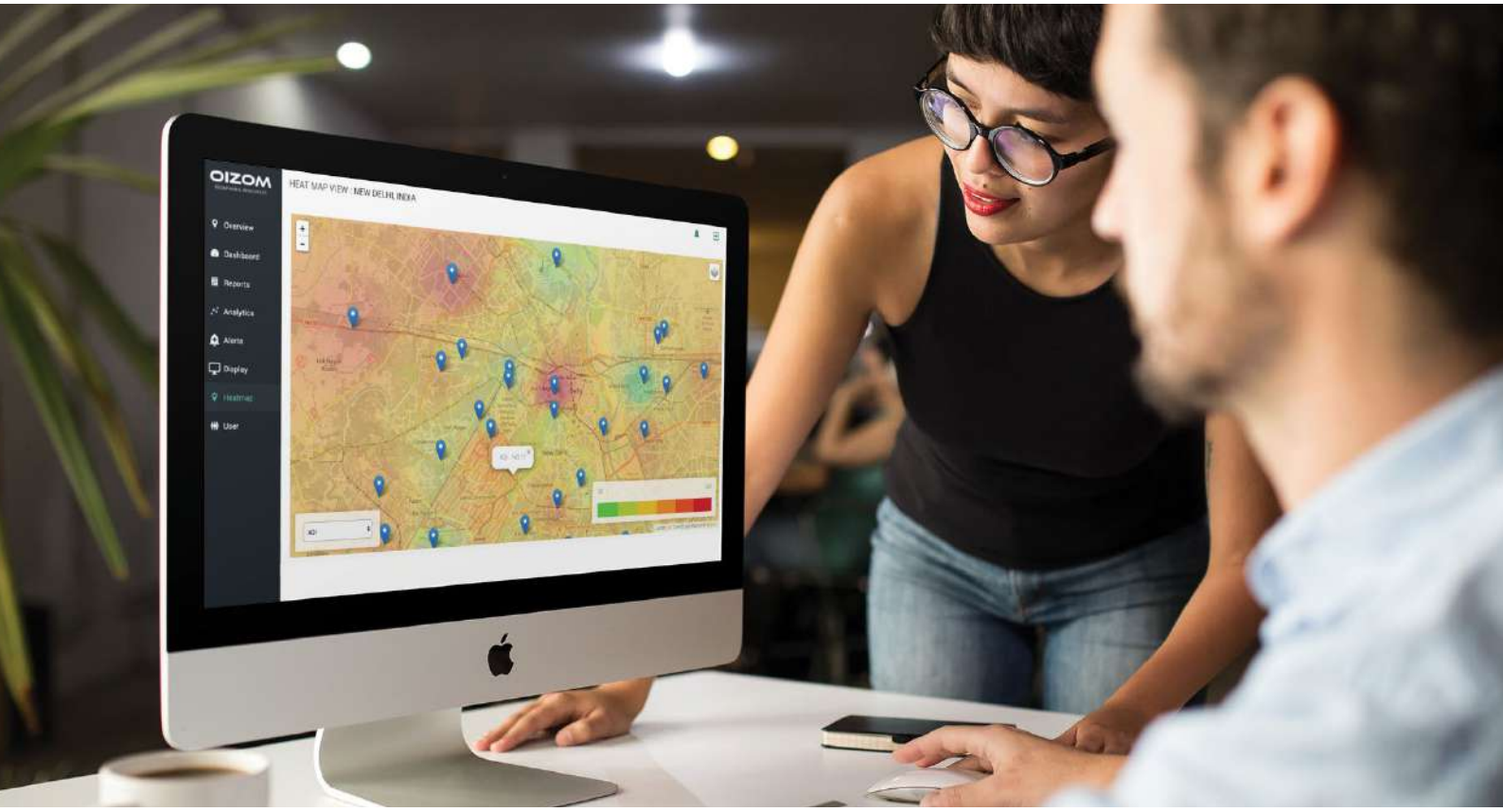
OIZOM®
REDEFINING RESOURCES

Smart air quality monitoring for a sustainable future

About Company



Oizom® is an Environmental IoT company offering data-driven environmental solutions for better decision-making. Using our sensor-based hardware, we monitor various environmental parameters related to air quality, noise, odour, weather, radiation, etc. Our data analytics platform derives various actionable insights for authorities, communities, and industries. Through smart environmental solutions and data science, Oizom® is striving to play an important role in future cities. Since its inception in 2015, Oizom® is primarily focused on environmental monitoring technology and solutions. In a short span of 6 years, Oizom® solutions are live at 1000+ locations monitoring the environmental health of more than 23 million people every day. Oizom solutions are actively monitoring the environmental conditions of 15 Smart Cities in India. The solutions are live in 25 global cities like Mumbai, Delhi, London, Tokyo, Istanbul, and a few more. Through an ecosystem of network-partners, Oizom® has a strong presence in 60+ countries.

