Breathing Easy
Tenant Health Takes Centre Stage in an Enlightened City

Powered by MultiTech

The impact of poor air quality for all ages, cannot be underestimated. According to a report published by the European Environment Agency, most people living in European cities are exposed to poor air quality with an estimated number of 428,000 premature deaths attributable to its effects. This silent killer also negatively impacts the economy, increases medical costs, reduces workers' productivity and damages soil, crops, forests, lakes and rivers. While cities worldwide work feverishly to reduce emissions and improve the level of toxins in the air, there is one place where we all expect to seek refuge from these airborne toxins, our homes.

Unfortunately, however, home dwellings are far from safe when it comes to avoiding the negative impacts of airborne pathogens. In fact, homes too often become breeding grounds for molds proven to cause grave illnesses in children and adults. For large apartments in city dwellings often housing thousands, these challenges are exacerbated by the fact that monitoring the inside of apartments is an enormous task – both costly and intrusive for its tenants. It was the Scottish government; numerous forward-thinking investors; and one US IoT technology company, that thought otherwise when they set forth to protect the citizens by backing iOpt, a Glasgow-based IoT technology innovator, with investment to make it all happen. This in turn led to iOpt winning a £1M contract with a Scottish local government authority.

Working with Renfrewshire Council, a value-focused council committed to its citizens and social housing, iOpt, set forth to create a solution for monitoring 2400 social homes over four years to measure temperature, humidity and the carbon dioxide levels in the properties. Already significant ROI is being shown in building maintenance, but the aim is to show this across the whole of the portfolio management side of the business.

"During these unprecedented times it is hugely encouraging to see Scotland continue its proud tradition of world leading innovation," said Minister for Trade, Investment and Innovation Ivan McKee. "iOpt's pioneering IoT technology, being delivered in partnership with Renfrewshire Council, is a fantastic example of how innovation and collaboration can help people live healthy lives at home, supported by remote monitoring."

Problem

Difficult to easily monitor the environmentatal conditions inside of apartments for the benefits of its occupants.

Solution
MultiTech Conduit® IP67

Monitoring 2400 social homes over four years to measure temperature, humidity and the carbon dioxide levels in the properties by using LoRaWAN and MultiTech gateways.

Benefits

MultiTech gateways are compatible with LoRaWAN®, had the most diverse range of sensor compatibility and overall is just the most reliable for what we have done to date.

The first step is to install sensors in each unit. Data transferred to the cloud generates alerts and reports to allows the owners and managers of residential rental properties to remotely monitor their properties environmental conditions and assets. A secure platform enables teams to look at data in greater detail and determine what action be taken to prevent conditions becoming bigger problems. Ultimately information from the sensors help identify and support vulnerable tenants who may be struggling with fuel poverty while also providing instant access to the kind of information that normally could only be extracted through costly on-site visits.

In line with the global drive towards NetZero, with more energy efficient homes being a major contributor to that, the iOpt service also offers the opportunity to monitor energy generation and usage in a home. This enables the landlord to evidence that expensive energy efficiency measures are actually making a difference. After all, if you cannot measure something then you cannot improve it.

iOpt opted for LoRaWAN® for its network architecture to facilitate communication between the sensors, in the units and end devices. In such a system, gateways relay messages between end devices and a central network server. A Low Power, Wide Area (LPWA) networking protocol LoRaWAN targets key IoT requirements and is the perfect fit for a wireless installation that relies on extracting data from battery operated 'things' (in this case the sensors) to the internet. The gateways relay messages between end-devices and a central network server and are connected to the network server via standard IP connections. These gateways act as a transparent bridge, simply converting RF packets to IP packets and vice versa.

iOpt's gateway of choice, is a LoRaWAN compatible gateway from Multi-Tech Systems, Inc., a leading global supplier of Industrial Internet of Things (IIoT) communication devices and services. "We have tried many different gateways," said Dane Ralston, Managing Director of iOpt, "but ultimately we went with MultiTech because it was compatible with LoRaWAN, had the most diverse range of sensor compatibility and overall is just the most reliable for what we have done to date."

"The world is changing at great pace, and we are proud of industry innovators like iOpt that are creating solutions that are impacting lives for the better," said Stefan Lindvall, CEO of US-based MultiTech. "We are confident that LoRaWAN technologies will be at the forefront of many of these new solutions in Scotland and worldwide and are proud to provide solutions that leverage its potential."

The project, which was initially delayed due to Covid lock down requirements is now in full deployment mode with sensors fitted into selected empty properties being prepared for new tenants. Simultaneously these tenants will be supported with energy efficiency advice and guidance.

"The ROI of technology goes well beyond direct cost-savings," said Ralston. "Having real time accurate visibility of asset conditions means the housing provider is in control allowing for predictive and proactive maintenance interventions. It is well documented that proactive actions are typically five times less costly than reactive ones."

Dane envisions using MultiTech products in the future. "We think LoRa® and NBIoT, a technology that will enable IoT to the masses, will work well alongside each other with LoRa as the core product. Our aim is to be world's leading IoT service for social housing and we will keep developing our service and new products to meet that need."

"We needed a compatible LoRaWAN gateway that was resistant, flexible, strong and capable of running in any weather.

We chose MultiTech as a key communications and connectivity collaborator, helping us to produce progressive IoT devices that transform urban infrastructure into a connected ecosystem for smarter, more responsive cities."

Dane Ralston
Managing Director
iOpt

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