The Future of Retrofit Sensor Tech & AI in the Built Environment

ANDREW HULBERT MSC

Agenda

Andrew Hulbert Msc

Leading UK Entrepreneur after founding Pareto FM. Sold over $200m of services in 8 years.

Pareto #41 fastest growing in the UK, first Carbon Neutral and over $100m of investment.

Working in over 500 buildings across UK, Europe & North America including various categories.

AI Automation Engineer utilising Chat GPT.

Retrofit Sensor Tech Today

Sensor Tech Today

Temperature, Humidity, CO2, Airborne Nitrates.

Tap temperature sensors providing real time L8 data.

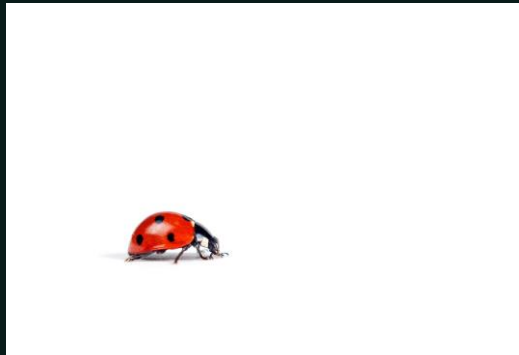Flow and return temperatures of HVAC systems.

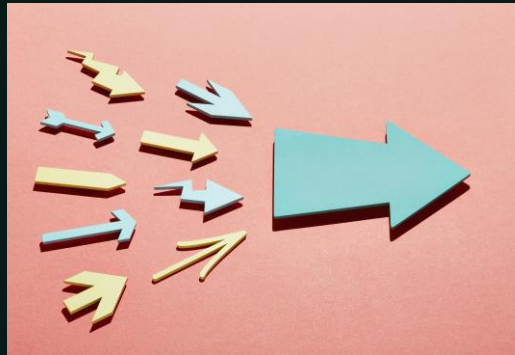AHU flow rates and fresh air make up analysis.

Retrofit Sensor Tech Tomorrow

Sensor Tech Tomorrow

Miniaturisation & cost reduction via advancement & competition.

Multi-sensory data capture growth well beyond current parameters.

Multi collaborative + open sourcing reducing need for API.

Improved energy harvesting to remove battery or power reliance.
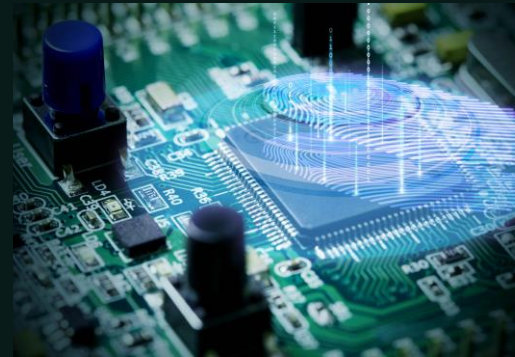
Are we ready for BIM?

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Current UK building stock lacks consistent digital infrastructure and standardized data formats.

Shortage of professionals with the necessary BIM skills in the UK construction industry.

Retrofitting presents unique challenges due to fragmented docs, legacy systems, + lack of digital maturity.

Embracing BIM requires a cultural shift towards collaborative, data-driven processes.

The future role of AI

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Enhanced analytics allow AI-powered algorithms to process vast amounts of sensor data.

AI algorithms can accurately analyze sensor data to predict equipment failures or maintenance.
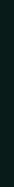

AI can leverage sensor data to create personalized comfort profiles for building occupants.

AI can optimize building systems on real-time sensor data and occupancy patterns.

Key Trends

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- Just getting started.

- Sensor tech will become more collaborative.

- Cultural shift needed to truly be ready for BIM.

- AI will continue to revolutionize in ways we don't yet understand.

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