Vision : Keeping Environment at the core, we envision to empower various industries with highly scalable data-driven solutions for better decision making.

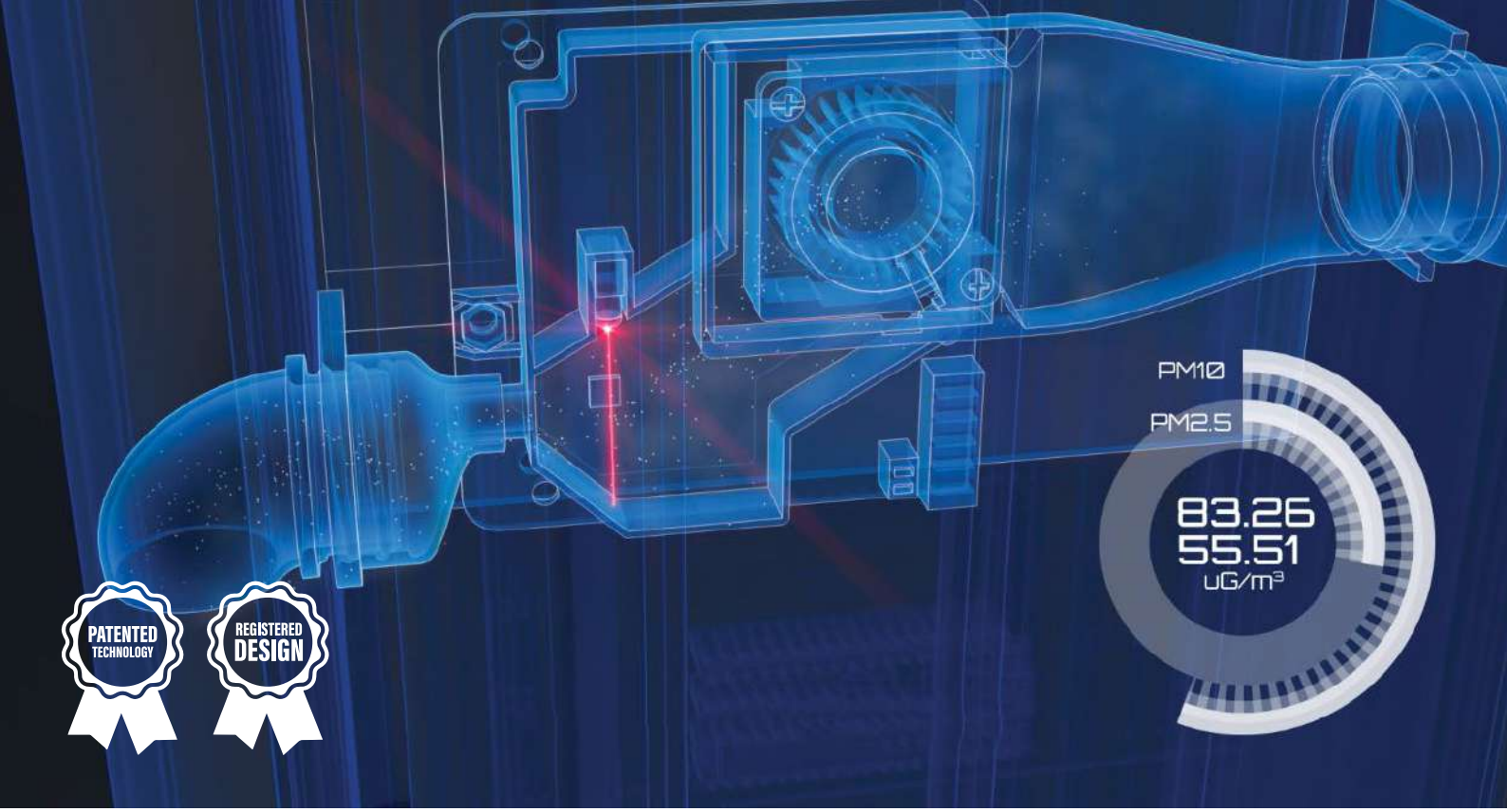
Mission : Implement our Environmental IoT and Environmental AI solutions in 50 Major cities of the world by 2022.

