OIZOM
REDEFINING RESOURCES

CASE STUDY
Smart Campus

MAHE Ensured Student Safety During Campus Construction with Polludrone

INTRODUCTION: Pioneering Environmental Responsibility in Education

As academic institutions expand their campuses to meet the needs of a growing student body, balancing infrastructure development with environmental well-being becomes essential. Manipal Academy of Higher Education (MAHE), a prestigious Institution of Eminence with a legacy of excellence in higher education, recognized this responsibility during its campus enhancement activities in Bengaluru.

Amidst ongoing construction work, MAHE took proactive steps to safeguard the health of its students, faculty, and staff and to preserve the academic environment. To ensure environmental compliance, improve awareness, and enable data-driven planning, MAHE partnered with Oizom to install three Polludrone Smart Custom monitors, creating a benchmark in sustainable campus development.

INSPIRED BY LIFE
MANIPAL
ACADEMY of HIGHER EDUCATION
(Deemed to be University under Section 3 of the UGC Act, 1956)

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THE CHALLENGE: Managing Campus Development Without Compromising Health or Learning

As part of its infrastructure upgrade, MAHE Bengaluru encountered multiple environmental challenges associated with large-scale campus construction:

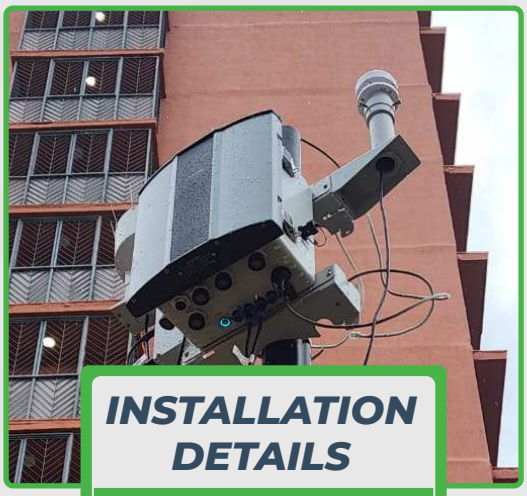
1. **Increased Dust Levels:** Ongoing construction generated elevated levels of PM1, PM2.5, PM10, and PM100, degrading air quality.
2. **Rise in Gaseous Pollutants:** Emissions from construction vehicles and machinery introduced pollutants like Carbon Monoxide (CO) and nitrogen oxides (NO) into the environment.
3. **Disruptive Noise Pollution:** Continuous use of heavy equipment elevated ambient noise levels, disrupting classroom activities and affecting student focus.
4. **Dynamic Weather Patterns:** Changes in temperature, humidity, wind direction, and pressure significantly affected how pollutants were distributed across campus, complicating mitigation efforts.
5. **Health & Cognitive Impact:** Emissions from the construction site are affecting the health of staff and students, leading to impaired cognitive development and concentration of students.
6. **Need for Real-time Awareness:** A lack of continuous monitoring posed challenges in timely responses and compliance with regulatory and internal environmental standards.

Degrading air quality made it essential for MAHE to install a smart, comprehensive, and scalable monitoring solution to manage both short-term impacts and long-term environmental risks effectively.

THE SOLUTION: Intelligent, Multi-Parameter Monitoring with Oizom Polludrone

To address these complex, multi-dimensional challenges, MAHE deployed three Oizom Polludrone Smart Custom units, strategically placed across the Bengaluru campus. The solution included:

1. **Comprehensive Monitoring:** Each device monitored a wide array of critical parameters, PM_1, $PM_{2.5}$, PM_{10}, PM_{100}, CO, NO, noise, temperature, humidity, atmospheric pressure, UV radiation, visible light intensity, wind speed & direction, and rainfall in real-time.
2. **High Accuracy in Diverse Conditions:** The all-in-one Polludrone units delivered reference-grade data accuracy using auto-calibrating sensors and advanced data correction algorithms.
3. **Data Visualization & Actionable Insights:** Real-time dashboards, pollutant trend analysis, automated alerts, and historical data reports in Envizom simplify



INSTALLATION DETAILS

3 UNITS
of
POLLUDRONE

environmental management for facility administrators.

4. **Real-Time Alerts:** Custom thresholds triggered instant alerts for anomalies, enabling the institution to act swiftly, whether by adjusting construction schedules or notifying the community.
5. **Easy Setup, Maximum Insights:** With an easy-to-install process and remote access, the solution was installed with zero disruption to academic activity while offering full operational control.

MAHE selected Oizom's continuous air quality monitoring solution to centralize environmental data collection, ensure high accuracy across parameters, and make strategic decisions backed by real-time insights, all while maintaining operational continuity and academic integrity.

THE TRANSFORMATION: A Smarter, Safer, and More Sustainable Campus

Post-installation, MAHE witnessed a notable transformation in its environmental monitoring and response capabilities:

1. **Real-Time Environmental Data:** With 24/7 access to air, noise, and light intensity data, the administration could monitor the real impact of construction activities on campus zones.
2. **Proactive Health Measures:** Identifying pollution spikes helped MAHE proactively limit outdoor activities, reschedule academic events, and communicate protective guidelines to students and staff.
3. **Smarter Infrastructure Planning:** Insights into UV, visible light, and noise patterns aided strategic planning decisions, such as classroom placement, construction timelines, and landscape design.
4. **Effortless Compliance and Reporting:** Automated reports from Envizom simplified environmental compliance and allowed MAHE to share accurate data with regulatory bodies and internal stakeholders.
5. **Data-Driven Sustainability Initiatives:** The data empowered MAHE to take environment-focused actions, like increasing green cover, optimizing traffic flow, and installing filtration systems.

Oizom's solution transformed MAHE's environmental monitoring from a passive process into a real-time, responsive, and strategic function, supporting the university's commitment to student safety, academic excellence, and sustainable development.

BROADER IMPACT: A Blueprint for Green Campus Development

MAHE's collaboration with Oizom has set a powerful precedent for how large academic institutions can uphold environmental stewardship without halting development. The ability to monitor, understand, and act upon real-time environmental data not only ensures student well-being but also supports smarter, more sustainable decisions in campus growth.

As India’s educational institutions move towards becoming global learning hubs, MAHE's commitment to environmental intelligence demonstrates that academic excellence and ecological responsibility can grow hand in hand.

CONCLUSION: Leading with Intelligence, Acting with Responsibility

In a time when environmental responsibility is inseparable from institutional excellence, MAHE’s partnership with Oizom marks a progressive step towards smart campus development. By monitoring critical parameters like air quality, noise, light, and weather in real-time, the university is not just safeguarding health; it’s building a legacy of innovation, accountability, and sustainable leadership in education.

This case not only reinforces MAHE’s legacy of innovation but positions it as a leader in sustainable campus development, demonstrating that the future of education must be as healthy and intelligent as it is ambitious.

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.