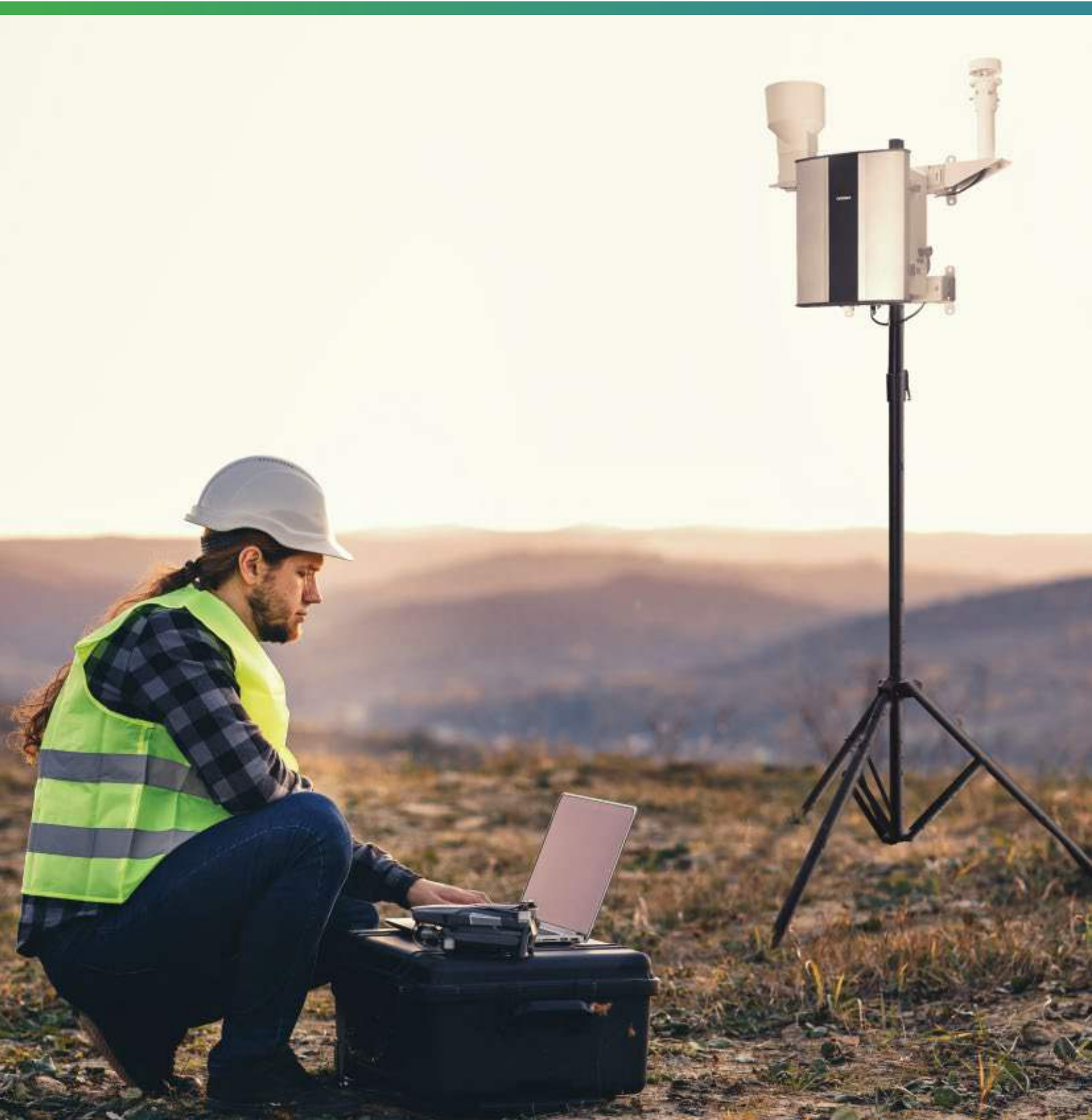# Weathercom®

Automatic Weather Station

About Weathercom®

Oizom's Weathercom® is an Automatic Weather Station (AWS) that goes beyond basic weather reporting by providing real-time, hyper-local data on a comprehensive range of meteorological conditions. Unlike traditional weather stations that rely on manual data collection, Weathercom offers continuous monitoring, making it a valuable tool for various sectors, such as Environmental Monitoring, Agriculture, Roads and Highways, Ports, and Construction.