Achievements

- accenture
- CIIE.CO BUILT AT IIMA
- SparkLabsIoT
- 2017 FRENCH TECH TICKET
- IBM SmartCamp
- Katapult Accelerator

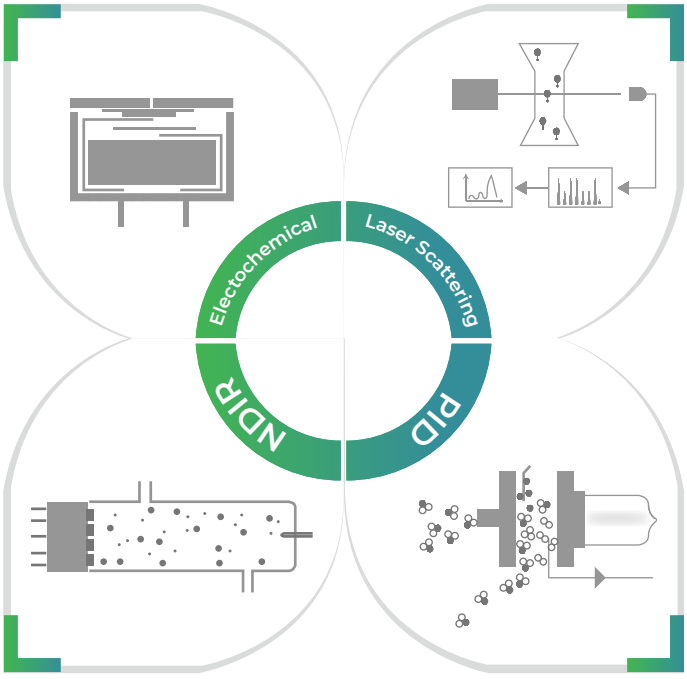
Knowledge Partners

- THE UNIVERSITY OF WARWICK
- UNIVERSITY of York
- ATIRA
- UNIVERSIDAD DE GRANADA
- BERGISCHE UNIVERSITÄT WUPPERTAL
- NWU®



About Technology

Oizom® has years of experience in stimulating innovation by creating groundbreaking technology for environmental monitoring. With the platform-based development approach, Oizom® has been able to successfully unlock multiple solutions catering to various industries. Our sensing technology is built on proven working principles like NDIR, Electrochemical, Semiconductor, Optical, Laser-Scattering, etc. As a part of our patented 'Micro Active Sampling' (e-breathing technology), we have a sophisticated suction and exhaust system to take a sample of air and monitor inside a controlled environment. This leads to zero effect of the external environment on measurement responsible for up to 13% higher accuracy than the industry standards.



Data Communication

LTE
NB-IoT
LoRa
ETHERNET
sigfox
Wi Fi
Modbus
RELAY

Data Accuracy

The Oizom® Gas Sensor (OGS) module can accurately measure low concentrations of various gases at ppb level in the ambient air. The design is capable to monitor the point source gases on real-time basis. The low noise support electronics makes it compact & reliable and allows accurate gas detection even at very low concentrations in the atmosphere.

- Proprietary gas sensing technology
- Independent calibration of each sensor
- Electronic noiseproof design

Hardware Solutions

Polludrone®

Polludrone® is an Ambient Air Quality Monitoring System (AAQMS). It is capable of monitoring all the required urban pollutants like air-pollution, radiation, noise, etc. Using external probes/ attachments, it can monitor other peripheral parameters like weather, traffic, disaster, etc. Polludrone® is an ideal choice for urban monitoring applications such as smart-city infrastructure, roadside monitoring, campus monitoring, airport monitoring, etc.

