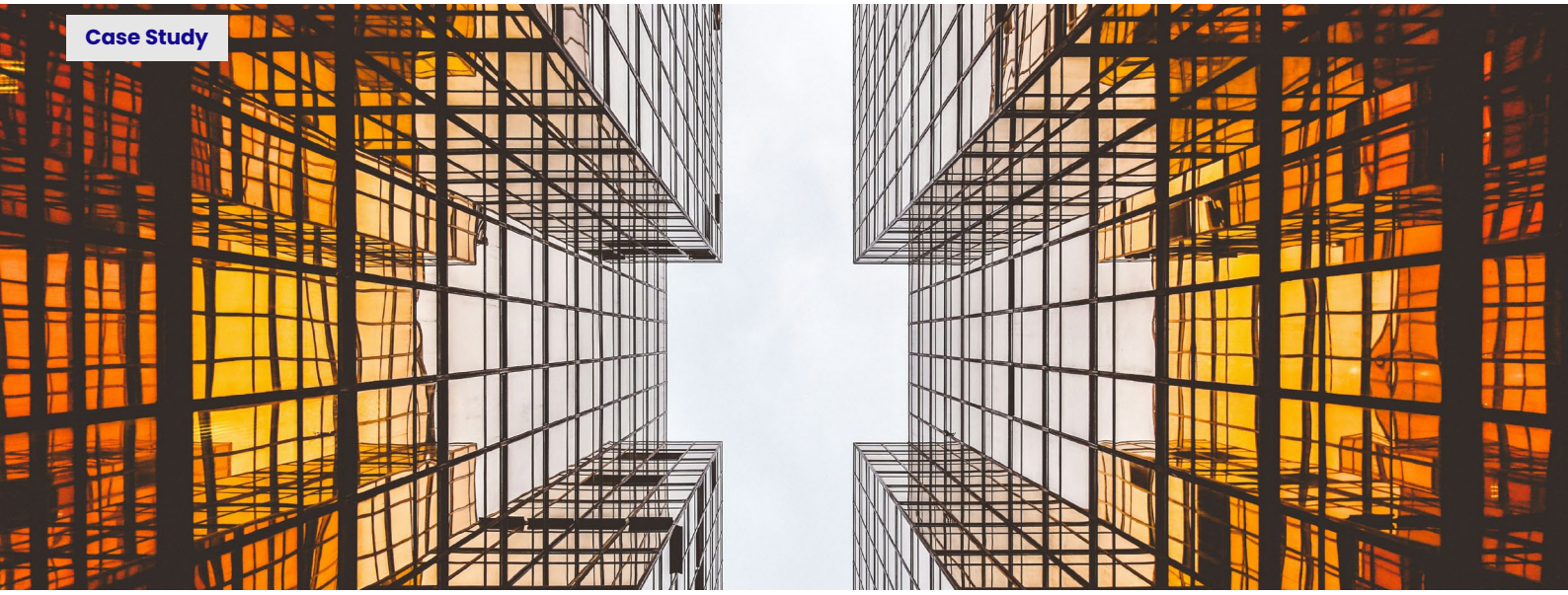
More Data. Better Buildings.

Connected Inventions



Sitedrive enhances construction site efficiency by minimizing concrete curing time enabled by IoT monitoring.

The Challenge

Construction software company Sitedrive needed a solution to capture and share data-driven insights to optimize concrete curing time by monitoring environmental conditions.

The Solution

Sitedrive partnered with Connected Inventions to deploy IoT devices that remotely monitor indoor temperature and humidity levels to optimize indoor concrete curing conditions on construction sites.

The Results

Connected Inventions IoT solution lets Sitedrive customers:

- Concrete drying time reduction from an average of 12 - 16 weeks, to 8 -10 weeks
- 2-month project time reduction before starting interior-phase
- Data-driven scheduling optimised equipment hire
- Continuous automated monitoring of environmental conditions every 30 min.

Solution Partner

SITEDRIVE

Sitedrive is a Finnish construction software company with a mission to improve the flow of construction process with smarter schedules and data driven insight to build faster, better and at lower cost while providing ESG construction impact assessments. https://sitedrive.com/

Famous for its strength, durability, and versatility, concrete is used twice as much as any other building material in construction projects. A critical step to ensure safe, high-quality concrete is curing, the process of maintaining ideal ambient temperature and humidity to allow concrete to harden properly.

