THE BRITISH MUSEUM

Pollutant monitoring in museum collections

The challenge

We have been working in partnership with the British Museum who were concerned about prolonging the life of their collections. Artefacts and other materials used in the construction of display cases emit compounds, which, along with environmental pollutants, can lead to deterioration of artefacts in the collection. The Museum needed a way of monitoring these pollutants, specifically Volatile Organic Compounds (VOC), in real time in order to identify a way of controlling the emissions.

The British Museum required better methods of monitoring the VOC levels around artefacts, as well as a better understanding of how improved ventilation and environmental management of displays could reduce these levels.

A wireless solution was a high priority requirement to provide flexibility when displays and layouts are changed, as was a real time system, as the Museum's current solutions only provides spot measurements.

The Senceive Solution

We integrated a broadband VOC sensor into our FlatMesh product. A trial network was deployed in one of the rooms at the British Museum, which had two nodes in a display cabinet containing medieval artefacts and another outside, monitoring the ambient pollutant levels.

Our solution allowed for a very quick installation and having no wires meant that the display cabinet environment was not altered by having the sensors in place.

Our Findings

Our quick deployment has shown how easy it would be to implement a wireless monitoring solution across the entire museum, monitoring both ambient gallery conditions and within display cabinets. The real-time data acquired have shown some interesting results, such as a strong relationship between VOC levels and temperature.

The data have led to more questions, and there are plans to extend the network to include relative humidity and temperature sensors, and to cover larger areas.

We are also looking into miniaturizing the existing sensors so that they are more discreet when placed in display cabinets.

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