Parameter	Lite	Smart	Pro
Particulate Matter - $PM_{2.5}$ & PM_{10}	✓	✓	✓
Ultra Fine Particulate Matter (PM_1), Total Suspended Particulate Matter (PM_{100})	X	X	✓
Carbon Monoxide (CO) and Carbon Dioxide (CO_2)	✓	✓	✓
Noise, UV Radiation, Temperature, Humidity	✓	✓	✓
Gaseous Pollutants (SO_2, NO, NO_2, O_3)	X	✓	✓
Hydrogen Sulfide (H_2S)	X	X	✓
Equipment Size	360mm (H) x 328mm (W) x 200mm (D)		
External Modules (optional)	Wind Speed & Direction, Rainfall, Flood		

Odosense®

Odosense® is the Real-time Odour Emission Tracking Solution. Odosense® detects, measures, and monitors the odourful gases and gaseous contaminants on a continuous basis. Odosense® is engineered for accuracy to measure odourful gases such as Ammonia (NH_3), Hydrogen Sulfide (H_2S), Volatile Organic Compounds (TVOCs), and Methyl Mercaptan (CH_3SH), Meteorological Parameters, and many more.

Parameter	Lite	Smart	Pro
Hydrogen Sulfide (H_2S), Sulfur Dioxide (SO_2), Ammonia (NH_3)	✓	✓	✓
Temperature, Humidity	✓	✓	✓
Methyl Mercaptan (CH_3SH), Total Volatile Organic Compounds (TVOCs)	X	✓	✓
Chlorine (Cl_2), Nitrogen Dioxide (NO_2), Formaldehyde (CH_2O)	X	X	✓
Equipment Size	360mm (H) x 328mm (W) x 200mm (D)		
External Modules (optional)	Wind Speed & Direction, Noise		

Dustroid®

Dustroid® is an Online Particulate Monitoring system for Ambient applications. It is capable to monitor various particulate matter like Suspended Particulate Matters (SPM) and Respiratory Suspended Particulate Matters (RSPM). Dustroid® is an ideal choice for applications like construction sites, mines, quarries, ports, research projects, etc.

Parameter	Smart	Pro
Ultra Fine Particulate Matters (PM_1)	✓	✓
Suspended Particulate Matters - $PM_{2.5}$, PM_{10}	✓	✓
Total Suspended Particulate Matter (TSP-PM_{100})	✓	✓
Temperature, Humidity	✓	✓
Heated Inlet for Air-sample Dehumidification	X	✓
Equipment Size (HxWxD)	360mm (H) x 328mm (W) x 200mm (D)	
External Modules (optional)	Wind Speed & Direction, Rainfall, Noise	

Weathercom®

Weathercom® is an automatic weather station which measures real-time Wind Speed, Wind Direction, Rainfall, Flood, Temperature, and Humidity. The data can be visualized on Envizom™ for real time data visualization and analytics.

Parameter	Lite	Smart	Pro
Wind Speed, Wind Direction	✓	✓	✓
Rainfall Monitoring	✓	✓	✓
Light, UV Radiation	✓	✓	✓
Temperature, Humidity, Pressure	✓	✓	✓
Soil Humidity	X	✓	X
Visibility, Road Surface Condition	X	X	✓
Equipment Size (HxWxD)	360mm (H) x 328mm (W) x 200mm (D)		
External Modules (optional)	Flood Monitor, Noise		

AQBot™

AQBot™ is an industrial grade single parameter air quality monitor with automation capabilities. AQBot™ Series offers a wide range of air quality parameters to choose from. AQBot™ product range consists of critical parameters and toxic gases like Total Volatile Organic Compounds (TVOC), Ammonia (NH_3), Hydrogen Sulfide (H_2S), Methane (CH_4), Carbon Monoxide (CO), Formaldehyde (CH_2O), Particulate Matter (PM_1, $PM_{2.5}$, PM_{10}, PM_{100}), Ambient Noise. The AQBot™ series is designed for easy operation.