Finnish company, Sitedrive, knows construction. Since 2016, the business has invested in innovative solutions such as Sitedrive “Plan” and “Takt” to reduce construction lead times. Concrete curing is an unavoidable, time-consuming step in almost every building process.

Average cost per working day at a construction site is

~10,000 EUR

Did You Know ?

Maintaining "Just Right” temperature conditions is critical to ensure concrete cures properly to reach its compressive strength?

While curing times vary due to the concrete's location, depth, and ultimate purpose, research shows the ideal average temperature to cure concrete thoroughly is by maintaining 55°F / 12°C for up to 28 days following the placement. (1) Concrete poured in conditions that are hot or cold need special curing treatments. If conditions are too cold, below 28°F / -4˚C, or too hot, 90°F / 32°C, concrete won't cure at all. (2) and (3) Insulated blankets, heaters, and plastic sheeting can warm concrete, while mist spraying, wet coverings, sunshades, and windbreaks can help cool concrete during curing.

Traditional methods to manage curing conditions require manual monitoring to measure temperature and humidity. Manual processes are time-consuming, expensive, and often imprecise. If the environment is too cold or humid, curing times extend.

The Sitedrive team wanted a scalable, technology-based solution to improve the speed, accuracy, and cost of monitoring and optimising indoor concrete curing conditions.

Specific requirements included regular monitoring of temperature and humidity levels in harsh construction conditions with minimal human intervention and simple, low-cost network connectivity.

Building better with the IoT

The team at Connected Inventions designed an IoT solution for Sitedrive using AirWits IoT devices to remotely monitor concrete curing conditions such as temperature and humidity at construction sites .

Maintenance free and battery-operated for up to five years, the compact AirWits devices are installed throughout the construction site in minutes. No special tools, skills, or technology is necessary to install and configure the device. The simplicity of installation, long battery life and low-cost wireless connectivity make the solution cost-effective.

Each device measures and sends temperature and humidity data wirelessly every 30 to the cloud-based data platform. The devices are configurable to capture and share condition data as often as five-minute intervals.

The solution captures data in cloud-based data management platform that populates a visual dashboard site managers use to oversee construction projects. The dashboard also includes construction process flows, details of on-site teams, costs, safety measures, and more.

Sitedrive delivers a concrete advantage to building sites enabled by the IoT

Sitedrive's IoT condition monitoring solution delivers fast, accurate, data-driven insights into curing conditions that let site managers react in near real-time when adverse curing conditions are detected. The benefits for construction companies, site managers, and end customers include:

- Improved **project quality** by monitoring and enhancing curing conditions
- **Accelerate concrete drying** times from between 12 -16 weeks, to 8 - 10 weeks
- **2 month project time reduction** before starting interior-phase
- **Reduced cost of** on-site manual monitoring by contractors
- **Optimised equipment hiring** for heating and cooling to meet specific site requirements
- **Optimised equipment hire** through data-driven scheduling
- **Satisfied customers** who enjoy the benefits of considerable time and cost savings

> ***In the construction industry, time is money.*** *The longer a project takes to build, the higher the costs and the less happy the customer. Data-driven insights are invaluable to improving how our customers understand and manage time-sensitive decisions with expensive implications across complex value chains of contractors and sub-contractors.*
>
> *Monitoring temperature and humidity with an IoT Solution lets us help site managers remove the guesswork around concrete curing.*
> ***Pekka Silen, Development Manager at Sitedrive***

> *With remote IoT monitoring of construction site conditions connected to the 0G Network, Sitedrive transforms how site managers monitor and manage the time and expense of concrete curing. The low cost, reliability, and simplicity of the 0G Network help ensure that every concrete pour is a cost- effective, efficient part of the construction process. The ease of connectivity also lets us add other devices that customers might need on-site, such as dust monitoring for occupational hygiene or renovation project quality management.*
> ***Henri Hovi, Chief Technology Officer at Sitedrive***

> *We are excited about the results our collaboration with Sitedrive. Our tech-agnostic IoT solution provides the devices and the platform to collect and manage the environmental data that enables these outcomes for modern construction management. These results are repeatable and scalable. Better building for more sustainable and efficient industry is what we are passionate about.*
> ***Markku Patronen, Founder, Connected Inventions***

About Connected Inventions:
We provide cost and energy efficient IoT solutions that enable data-driven operations, allowing building owners and managers to reduce energy consumption, lower carbon-emission and transform their buildings into sustainable, healthier and more resilient assets. Our secure IoT solutions encompass our devices, data management platforms and connectivity services that help facility managers simplify the deployment of maintenance free solutions.