



What can we learn from Cougar Automation's Smart Lab?

Patrick Gains, project manager at Cougar Automation, lifts the lid on the company's Smart Lab environmental monitoring project and the potential it holds for the future of IoT in industry.

<https://www.vinci-energies.co.uk/content/uploads/sites/3/2020/10/Cougar-Automation-1.mp4>

When we started working with Internet of Things (IoT) in 2016, few people outside of our sector had heard of it. The term IoT might still not be widely understood – it refers to 'smart' devices, embedded with sensors and software that can communicate and share data over a network – but the technology itself will be familiar to most of us. As of last year, [20% of UK homes had a smart speaker, such as Google Home or Amazon Alexa, and 23% of us had a smart watch](#). Controlling lighting or heating in our homes with our voice or smartphone, or monitoring our sleep, heart rate and exercise now feels second nature.

Knowledge and acceptance are taking a while to transfer over from the realm of consumer tech to industry, but conversations that were difficult before are a lot more open today. One of the reasons IoT perhaps hasn't taken off in industrial contexts quite as quickly is the overwhelming number of possibilities. Wherever a system or piece of equipment is collecting – or could collect – data, there's an opportunity for IoT. It just takes a bit of imagination because there are no one-size-fits-all solutions.

Increased efficiency, reduced waste

Every business will have different use cases for how IoT can add value, but the benefits are usually variations on a theme – increased efficiency, reduced errors, and time, money or resources saved. To help customers visualise these benefits in their own operations – beyond the typical IoT maintenance prediction we set up as an additional layer to our regular control system integration – we have developed several proof of concepts.

Chief among these is our Smart Lab environmental monitoring project, where we installed sensors around our Hampshire office to monitor room temperature, and energy and water consumption, as well as use of meeting rooms, hot desks, EV charging points and standard car parking spaces. The purpose was to lessen environmental impact by using energy only where and when it is needed and help us achieve [our goal of 40% lower carbon emissions by 2030](#).

How Smart Lab works

The low-power sensors, which have a battery life of 10 years, are wirelessly connected to a gateway over a LoRa (Long Range) low-power wide area network (LPWAN). The gateway is essentially a modem, relaying the information from the sensors to a server, which puts the information into the cloud and allows us to view it via an online dashboard. Gateways range in size depending on how much area coverage is needed. A small one could even be as simple as a Raspberry Pi. Our single Smart Lab gateway covers our entire building but if we needed to scale up we would just add more sensors and a second gateway.

Regarding the LPWAN, another option is Sigfox, but we chose LoRa because it has read-write technology, which enables us to make updates remotely. LoRa is also very common, especially in France for connected service stations, which is where the idea for the Smart Lab project came from.

Endless possibilities

The project barely scratches the surface of what is possible with IoT but we have learnt so much from it and are continuously refining it with the aim of rolling out IoT environmental monitoring to all VINCI Energies UK & RoI sites. We also hope that Smart Lab, along with our other proofs of concept, will help customers understand the benefits of IoT and envision their own use cases organically.

Smart Lab could serve as the inspiration for making entire buildings smart, optimising cleaning schedules, accurately assessing EV charging needs over time, or reducing the time it takes to find car parking spaces. The lessons learned could also be applied to water utility companies, helping them save time and money by collecting meter readings and identifying potential pipe busts remotely.

Automation and IoT technology is advancing all the time – we are just at the beginning of the snowball. All we need is a bit of imagination to unlock the benefits of a connected, automated future.

[Get in touch with Cougar Automation's IoT experts to discover more about their proof of concepts and discuss ideas of how IoT could add value to your business.](#)



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