The range listed here is for AQBot only

ID	Parameter	Range	Resolution	Min. Det.	Working Principle	Sensor Life
OZNH3_1 OZNH3_2 OZNH3_3	Ammonia (NH_3)	0-20 ppm 0-100 ppm 0-1000 ppm	0.3 ppm 0.3 ppm 2 ppm	0.3 ppm 0.3 ppm 2 ppm	Electrochemical Sensing	2 Years
OZCH4_1	Methane (CH_4)	500-1500 ppm	1 ppm	500 ppm	Molecular Property Spectrometer (MPS)	2 Years
OZH2S_1 OZH2S_2 OZH2S_3 OZH2S_4	Hydrogen Sulfide (H_2S)	0-10 ppm 0-50 ppm 0-200 ppm 0-2000 ppm	0.001 ppm 0.05 ppm 0.2 ppm 2 ppm	0.01 ppm 0.05 ppm 0.2 ppm 2 ppm	Electrochemical Sensing	2 Years
OZTVOC_1 OZTVOC_2	Total Volatile Organic Compounds (VOC)	0-40 ppm 0-200 ppm	0.001 ppm 0.05 ppm	0.005 ppm 0.05 ppm	Photo Ionization Detection (PID)	5000 Hours
OZPM_1 OZPM_2 OZPM_3 OZPM_4	Particulate Matter ($PM_{2.5}$) Particulate Matter (PM_{10}) Particulate Matter (PM_1) Particulate Matter (PM_{100})	Upto 5000 µg/m³ Upto 5000 µg/m³ Upto 5000 µg/m³ Upto 30 mg/m³	0.1 µg/m³	1 µg/m³	Optical Particle Counter	5000 Hours
OZN_1	Noise	up to 140 dBA	1 dB	0.5 dB	Capacitive	2 Years
OZCl2_1 OZCl2_2	Chlorine (Cl_2)	0-20 ppm 0-50 ppm	0.05 ppm 0.1 ppm	0.05 ppm 0.1 ppm	Electrochemical Sensing	2 Years
OZHCl_1 OZHCl_2	Hydrogen Chloride (HCl)	0-50 ppm 0-100 ppm	0.5 ppm 1 ppm	0.5 ppm 1 ppm	Electrochemical Sensing	2 Years
OZCH2O_1 OZCH2O_2	Formaldehyde (CH_2O)	0-10 ppm 0-50 ppm	0.05 ppm 0.1 ppm	0.05 ppm 0.1 ppm	Electrochemical Sensing	2 Years
OZCH3SH_1	Methyl Mercaptan (CH_3SH)	0-10 ppm	0.1 ppm	0.1 ppm	Electrochemical Sensing	2 Years
OZSO2_1 OZSO2_2 OZSO2_3	Sulfur Dioxide (SO_2)	0-20 ppm 0-100 ppm 0-2000 ppm	0.001 ppm 0.2 ppm 5 ppm	0.01 ppm 0.2 ppm 5 ppm	Electrochemical Sensing	2 Years
OZNO2_1 OZNO2_2 OZNO2_3	Nitrogen Dioxide (NO_2)	0-20 ppm 0-100 ppm 0-500 ppm	0.001 ppm 0.2 ppm 0.5 ppm	0.01 ppm 0.2 ppm 0.5 ppm	Electrochemical Sensing	2 Years
OZCO_1 OZCO_2 OZCO_3	Carbon Monoxide (CO)	0-50 ppm 0-100 ppm 0-1000 ppm	0.1 ppm 0.1 ppm 0.75 ppm	0.1 ppm 0.1 ppm 0.75 ppm	Electrochemical Sensing	2 Years
OZNO_1 OZNO_2	Nitric Oxide (NO)	0-20 ppm 0-100 ppm	0.001 ppm 0.5 ppm	0.01 ppm 0.5 ppm	Electrochemical Sensing	2 Years
OZCO2_1	Carbon Dioxide (CO_2)	0-5000 ppm	1 ppm	400 ppm	NDIR	2 Years

Data and Calibration

1 Laboratory Calibration

All air quality monitoring systems are calibrated at the ISO/IEC 17025:2017 certified calibration laboratory using standard NIST traceable calibration gas standards as per the international guidelines by USEPA.

2 Collocation Calibration

The monitors are operated adjacent to a custom built reference station housing U.S. EPA designated Federal Equivalent Method (FEM) for collocation calibration to ensure optimum data quality.

3 On-site Calibration

On-site calibration of Oizom® devices can be performed using standard calibration gas cylinders of known concentration or by co-locating with a reference standard.

Operation and Maintenance

Cleaning

Periodic cleaning is important to ensure optimum device performance. Monthly or quarterly regular maintenance activity has to be carried out depending upon the surrounding. The activity includes cleaning the dome for the light sensor, air inlet, and outlet mesh and general cleaning of the exterior.

