OIZOM
REDEFINING RESOURCES

Smart City

Urban Environmental Monitoring
Solutions

Concept

Smart cities are urban spaces that provide a decent quality of life to their citizens by offering a clean and sustainable environment.

For a Smart city, it is a necessity to monitor the environmental conditions for identifying the sources of pollution and mitigate them. A network of sensor nodes can be deployed to monitor air quality and meteorological parameters across the city. Through pollution source detection, the city can take corrective measures and improve its environmental health.

By installing disaster detection systems like flood and rainfall monitoring solutions, the citizens can be alerted beforehand in case of a catastrophic event. A holistic view can be derived, which enables the authorities to make data-driven decisions for infrastructure and policy planning.

> *68% of the world population projected to live in urban areas by 2050*
>
> *- United Nations*

Target **Parameters**

Dust (PM2.5 & PM10)

Noise

Light, UV

Gases
(SOx, NOx, CO, O3)

Wind, Rain, Flood

Temperature, Humidity, Pressure

Data **Use-case**

City Environment Monitoring

Industrial Impact on City

Traffic Management

Sustainable Urbanization and Development

Citizen Healthcare

Problem

As of 2018, 33.2% of the Indian population resides in urban areas. Expansion of cities has led to an increase in the use of automobiles, industrial production, and rapid deforestation. Consequently, air pollution and environmental deterioration have reached an alarming stage.
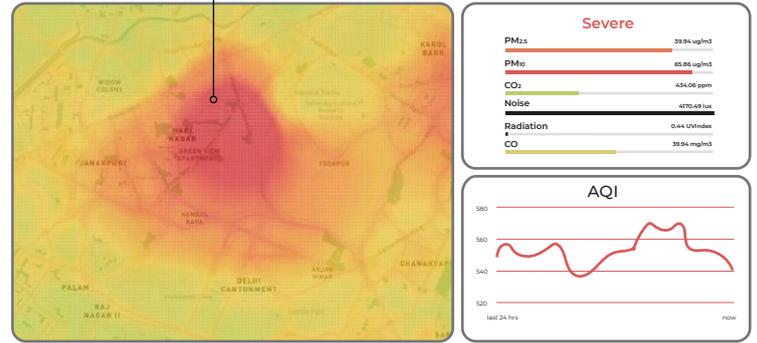
One of the fundamental features of smart cities is providing a sustainable environment. Rapid urbanization and industrialization have made it quintessential to monitor the environmental parameters. The major problem in environmental monitoring is real-time data acquisition through scalable durable and accurate monitoring equipment.
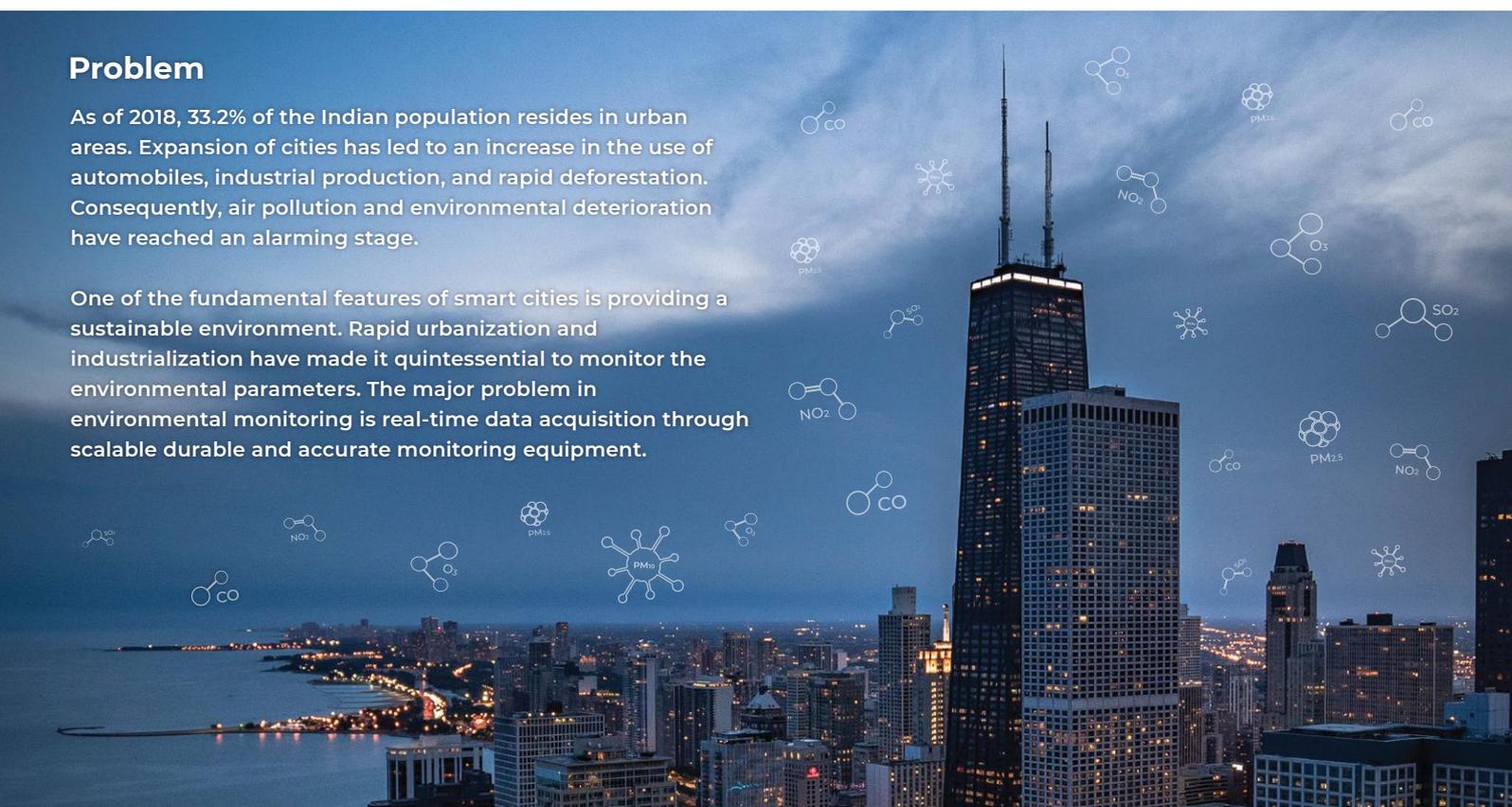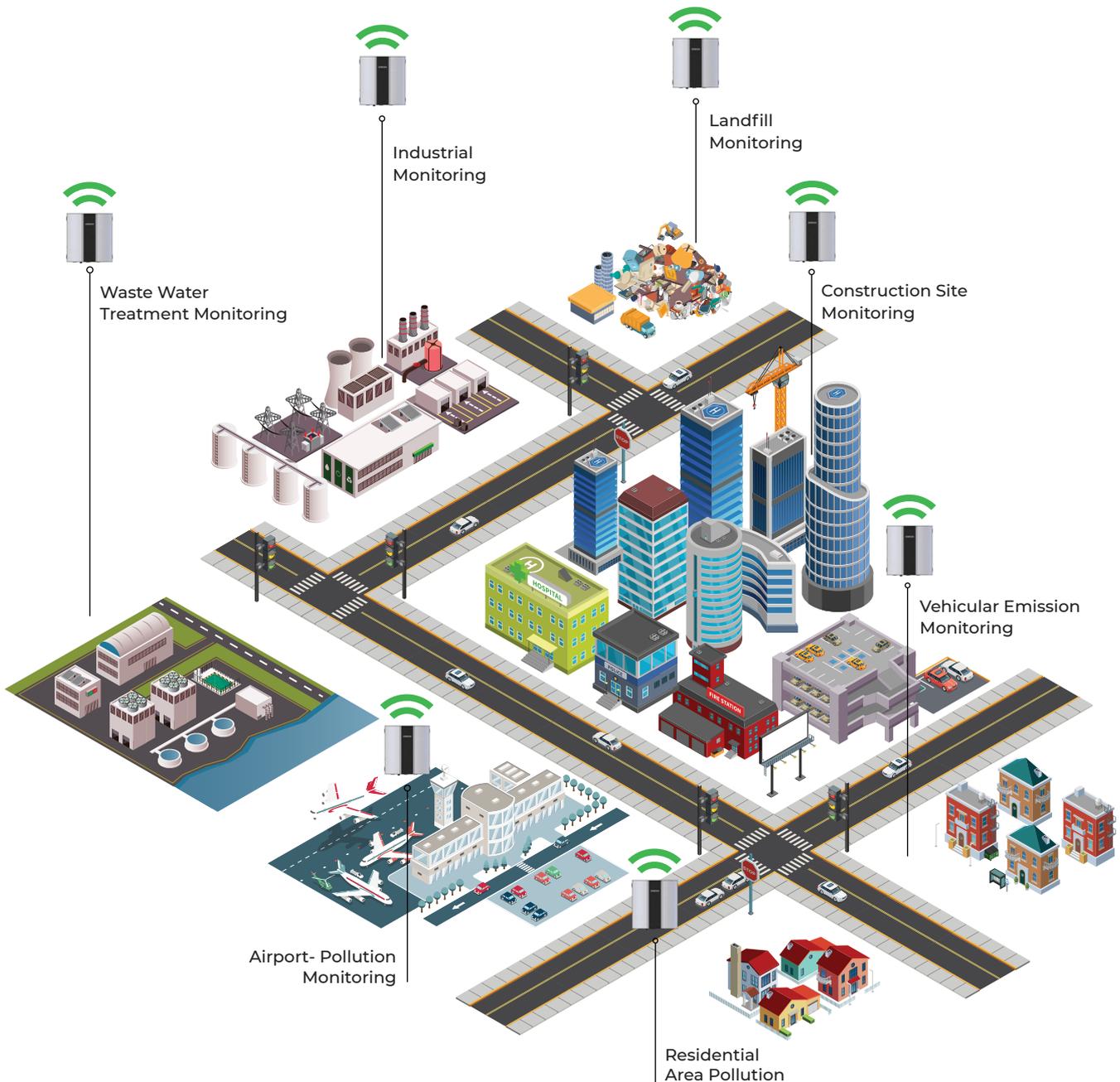
Proposed **Solution**

