IBM Research Video Spotlight: Cognitive Methane Measurement

YORKTOWN HEIGHTS, N.Y., April 28, 2017 /PRNewswire/ -- A group of interdisciplinary IBM (NYSE:IBM) Research scientists are building and testing a cognitive methane measurement technology that could change the way potential pollutants are tracked. The research effort involves an intelligent network system that uses tiny silicon photonics sensing chips, that when combined with machine learning and advanced physical analytics can autonomously detect the origin and concentration of methane leaks.

IBM Research Cognitive Methane Measurement on Youtube: https://youtu.be/hQJYkPSZlw0

The research is being conducted as part of the ARPA-E Methane Observation Networks with Innovative Technology to Obtain Reductions (MONITOR) program where IBM is collaborating with Southwestern Energy to explore and further test this system in the field.

Methane is an important source of clean energy, but managing unintended emissions will help reduce its environmental impact as well as increase the amount oil and gas producers can capture and put to market.

IBM Research has brought together a number of technologies to tackle this challenge, including its work in silicon photonics, a technology better known for enabling high-speed optical interconnects at data centers. In this case instead of using light to transfer data, the technology uses optical spectroscopy to detect the gas. In this scenario, when the chip interacts with traces of methane gas it absorbs a specific wavelength of light to create a unique signature which can be used to estimate the concentration levels of the gas by measuring changes in the absorption of light.

Combined with machine learning and advanced physical analytics that incorporate real-time wind data, satellite data, and other historical sources, the concentration and origin of the methane leak can be determined in near real-time. This information could then be relayed via the cloud to a client's operations team through a well-designed GUI. The end goal is the development of a true end to end Internet of Things (IoT) solution that enables partners and customers the ability to improve operations, operate more safely, and could eventually integrate customized predictive analytics.

For more information: http://www.research.ibm.com/5-in-5/environmental-pollutants/

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