Sensor Replacement

Every sensor has a limited life span. The sensor life depends on the average pollutant concentration in the area. The sensors need to be replaced once their performance starts to deteriorate and the system starts giving unstable data.

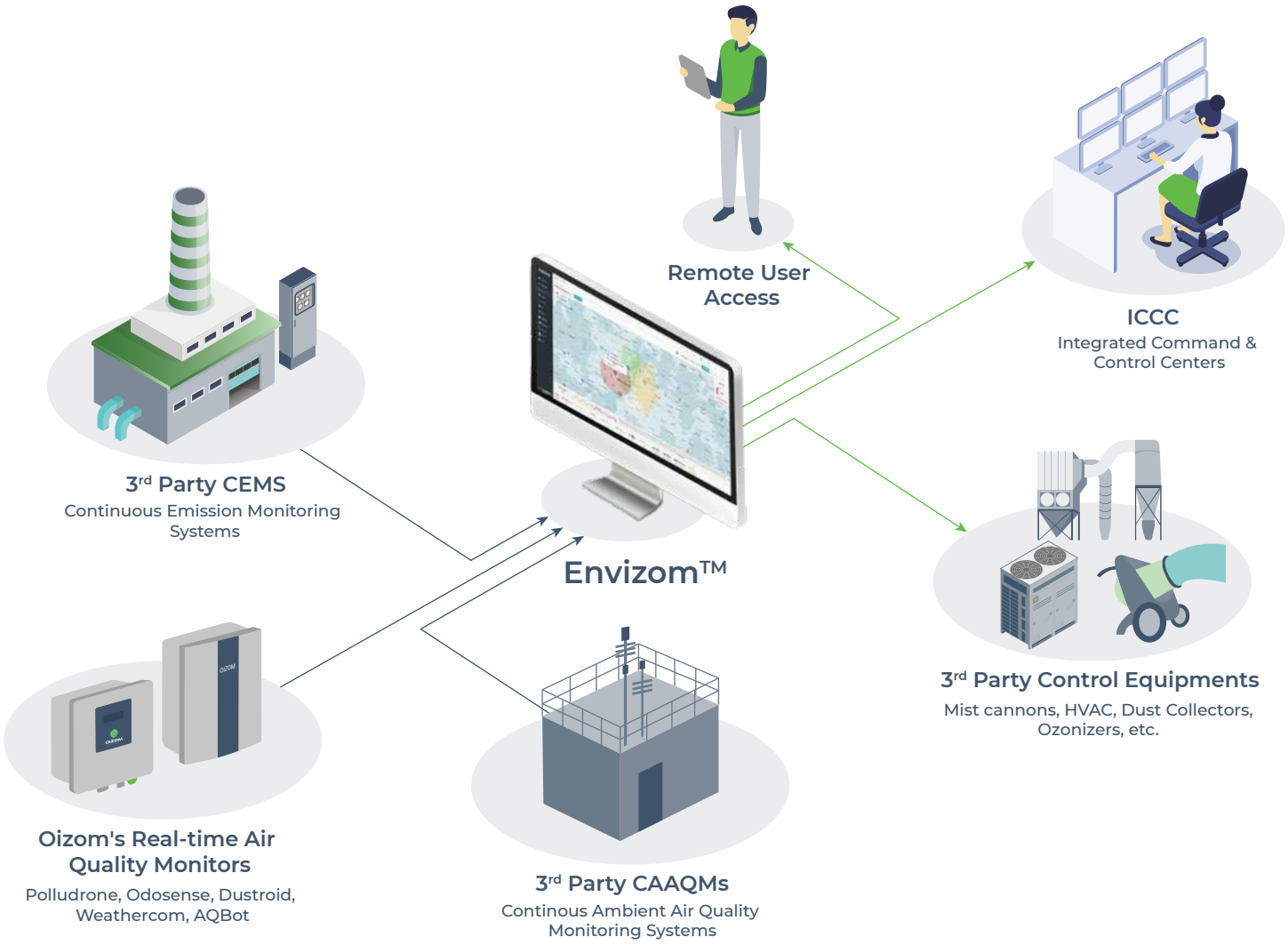
Spot-Calibration

The frequency of calibration is decided based on atmospheric conditions and individual sensor drift to ensure data accuracy. Spot calibration can be performed using reference equipment which can also be a recently calibrated Oizom device.