- Oizom offers Polludrone™ - a 360-degree solution to measure concentrations of ambient pollutants in an urban environment like PM$_{2.5}$, PM$_{10}$, CO, NOx, SOx, & O$_3$.
- Polludrone™ monitors meteorological parameters like noise, temperature, humidity, ambient pressure, rainfall, and floods.
- It transmits real-time data through a wireless communication protocol to a cloud platform.
- The equipment is fully solar-powered with long battery back up.
- Its IP65 enclosure makes it robust for harsh ambient conditions.
- The data from Polludrone™ is accessible on the Oizom Terminal which visualizes and analyzes the data in the desired formats like reports, alerts, heatmaps, trend analysis etc.

⚠ **ALERT**
Heavy pollution due to construction

Severe

PM$_{2.5}$	39.94 ug/m3
PM$_{10}$	65.86 ug/m3
CO$_2$	434.06 ppm
Noise	4170.49 lux
Radiation	0.44 UVIndex
CO	39.94 mg/m3

AQI

last 24 hrs   now

Command and Control Centre

Industrial Monitoring

Landfill Monitoring

Waste Water Treatment Monitoring

Construction Site Monitoring

Vehicular Emission Monitoring

Airport- Pollution Monitoring

Residential Area Pollution

Impact

Oizom has implemented environmental monitoring solutions for smart cities like Kakinada, Varanasi, Surat, Gandhinagar, etc. The smart city authorities are able to visualize and analyze the environmental condition of the city on a GIS map or ICCC. Data-driven decisions for better citizen health and sustainable environment are possible using Polludrone's™ data. City authorities can check the city's exposure to pollution and devise a strategic plan for sustainable urban expansion and transportation route planning.

Case Studies

Gandhinagar Smart City Project

Gandhinagar Municipal Corporation monitored the city's environmental health by installing Oizom Polludrone™. In addition to Air Quality, the Polludrone™ also monitored the rain levels to supplement the weather stations. The real-time data was shared to the mass audience through visual messaging displays for suggestive actions.

| 📅 Oct 2018 | ◎ 120 km² | ▥ Polludrone | ▱ Integration to ICCC, Display APIs |

Kakinada Smart City Project

Kakinada Municipal Corporation partnered with Sterlite Tech to analyze their city's environment and create awareness among people. Oizom installed Polludrone™ to monitor real-time pollution data and environmental parameters. Through the solution, Kakinada authorities reduced the total environmental monitoring cost by 50%.

| 📅 Jul 2017 | ◎ 36 Km² | ▥ Polludrone | ▱ API Integration to ICCC |

Surat Smart City Project

Surat Municipal Corporation wanted to monitor the city's environmental condition as part of their smart city mission. With the help of Oizom Polludrone™, they were able to observe the city's environmental condition in real-time. The collected data was also showcased through web widgets on the city's official website.

| 📅 Sep 2017 | ◎ 15 Km² | ▥ Polludrone | ▱ Integration to ICCC, Display APIs, Web Widget |

Varanasi Smart City Project

Varanasi Municipal Corporation had to monitor the increasing pollution in the city mainly due to increased tourism and infrastructure developments. Oizom deployed its Polludrone™ in the city to analyze the pollution and meteorological parameters. The solution helped in devising a graded action plan to combat pollution.

| 📅 Sep 2018 | ◎ 45 Km² | ▥ Polludrone | ▱ Integration to ICCC, Oizom Terminal |

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