Environmental Monitoring Systems

An intelligent environmental monitoring system is a set of tools and technologies that allow collecting and analyzing information in real-time in relation to the environmental conditions of a specific geographical area. These systems use different environmental devices and sensors to measure several variables, such as air quality, temperature, humidity, noise level, radiation, and other environmental parameters.
The 'intelligence' of these systems arises from the use of automatic learning algorithms and advanced data analyses to process and analyze the collected data. This allows companies to detect patterns and trends, identify potential issues, and make informed decisions in real-time.

In addition, environmental monitoring systems generally use network communication technologies to submit data and alerts, which enables a quick response in the event of an environmental emergency or risk.

THE Applus+ SOLUTION

At Applus+, we supply, install, commission, and maintain intelligent environmental monitoring systems to measure different environmental parameters. Some of the environmental data that can be monitored with these systems include:

Continuous emissions monitoring: Environmental monitoring systems can measure the concentration of contaminants in residual gases derived from industrial processes on a constant basis. These systems can measure and monitor pollutants, such as particles, nitrogen dioxide, sulphur dioxide, carbon monoxide, hydrofluoric acid, hydrochloric acid, ammonia, and total organic compounds, among other non-polluting components, like steam, oxygen, etc.

Air quality control: intelligent monitoring systems can measure the concentration of hazardous substances in ambient air, such as nitrogen dioxide, ozone, sulphur dioxide, and suspended particles, apart from other substances, like ammonia, hydrofluoric acid, volatile organic compounds, mercury, hydrofluoric acid, etc.

Acoustic pollution: these systems can measure noise levels and vibration in a specific environment. This allows evaluation of the impact of human activity on the acoustic pollution of an area.

Water quality: intelligent environmental monitoring systems can measure the quality of water, including temperature, pH, turbidity, conductivity, dissolved oxygen concentration, and the presence of contaminants.

Radiation: these systems can measure background radiation, including ionizing and non-ionizing radiation.

Weather information: intelligent environmental monitoring systems can measure several weather parameters, such as temperature, humidity, wind speed, wind direction, and rain.

Applus+ has over 24 years of experience and knowledge in the execution of projects concerning intelligent environmental monitoring systems for the mining, oil and gas, energy, agriculture, and aeronautic sectors, public administration, and environmental authorities.

We integrate different measurement technologies, which consist of selecting, combining, and configuring other environmental measurement technologies to offer specific and customized solutions to customers depending on their location, budget, and project scope.

We have developed AmbiensQ Suite, a web-based parameterizable technology platform with over ten years of life. Using real-time communication systems, this platform is used to capture, process, and provide environmental data to users, enabling data visualization and management at once.

Data can be viewed on any device having Internet access, such as smartphones, tablets, laptops, or screens.

This tool provides an integral environmental monitoring solution to help companies and organizations meet the environmental control and conformity requirements established by regulatory bodies.

The environmental data is captured and transferred to the cloud by different communication systems so as to be viewed in the AmbiensQ Suite technological platform.

The platform offers a broad range of analysis tools, allowing users to view and analyze

environmental parameters in real-time and make data-based decisions. It also provides automation functions that help users program and manage tasks, as well as automate reporting processes.

In Applus+, we are engaged in the innovation of systems, including technologies and software, to measure environmental impacts, in which we use artificial intelligence as a valuable tool to process and analyze data quickly and effectively.

We have an R+D+I team to develop and improve products and services and to be at the forefront of technology and market trends. Our experts in different areas help improve monitoring efficiency to make decisions on time, providing reliability and security to our customers.

We also count on different accreditations and certifications, such as :
ISO 17025:2017, ISO 9001: 2015, ISO 14001: 2015, ISO 45001: 2018 and NORSOK-S-006

Target customers

Environmental monitoring systems may be applied to different situations in which it is required to monitor and evaluate the environmental impacts of an activity, project or process.
Some of these situations include:

Construction or dismantling projects: while planning and constructing or dismantling projects, intelligent environmental monitoring systems may be implemented to evaluate and minimize the environmental impact of construction activities and subsequent operations.

Industrial activities: intelligent environmental monitoring systems may be implemented in industrial production activities to control polluting gas emissions, particle emissions, water quality, air quality, biodiversity, and other environmental factors that may be affected by these activities.

Urban areas: intelligent environmental monitoring systems may be implemented in urban areas to monitor air and water quality, ambient noise, and other environmental factors that may affect the quality of life of residents.

Natural reserves and national parks: in protected natural spaces, such as natural reserves and national parks, intelligent environmental monitoring systems may be implemented to control biodiversity, air and water quality, and soil erosion, among other environmental factors.

Applus⊕

Environmental monitoring systems are enhanced to incorporate new measurement parameters, new technologies, optimal telecommunication systems, and technological platforms that improve environmental data management for decision making.

Key customer benefits

Implementing environmental monitoring systems may imply numerous advantages, including:

- **Identification and prevention of environmental issues**: monitoring systems identify environmental issues before they become a threat to human health or the environment, which allows adopting preventive measures.
- **Cost reduction:** the early detection of environmental issues reduces costs related to cleaning and the repair of environmental damages.
- **Regulatory compliance:** environmental monitoring helps companies comply with environmental regulations and laws, thus avoiding fines and penalties. The products offered by Applus+ have all the guarantees to evaluate compliance with environmental regulations.
- **Reputation and trust**: companies that implement environmental monitoring systems and show their commitment to the environment improve their reputation and increase public trust in their brand.
- **Improved efficiency:** monitoring systems identify environmental improvement opportunities in the companies' processes and practices, which leads to more efficiency and cost reduction.