The equipment is easily installed with our plug-and-play feature, and solar panel makes it independent of any power source. It can withstand extreme weather conditions from tropical heat to arctic cold as well as extreme wind and rains. These features make Weathercom® an ideal choice for comprehensive meteorological monitoring.

Product Features

Solar Powered with Battery Backup
Compatible to charge internal battery using solar power.

Retrofit Design
Plug and play design for ease of implementation.

Compact
Light-weight and compact system that can be installed at 12-15 feet (4-5 m) height.

Ultimate Durability
Made of high-grade engineering-metal and composite polymers for a long life.

Identity And Configuration
Each equipment carries its unique identity with geo-tagging through wireless configuration.

Weather Resistant
IP66 Grade (certified) enclosure for endurance against harsh weather conditions.

Over-The-Air Update
Automatically upgradeable from a central server without any onsite visit.

Real-Time Data
Continuous monitoring and real-time data transfer at configurable intervals.

Network Agnostic
Supports a wide range of connectivity options like GSM / GPRS / WiFi / LoRa / NBIoT / Ethernet / Modbus.

Internal Storage
Internal data storage capacity of upto 8 GB or 90 days.

Key Benefits

Robust And Rugged
Durable enclosure to sustain extreme climatic conditions.

Cloud Platform
Visualize and analyze data in the cloud. Easy data integration via APIs.

Multi-parameter
Compatible with a wide range of parameters including PM, gases and meteorological parameters

Accurate Data
Gives accurate readings in real-time to detect concentrations in ambient air.

Seamless Connectivity
A wide range of options of wired and wireless connectivity.

Easy to install
Effortless installation with versatile mounting arrangements.

Weathercom® Usecases

Sea Ports
The data acquired from the device can help detect approaching storms or high winds and take the required decisions beforehand.

Roads And Highways
Road accidents can be prevented by cautioning drivers and setting up a dynamic speed limit as per the weather conditions.

Flora And Fauna
Weathercom® provides actionable data insights to agricultural industries and forest departments worldwide.

Smart City
Pollution monitoring at strategic locations in a smart-city empowers city authorities to obtain actionable insights for pollution control.

Parameters

Sensor		ID	Range	Resolution	Min. Detection	Working Principle	Expected Sensor Life
Wind Speed		OZWSD_1	0-40 m/s	0.1 m/s	0.1 m/s	Ultrasonic	2 years
Wind Direction			0-359°	1°	1°		
Rain		OZRAIN_1	N.A.	0.25 mm	0.25 mm	Tipping bucket	
Ambient Noise		OZN_1	Up to 140 dB	1 dB	0.5 dB	Capacitive	
Temperature		OZTEMP_1	-40°C to 125°C	0.01 °C	-40°C	Solid State Semiconductor Sensing	2 years
Humidity		OZHUM_1	100% Rh	0.10%	0.10%		
Barometric Pressure		OZPRES_1	300-1100 hPa	0.18 Pa	300 hPa		
Solar Radiation 300 - 1100 nm	Light Intensity	OZUV_1	Up to 1,00,000 Lux	1 Lux	1 Lux	Photoconductivity	3 years
	Visible Light		Upto 5000 Lux	0.1 Lux	0.1 Lux		
	UV Radiation		0.1-100,000 uW/cm²	0.1 uW/cm²	0.1 uW/cm²		
	UV Index		0-12	-	-		

Specifications

🛠️ Mechanical

Size	360mm (H) x 328mm (W) x 200mm (D)
Weight	8.7 Kg (instrument weight)
Material	Aluminum Magnesium Alloy, Mild-steel (With Powder Coating), FRP
Certifications	CE, NEMA 4X, IP66, RoHS

⚡ Electrical

Avg. Power Consumption	5 Watt (Actual consumption depends upon the number of parameters)
Power Input Options	AC : External 110-240V AC, 50-60Hz DC : Uninterrupted 24V DC, 2 Ampere 60 Watt 24V Solar Panel
SMPS Specs	24V, 2Amps output UL-62368 & CAN/CSA C22.2 Certified
Battery Backup Time	Upto 12 Hours
Battery Specs	Lithium iron phosphate (LiFePO4) battery cell with rated voltage 12.8V Capacity 6Ah

