

BARC Mumbai Chose Oizom's Polludrone for Effective Air Quality Management



INTRODUCTION: Advancing Scientific Research with Environmental Responsibility

At one of India's most advanced research facilities, air quality isn't just about compliance—it's about ensuring a safe and controlled scientific environment. With increasing urban pollution and the need for real-time environmental insights, Bhabha Atomic Research Centre (BARC Mumbai) took a proactive step to monitor and manage air quality across its high-security campus. As India's premier multi-disciplinary nuclear research facility, BARC is known for its scientific advancements under the Department of Atomic Energy. With a commitment to environmental responsibility and public awareness, BARC sought an advanced air quality monitoring solution for its Mumbai campus. BARC installed Oizom's Polludrone to monitor critical air pollutants and environmental parameters in real-time to ensure proactive air quality management, improved air quality, and a safer environment.



THE CHALLENGE: Safeguarding Air Quality in a Critical Research Environment

The Bhabha Atomic Research Centre (BARC) faced environmental challenges in maintaining air quality across its high-security campus. Given the sensitivity of operations and the need to comply with environmental regulations, air quality monitoring became a crucial aspect of campus management.

Key challenges included:

- 1. Monitor Air Pollution Trends:** Understanding pollutant levels and their impact on research activities, personnel, and the surrounding environment.
- 2. Enhance Public & Employee Awareness:** Educating people within and around the campus about air quality trends and potential health risks.
- 3. Enable Real-Time Data for Proactive Decision-Making:** Empowering authorities with live air quality insights to mitigate pollution spikes proactively.
- 4. Comprehensive Multi-Parameter Analysis:** Monitoring a wide range of pollutants, including PM_{2.5}, PM₁₀, CO₂, CO, SO₂, NO, NO₂, O₃, and additional environmental factors such as noise, light, UV radiation, temperature, humidity, and atmospheric pressure.

Without an integrated air quality monitoring system, it was difficult to track pollution trends and pinpoint their sources, leaving authorities with insufficient data for effective action.

THE SOLUTION: Advanced Air Monitoring with Oizom's Polludrone

BARC deployed two Oizom Polludrone units to address these environmental concerns at strategically selected locations. Polludrone, a smart ambient air quality monitoring system, was chosen for its advanced features and high precision.

Key capabilities of Polludrone:

- 1. High-Precision Sensors:** The system is equipped with laboratory-calibrated sensors designed to provide accurate and real-time pollutant measurements. These high-precision sensors can detect particulate matter (PM₁, PM_{2.5}, PM₁₀), gases (NO₂, SO₂, CO, O₃, etc.), temperature, and humidity, ensuring comprehensive environmental monitoring.
- 2. Patented E-Breathing Technology:** The system features patented E-Breathing technology, which ensures data accuracy and makes it a robust solution for industrial and urban air quality monitoring.
- 3. Multiple Communication Protocols:** The system supports various communication protocols, including



**INSTALLATION
DETAILS**

**2 UNITS of
POLLUDRONE**

RS485, Modbus, 4-20mA, Wi-Fi, GSM, and cloud-based integration, allowing seamless data transmission to BARC's existing environmental management systems.

- 4. Dedicated Service Support:** The solution is backed by dedicated service support to guarantee uninterrupted data collection and system efficiency.

With real-time air quality monitoring, BARC authorities can now analyze pollution trends, track environmental shifts, and take corrective measures before pollution levels escalate.

THE TRANSFORMATION: A Data-Driven Approach to Air Quality Management

The implementation of Oizom's Polludrone has brought significant improvements to BARC's air quality management:

- 1. Accurate & Reliable Data for Authorities:** BARC's management can now access real-time air quality insights, enabling informed decision-making.
- 2. Proactive Pollution Control:** Continuous monitoring allows authorities to quickly identify and address pollution sources before the pollution level spikes.
- 3. Public Awareness via LED Displays:** Live air quality data is displayed on LED screens across the campus, fostering awareness among employees and visitors.
- 4. Validation of Air Quality Index (AQI):** Reliable, accurate data enables precise AQI calculation, ensuring compliance with environmental regulations.
- 5. Automated reports for Air Quality checks:** With Envizom, BARC gets regular automated reports on air quality within and around the facility, enabling it to take proactive data-driven action whenever needed.

By leveraging cutting-edge air quality monitoring technology, BARC has taken a proactive step toward a cleaner, healthier, and more sustainable research environment.

BROADER IMPACT: Setting an Example for Research Institutions

Sustainability & Compliance Leadership: The successful deployment of Polludrone at BARC highlights the importance of real-time monitoring in regulated scientific environments.

Scalable Impact on National Research Facilities: This initiative demonstrates how government and research institutions can integrate data-driven air quality management into their operations.

A Model for Future Research Institutions: BARC's adoption of advanced air quality monitoring technology serves as a blueprint for other high-security research campuses looking to improve environmental responsibility and workplace safety.

CONCLUSION: Pioneering Environmental Monitoring for a Sustainable Future

BARC's collaboration with Oizom highlights the critical role of air quality monitoring in research campuses. By leveraging Polludrone's advanced monitoring capabilities, BARC ensures a cleaner, healthier environment while promoting scientific research in a pollution-free atmosphere. This initiative serves as a model for other institutions seeking to enhance air quality management through data-driven solutions.

Oizom is a company specializing in environmental monitoring solutions. They offer products to monitor air quality, weather conditions, and other environmental factors. Utilizing advanced sensor technology and data analytics, Oizom aims to provide actionable insights for construction, industrial compliance, and community awareness. Their solutions can be applied in various sectors including government, industries, and community initiatives.