SPECIAL FOCUS

ActiveIAQ Building Monitoring Technology

Pinchin Ltd. has partnered with eleven-x Incorporated to deliver an integrated solution for deployment of LoRaWAN building sensors, analytics, and web dashboards to support building owners and operators in monitoring parameters that help better understand building performance, identify and address challenges as they occur.

Why should I consider ActiveIAQ?

Considering that we spend 90% of our time indoors, why are we so concerned about the weather? ActiveIAQ provides detailed insights into the indoor environment. Healthy indoor environments has become a significant focus for building owners and occupants, and provide reassurances and transparency about indoor conditions is increasingly important.

Occupant Experience: Occupants that are transitioning back to the office from work-from-home may be reluctant or have concerns about safety. Demonstrating that building operators are taking a strategic and data-validated approach to the new normal could be a key differentiator.

Tenant Retention: Businesses are rethinking short and long-term decisions about how much physical space they need for their operations. Building owners will need to support Re-Occupancy strategies to maintain tenants use of space.

Healthcare: Sensitive occupants require a heightened level of diligence. In Ontario, guidelines have been provided to long-term care operators to better manage extreme temperatures, sensors can be a key element of a strategy to avoid heat-related illnesses (HRI) in these facilities. Construction-related hospital acquired infections, and dust migration during construction and renovation practices can also be improved using a sensor-based monitoring approach.

Ambient Air Quality: The effects of global climate change are resulting in outdoor ambient conditions which can negatively impact the indoor environment. Wildfires in the US and Canada have resulted in severe air quality conditions. A sensor driven approach to managing these events can help building manager understand conditions, communicate with occupants and implement indoor air quality management plans (IAQMP) pro-actively.

OHS Due Diligence: Building occupancy strategies are dynamic and challenging to measure, a real time sensor-driven approach is required to demonstrate adoption, and on-going effectiveness of selected best practices.

How does ActiveIAQ fit into my risk management strategy?

Based on our experience working on sensor strategies for building portfolios, the typical elements of a management plan include Risk Assessment, Re-Occupancy Planning, HVAC Optimization and Space Planning. Validation of these elements adds real value to these plans and helps all stakeholders to understand that the plan is working. Sensors for carbon dioxide, relative humidity and airborne particulate (PM2.5) are effective tools to support this validation process.

Carbon Dioxide (CO2): Monitoring this parameter confirms that HVAC optimization has been successfully implemented to deliver maximum possible outdoor air, and that space planning is working effectively to keep occupants physically distanced, resulting in CO2 concentrations generally below 800ppm.

Temperature (T): Occupant comfort is best achieved when temperature is managed within acceptable summer and winter ranges.

Relative Humidity(RH): Monitoring this parameter demonstrates that RH is being effectively managed (40-60%) to prevent respiratory irritation and limit the airborne spread of SARS-CoV-2 fomites and virus nuclei.

Airborne Particulate (PM2.5): Monitoring this parameter demonstrates that airborne particulate, including potential respiratory particulates, are being effectively controlled by the ventilation and filtration systems.

Leak Detection: Water and water damage are the leading cause of serious indoor air quality in buildings (mould growth and microbial contamination), early recognition of these conditions results in less damage to buildings.

Real time sensors provide an opportunity to pro-actively identify areas of potential concern, so that reactive and agile mitigative actions can be taken to optimize the performance of the management plan. Pinchin can monitor the data remotely through the Pinchin CORE data management portal, set custom notifications (email and SMS) for building stakeholders, display portfolio and building level dashboards and generate data-driven reports on the fly.

Why LoRaWAN, what is it?

Our technology partner eleven-x Incorporated is a Waterloo, Ontario based firm that is a world leader in the implementation of LoRaWAN technology in buildings and cities. LoRaWAN is unique in that the gateways offer superior range and network penetration in the built environment. The LoRaWAN ecosystem includes 1,000s of sensors for a wide array of applications. LoRaWAN IAQ sensors are generally battery powered, with each sensor having the potential for 10 year deployment. This network and sensor combination means that buildings can readily be configured without extensive wiring or IT deployment.

How does it work?

ActiveIAQ is an integrated solution made up of sensors, wireless networking, cloud data management and a customizable data portal. This solution provides a complete set of tools to obtain data, store it securely, and visualize it in creative new ways to drive evidenced-based decision making and insights.

Sensors – The LoRaWAN sensor ecosystem is extensive, and a multitude of sensors exist to support IAQ monitoring. The majority of IAQ parameters that were traditionally measured using spot-measurements and direct reading instruments can be obtained through sensor networks. Temperature, Relative Humidity, Carbon Dioxide, Volatile Organic Compounds, Noise and Light measurements can easily be obtained. In specialized applications legacy direct-reading devices can also be adapted to provide real time data.

Wireless Connectivity – The LoRaWAN solution is unique in its ability to provide superior coverage in the built environment, making for efficient installation and deployment. Battery powered sensors provide a virtually “peel and stick” installation process. Based on experience working with other Internet-of-Things platforms, LoRaWAN has market-leading reliability.

Cloud Data Management – Security is paramount to managing data, and the eleven-x and Pinchin ActiveIAQ solution has been built from the ground up to meet this need. Data is returned to our servers in real-time, and insights and response notifications are generated rapidly.

Data Portal – ActiveIAQ is powered by the Pinchin CORE real time data management system. Pinchin CORE is flexible and adaptive tool that can be adapted to many different environmental and building data scenarios. Key features of the platform include dashboards, geospatial support, data visualization and notifications. These tools give users control over their data, and how they prefer to consume it.

How do I learn more about this solution?

If you are interested in learning more about how ActiveIAQ monitoring can help manage risk in your buildings, please contact info@pinchin.com, we would be please to provide a presentation and demonstration.

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