🖥️ Technical

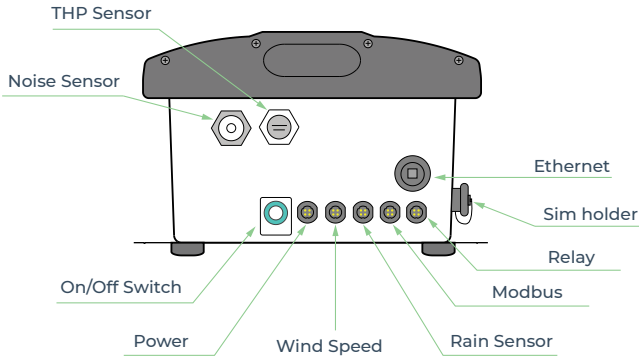|	
Processor	Quad Core ARM Cortex
Memory	2GB RAM 8GB eMMC ROM
Device Interface	On-device Software / API / Cloud Platform
Internal Data Storage	Upto 8 GB or 90 days

🌡️ Environmental

Operating Temperature	-20 °C to 60 °C
Operating Humidity	0-93% RH
Recommended Humidity	15-90% RH
Storage Conditions	10 - 40°C

📡 Sensing

Gas Measurement Principle	Active Sampling with Sampling rate of 325 mL/Sample
Dust Measurement Principle	Active Sampling with Sampling rate of 1 L / min
Warm up time	< 2 minutes for data stabilisation

⬆️ Communication

Data Interval	2-30 (configurable) minutes
Data-push Protocol	HTTP post request to host server
Data-pull	HTTP request on device IP
Firmware Updates	Over-The-Air Firmware Update
Standby Connectivity	GSM (2G/3G/4G) for remote diagnosis, FOTA updates, and cloud calibration
Certification	PTCRB, CE, FCC, RoHS, ICASA, GCF

	Connectivity Options	Specification
Wireless	GSM	Global 2G / 3G / 4G
	LoRa	868 MHz / 915 MHz
	LTE	CAT-M1
	NB-IoT	CAT-NB1
	sigfox	868 to 869 MHz, 902 to 928 MHz
	WiFi	AP Mode and Station Mode
Wired	ETHERNET	Static / DHCP Configuration
	Modbus	RS485 RTU / TCP
	RELAY	2 Channel

Functional Specifications

Strategic Location Selection
EPA's Meteorological guidelines for regulatory modelling mentions the following distance/height from the ground level for strategic sensor location:

Wind Speed and Direction
Wind sensor should be at least 10 m above the surface to avoid hindrance by buildings.

Temperature and Humidity
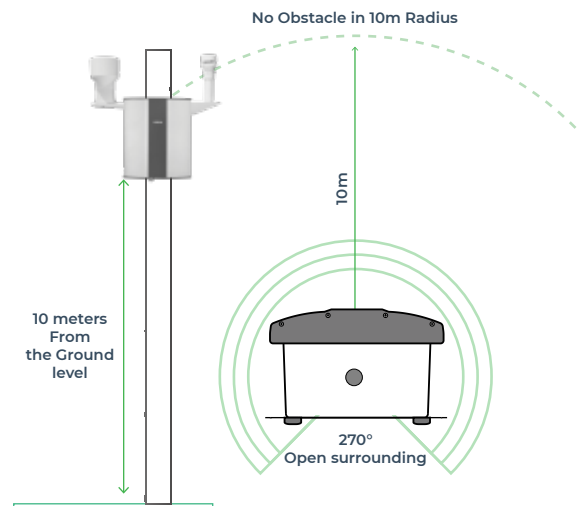This sensor should be located 2 m above the surface.

