Case Study

The Loreto College Foxrock takes control and improves classroom safety and comfort with IoT-enabled indoor air quality monitoring solution

The Challenge

Loreto College Foxrock needed a solution to monitor indoor air quality to ensure the comfort, safety, and productivity of students and staff as part of its COVID-safe return to classroom-based learning.

The Solution

Loreto College chose solution provider ZiggyAir to deploy an IoT-enabled indoor air quality monitoring solution for its campus. The easy-to-install solution connects monitoring devices to an application which displays a "traffic light" system to indicate when increased classroom ventilation is necessary.

The Results

Since deploying the solution the college has easy, instant access to the data it needs to gain control and create a more COVID-safe environment for students and teachers, including:

- Improved wellness
- Reduced absenteeism
- Increased productivity and learning

0G Network Operator

Connected Finland

Connected Finland, Sigfox 0G Network Operator, enables millions of smart devices to connect to the IoT, with the most energy and cost-effective connectivity and device solutions.
www.connectedfinland.fi

Solution Partner

Ziggy air

ZiggyAir is a leading provider of indoor air quality and energy monitoring solutions.
www.ziggytec.com

Customer

LORETO COLLEGE FOXROCK

Loreto College Foxrock is an independent Catholic secondary school for girls in Dublin, Ireland, run by the sisters of the Institute of the Blessed Virgin Mary.
loretofoxrock.ie

Loreto College Foxrock proudly provides 560 students with expert guidance from staff and full access to extensive academic, creative, musical, and sporting facilities. A valued part of the College's ethos is promoting student well-being, pastoral care, and developing each girl's unique gifts and talents in classroom environments.

The impact of the COVID-19 pandemic on learning environments

As for most education facilities, The COVID-19 pandemic significantly changed daily operations at Loreto College. The College took proactive steps to prepare for a COVID-safe return to classroom-based learning, including creating space for teachers and students to socially distance, improving sanitation, and adding hygiene stations. The school also wanted a solution to help maintain its traditional classroom-based teaching methods while protecting the safety of students and teachers.

Science has proven that COVID-19 virus strains are airborne and the transmission speed and range is dependent on indoor air quality. More specifically, research has established that the CO2 content, humidity, and temperature of the air is a strong leading indicator for the transmission speed of the virus. Joanne Brook, COVID Safety Officer at the College, led a process to find a solution to monitor and improve air quality in the school's classrooms.

Monitoring indoor air quality remotely with the IoT

Loreto College required an indoor air quality monitoring solution that was fast and easy to deploy and use, and capable of operating independently of the campus IT and building management systems. Another key requirement was for the solution to send real-time alerts of air quality issues detected directly to staff and classrooms for corrective action.

The Loreto College team chose ZiggyAir to deploy an IoT-enabled solution to monitor the indoor air quality of its classrooms remotely. ZiggyAir installed it's IoT-enabled monitoring solution in each classroom. The solution uses Connected Finland's AirWit monitoring devices, in which built-in sensors constantly monitor the surrounding air quality against set parameters.

The devices are configurable to remotely monitor carbon dioxide (CO2) levels, humidity, temperature, dust, and certain gases. The Loreto College devices monitor CO2 levels in the classroom. High levels of CO2 indicate a requirement to improve ventilation.

Long-life batteries power the ZiggyAir devices, which means they can be easily placed in any indoor environment of the College campus without requiring access to a dedicated power supply. The entire solution is secure and runs independently from the College's local IT infrastructure.

Data captured by each device is shared in near real-time to a cloud-based data management platform via the 0G Network, powered by Sigfox technology. The 0G Network is the public, low-cost, low-power wide-area network dedicated to connecting Internet of Things (IoT) devices over long distances. ZiggyAir's centralised data platform gives the College instant access to indoor air quality data via a web browser, the classroom device, or text message to the Building Manager.

Each classroom-based device features a "traffic light" system to indicate ideal ventilation requirements.

- Green guides that air quality is good, and ventilation is not immediately required.
- Orange shows CO2 levels are rising, and some ventilation is necessary.
- Red signals ventilation is immediately needed to improve air quality.

When CO2 measurements reach unacceptable levels, the ZiggyAir solution alerts the classroom-based device to flash a red warning light and also sends a message to staff. Students familiar with "traffic lights" in their daily routine open windows whenever the display changes colour.

> *At Loreto College, we aim to build independence of mind, and we regard the classroom as a vital resource in that process. ZiggyAir monitors provide pupils, staff, and parents with the reassurance they need to commit fully to classroom learning. Thanks to ZiggyTec's traffic light' system, we can now extend responsibility for air quality to our students.*
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> ***Joanne Brook, COVID Safety Officer, Loreto College Foxrock***

The benefits of indoor air quality monitoring for Loreto College teachers and students

Since deploying ZiggyAir to monitor the indoor air quality of its classrooms, Loreto College has improved the safety and comfort of its campus environment for students and teachers. Benefits include:

- improved wellness
- reduced absenteeism
- increased productivity and learning

> *We all learned at school that people breathe in oxygen and breathe out carbon dioxide or CO2. Research shows higher transmission of COVID-19 in environments with high levels of CO2. Our indoor air quality monitoring solution has a smart tablet with a digital display that makes it easy for teachers and students to understand when to open or close windows. We encourage schools to measure, monitor, and mitigate CO2 risks to help make classrooms safer.*
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> ***Kieran Murphy, Director and co-Founder, ZiggyTec***