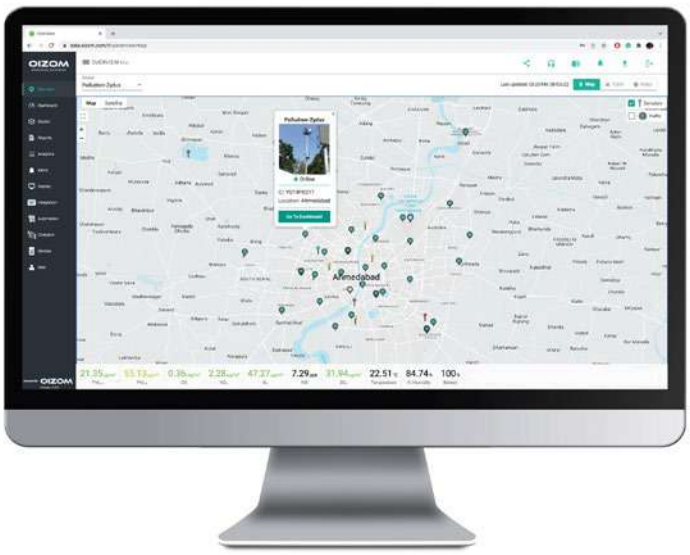
Diagnosis / Debugging

Power and network availability are the prime check in case of equipment failure. If the issue is still unresolved after remote diagnosis, on-site troubleshooting can be planned by an engineer.

Solution Architecture

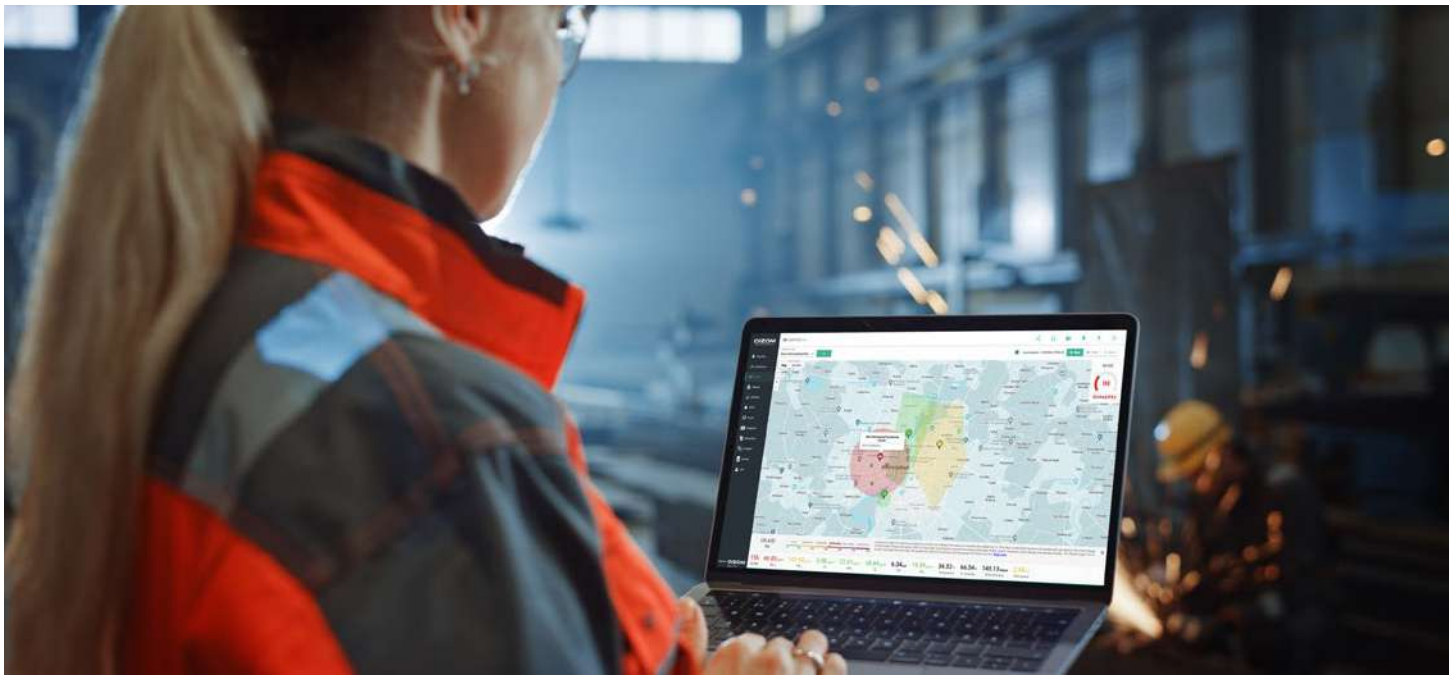


Envizom™ Air Quality Software



An on-device data software enables users to access the data, configure networks and sensors without any dependency on the internet. Users can also connect their smart devices to Polludrone and view real-time data, perform on-site calibration, change network configuration, and change sensor configuration.