Rain Gauge
It should be placed on the ground level such that its mouth faces horizontally towards the sky.
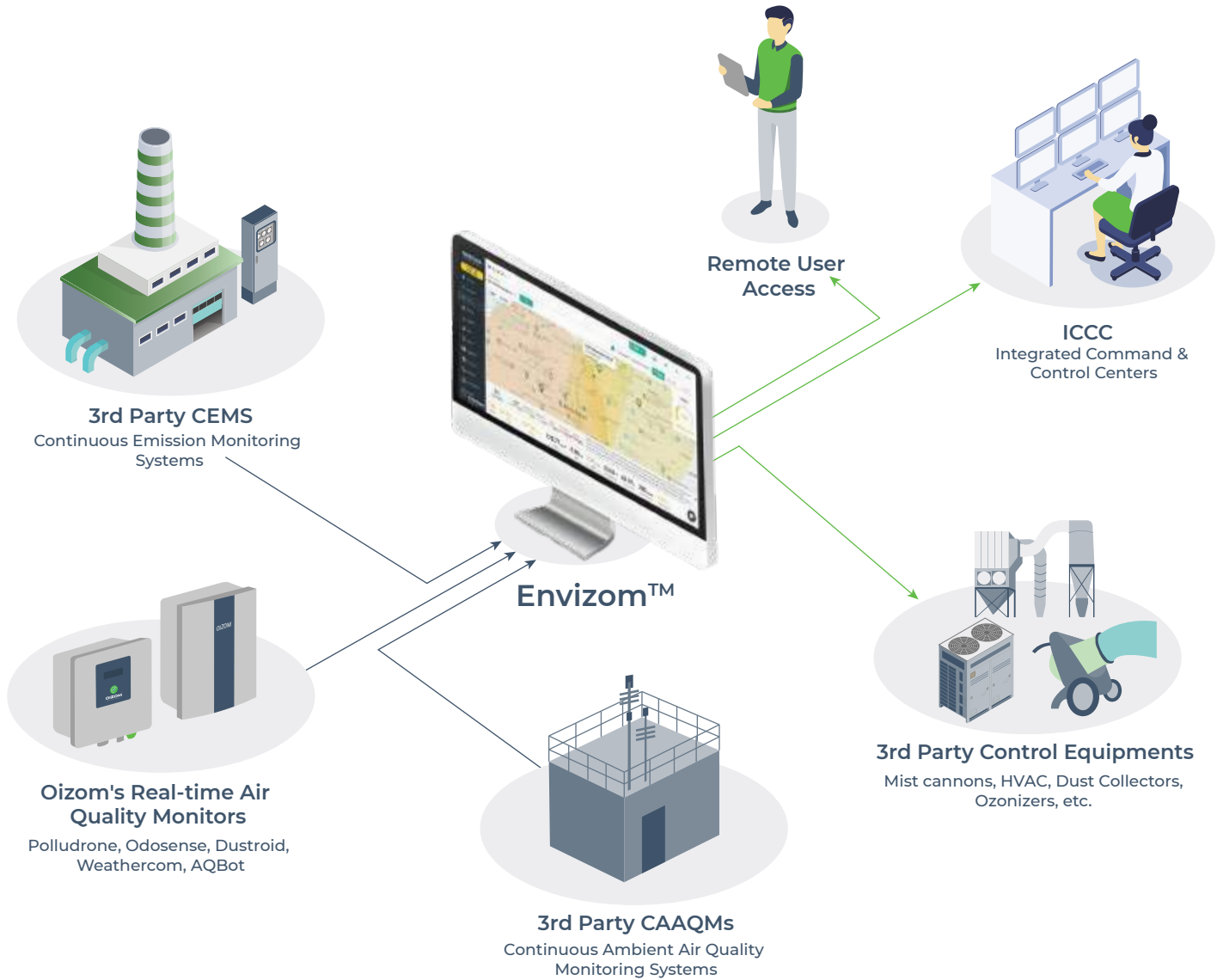
Solar Radiation
Pyranometer should be placed such that it has unrestricted incoming radiations from all directions.

Installation

Preferred Mounting	Pole / Wall (preferably 270° open surrounding)
Installation Height	12-15 feet (4-5 meters)
Direction	As per maximum direct sunlight exposure
Power Availability	Constant AC / DC supply within a 2-meter range from the unit or solar panel
Network Availability	Uninterrupted network connection

No Obstacle in 10m Radius

10 meters From the Ground level

10m

270° Open surrounding

Solution Architecture

3rd Party CEMS
Continuous Emission Monitoring Systems

Oizom's Real-time Air Quality Monitors
Polludrone, Odosense, Dustroid, Weathercom, AQBot

Envizom™

Remote User Access

ICCC
Integrated Command & Control Centers

3rd Party Control Equipments
Mist cannons, HVAC, Dust Collectors, Ozonizers, etc.

