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Real-time gas emission monitoring at hazardous sites

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This paper describes a distributed point-source monitoring platform for gas level and leakage detection in hazardous environments. The platform, based on a wireless sensor network (WSN) architecture, is organized into sub-networks to be positioned in the plant's critical areas; each sub-net includes a gateway unit wirelessly connected to the WSN nodes, hence providing an easily deployable, stand-alone infrastructure featuring a high degree of scalability and reconfigurability. Internet connectivity is provided via TCP/IP over GPRS gateways at a one-minute sampling rate. Environmental and process data are forwarded to a remote server and made available to authenticated users through a user interface that provides data rendering in various formats and performs post-processing and multi-sensor data fusion. The platform is designed to provide real-time plant management with an effective, accurate tool for immediate warning in case of critical events, with minimal intrusiveness or obtrusiveness.

Biography

Gianfranco Manes is a former Professor of Electronics at University of Florence, Italy and is an internationally recognized speaker in the area of microwave devices modeling and design and Wireless Sensor Networks Technology and Applications. He contributed more than 300 papers in learned Society Journals and International Conferences. He currently heads the MIDRA Consortium, a Research Institute operating in the areas of Microwave Technology and environmental monitoring.

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