Envizom™ Features



- Real-time data
- Smart alerts
- User friendly interface
- Easy to Set Up
- One click share
- Data accessibility

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.

Solution Applications

Smart City

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

Smart Campus

Pollution monitoring at key locations on campus allows stakeholders to spread awareness about environmental conditions of the premises.

Roads And Highways

Pollution monitoring at roads and tunnels can help create pollution mitigation action plan to control vehicular emissions.

Solution Applications

Industrial Fenceline

Comprehensively assess the environmental impact of industrial activities and monitor the fugitive emissions, and gas leaks on a real-time basis.

Wastewater

Monitoring odour intensity at waste water treatment plants can help regulate odour emission by appropriate maintenance on time.

Airports

Pollution and noise monitoring at taxiways and terminal surroundings facilitates airport authorities to analyze its impact on travellers and surrounding neighbourhoods.

Solution Applications

Construction

Dustroid can be installed at construction sites to alert authorities when dust pollution breaches the threshold limit.

Environmental Automation

Improve your Environmental Process control by monitoring air pollution, odour and other environmental conditions on a real-time basis.

Sea Ports

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

Case Studies

Ensuring environmental safety at Dangote Cement Plant

The communities living near Dangote Cement Plant were starting to raise concerns about the bad air quality due to excessive dust-laden activities. Oizom deployed Polludrones® in the area to ensure environmental safety.

Ethiopia | August 2021 | Fenceline

City air quality monitoring at Sydney, Australia

Oizom® deployed Ambient dust monitors with the help of the local city council in Sydney metropolitan in Australia to monitor the city air quality.

Australia | May 2021 | Smart City

Smart city air quality monitoring at Agra, India

High levels of PM_{10} and $PM_{2.5}$ were rapidly degrading the air quality of Agra city. Oizom® helped in monitoring the air quality by installing Polludrones all across the city.

India | August 2019 | Smart City

Case Studies

Monitoring hazardous gas levels at an Oil refinery in Tehran

Oizom® provided Odosense® to the Department of Environment of Iran. It helped the authorities to get a real-time read on the harmful gaseous levels in the Behran Oil Company's Oil refinery, Tehran.

Iran | December 2021 | Industrial Odour

Air Quality Monitoring at Imphal Smart City, India

Imphal Smart City deployed air quality monitoring devices in the city to understand the spatial variations and ascertain the reasons for degrees of pollution.

India | July 2020 | Smart City

Ensuring Workers' safety by dust monitoring in the Red Sea Airport

Oizom® installed Dustroid® to monitor the dust levels and warn the authorities in case of sandstorms in Saudi Arabia's Red Sea Development luxury project.

Saudi Arabia | September 2020 | Airports

Case Studies

Air Quality Monitoring at Granada University

With over 61,000 students and staff in residence, the University of Granada aimed to provide a healthier environment to its students. Polludrone® monitored ambient parameters within the campus and displayed the data to the students.

Spain | April 2019 | Smart Campus

Monitoring odour and air quality in Masan Group, Vietnam

Oizom®'s Odosense® is monitoring odour and air quality in Masan Group, Vietnam to ensure hygienic standards of environment for workers.

Vietnam | October 2021 | Industrial Odour

Monitoring chlorine gas at a common effluent treatment plant

AQBot™ Cl_2 is used for monitoring chlorine gas at a CETP in Jetpur, India.

India | July 2020 | Wastewater

Trusted by
60+ Countries

Solutions Installed in
65+ Cities

Total Devices Installed
1000+

Total Population Covered
200 million+

Oizom Customers

Oizom Ecosystem

Global Presence

Accurate Air Quality Monitoring And Advanced Data Analytics

Get in touch

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