3rd Party CAAQMs
Continuous Ambient Air Quality Monitoring Systems

Envizom™
Data Visualization and Analytics Platform

Envizom™ is an Environmental monitoring software for real-time air quality data acquisition, visualization, and analytics. The Oizom® environmental data interpretation engine fetches the data from the Oizom® Environmental monitoring stations. On receiving the data, the engine runs necessary corrections and compensation algorithms. Envizom™ uses secured HTTPS servers for data storage. Alternatively, this data can also be stored on-premise local servers.

Envizom™ Capabilities

⏱ **Real-time Data**

🔔 **Smart alerts**

🖥 **User friendly interface**

⚙ **Easy to Integrate**

📊 **Analytics**

⚙ **Process Automation**

Privacy First Platform

Data Privacy

The data shared with the client uses an encryption server through HTTPS Secure Socket layers. Envizom™ also uses AES encryption for connection that adds to data safety.

Data Ownership

Envizom™ creates a secured and encrypted password combination for the user login. Oizom® ensures 100% privacy of the data and doesn't share without relevant permissions.

Data Transparency

Data collected from Oizom® equipment runs through the Environment Data Interpretation Engine. It processes various algorithms and eliminates environmental impact interferences on the sensors.

Case Studies

Monitoring weather on a real-time basis in Dholera Smart City

Oizom® is monitoring the weather in the Dholera Smart city on a real-time basis by installing Weathercom.®

India | July 2020 | Smart City

Monitoring Weather at Adani Dighi Port, Maharashtra

Adani Dighi Port in Maharashtra is monitoring the weather by using Oizom®'s Weather Monitoring Station – Weathercom.®

India | November 2021 | Seaports

Case Studies

Weather monitoring with Pollucon at Mormugao Port, Goa

At Adani Mormugao Port Terminal in Goa, weather monitoring was done with Pollucon Laboratories to measure the wind and rain in the area.

India | May 2021 | Seaports

Meteorology Data Monitoring at WWTP, Dubai

Weathercom® were installed at a Waster Water Treatment Facility for Dubai Municipality. Crucial meteorological data such as wind direction speed along with Odosense® is analysed for source detection.

Dubai | March 2022 | WWTP

Case Studies

Flood and weather monitoring in Colombia

Oizom®'s weather monitoring station, Weathercom® is monitoring the rainfall and flood levels in Colombia to warn and safeguard civilians from these natural disasters.

Colombia	February 2022	Smart City

Weather Monitoring at Kandla Port, India

At Kandla Port where over 100 MMT Cargo is handled, Weathercom® monitors Rain, Wind Direction and Wind Speed data for Port Personnel Daily activities and weather data.

India	July 2020	Sea Ports

About Oizom®

Leaders in sensor based air quality monitoring

Plug and play monitors for hassle free setup

Low powered solutions for multiple applications

Oizom® is an environmental IoT company offering data-driven environmental solutions for better decision-making. With our sensor-based hardware, we monitor various environmental parameters like air quality, noise, odor, radiation, weather conditions, etc. Our data analytics platform derives many actionable insights for authorities, communities, and industries. Oizom® strives to play an essential role in a sustainable future through smart environmental solutions and data science.

Oizom® has years of experience in stimulating innovation by creating groundbreaking technology for environmental monitoring. With an IoT-based development approach, Oizom® has been able to successfully unlock multiple solutions, catering to various industries.

Other Oizom® Products

Polludrone®
Ambient Air Quality Monitoring

Polludrone® is ideal for real-time ambient air quality monitoring for urban and industrial applications.

Odosense®
Odor Monitoring System

Odosense® monitors various odourful and toxic gases in the environment and provides insight into odor dispersion.

Dustroid®
Real-time Dust Monitor

Dustroid® is an online particulate monitoring system to measure a wide spectrum of particulate matter sizes.

AQBot™
Single Parameter Air Quality Monitor

AQBot™ is an industrial grade single parameter air quality monitor with automation capabilities.

OIZOM®
REDEFINING RESOURCES

Trusted by
70+ Countries

Solutions Installed in
65+ Cities

Total Devices Installed
3000+

Total Population Covered
200 million+

Global Presence

Changing the way Industries monitor air quality