

THE AIR CHILDREN BREATHE IN SCHOOLS

Air quality in Croatian schools before implementing My Sensees Indoor Air Quality Monitoring System.

40
days

Closed schools in the
Republic of Croatia

"Covid-19 cost students
1,841,997,790,043
(1.8 trillion) school hours"

UNICEF: "COVID-19 and School
Closures: One year of education
disruption", 2021.



"By monitoring indoor
CO2 levels, you can
calculate the risk of virus
transmission including
COVID-19 infection"

Bazant et al., MIT: "Monitoring carbon
dioxide to quantify the risk of indoor airborne
transmission of COVID-19", 2021.

97.98%

of the classrooms have
high CO2 levels that
decrease concentration
and cognitive abilities of
the pupils.

Air Quality in Schools research,
Croatian Institute of Public Health

A high level of CO2
(over 2,500 ppm)
has an extremel
negative impact on:

cognitive development
neurological development
concentration
initiative
focus on solving tasks
processing information
mood and emotion

22,3 °C

Average
temperature
in Croatian
schools*

-2 °C =

10 %

Lowering the temperature
by 2°C would save 10%
of annual heating
energy

Government of the Republic of Croatia:
"Guidelines for saving energy in the Republic
of Croatia", 2022.

CASE STUDY:

Transforming Learning Environments- A Milestone in Indoor Air Quality

Who are we?

Smart Sense is a research & development company specialising in IoT solutions with a focus on indoor and outdoor air quality monitoring. We are bringing a wave of innovation to educational institutions by developing the My Sensees system and manufacturing My Sensees sensors which are specifically designed for monitoring indoor air quality.

Who participated in this project?

For this specific project, the Croatian Academic Research Network (CARNET) chose us as a partner to equip over 400 Croatian schools with the My Sensees Indoor Air Quality sensors.

This ambitious project stands as a testament to CARNET's commitment to digitalise and improve the overall educational experience in Croatia as well as Smart Sense's commitment to leveraging technology for the betterment of society.

CARNET is a public institution within the Ministry of Science and Education in Croatia, focusing on information and communication technology (ICT) in education. It operates as a network serving academic, scientific, and research communities, as well as primary and secondary education institutions. With over 70 services, CARNET contributes to digital maturity in schools through projects like "e-Schools," aiming to enhance ICT infrastructure, digital content, and education. It collaborates internationally with European academic networks and organisations managing global internet resources.

What was the end goal?

Bring Croatian students closer to a sustainable, healthier, and smarter future by providing them with real-time insights into the air they breathe daily. According to the monitored and received data, schools can improve microclimate conditions and save energy.

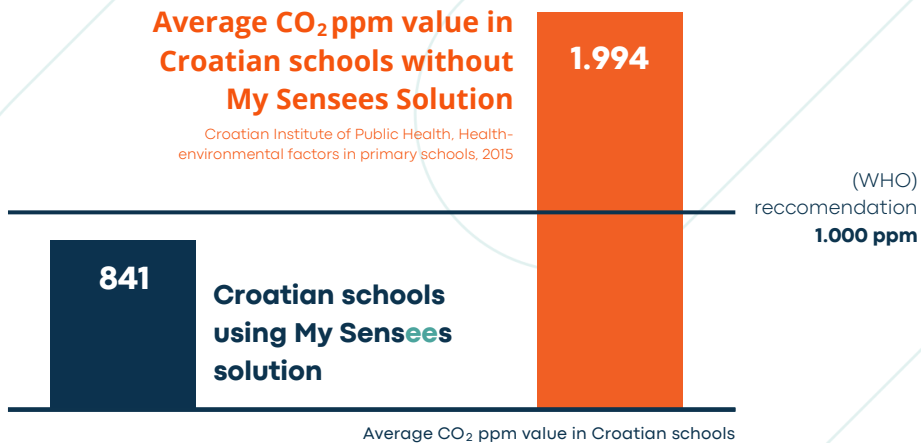
What was the result?

We successfully reduced CO₂ levels in accordance with the World Health Organisation's recommendations.

According feedback from teachers, student health and well-being was drastically improved and they were more concentrated and less sleepy. The number of school days missed due to respiratory diseases or flu were also reduced.

Data revealed higher classroom temperatures in winter, prompting school administrators to adjust heating, save energy, and reduce expenses.

But we'll let our numbers do the talking.



How do we transform data into decisions?

In order to ensure comprehensive data management, Smart Sense has developed a bespoke platform named AERO, which is exclusively tailored for CARNET. This cutting-edge platform serves as the central hub for aggregating and tracking all monitored data from schools across Croatia equipped with My Sensees Air Quality Sensors. AERO provides a simple interactive interface for educators, administrators, and health officials, offering real-time access to a wealth of information.

From monitored data to layered insights, AERO helps all responsible officials to make data-driven decisions, ensuring that each educational institution can proactively foster a healthier and more conducive learning environment. With AERO, Smart Sense and CARNET reinforce their commitment to technological innovation, paving the way for a smarter, more informed approach to indoor air quality management within education.

Cloud Computing,
Data Analysis & Storage



Web & Mobile
User interface



Find out more:



Developed and manufactured in the EU

e: connect@smart-sense.hr

w: smart-sense.hr

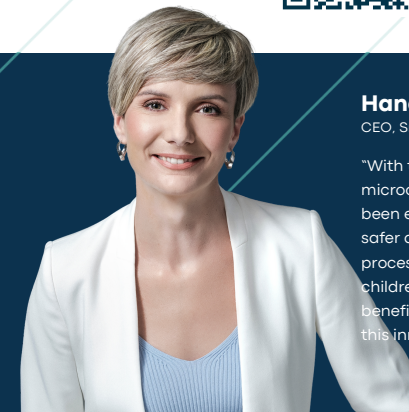
© Smart Sense LTD. 2023



Goran Škvarč

Deputy CEO for International Cooperation at CARNET

"By enabling teachers to have insight into the air quality in the classroom, the AERO system enhances the quality of the teaching process at its core. Teachers get informed at any moment if the air flow in the room is reduced, thereby maintaining an optimal concentration level. This way, CARNET AERO contributes to making schools a pleasant place to stay where every factor affecting the teaching process can be analysed and improved. CARNET also uses the AERO app to collect the data from the outdoor weather stations in schools, giving teachers and pupils the opportunity to conduct long term measurements and further connect various STEM equipment."



Hana Matanović

CEO, Smart Sense

"With this project we have taken a big step towards providing safer and healthier microclimates in schools across Croatia. The collaboration with CARNET has been exceptionally successful, and the My Sensees sensors contributing to a safer and healthier environment for everyone involved in the educational process. Establishing a healthier environment in educational institutions, where children spend a considerable amount of time is crucial for all of us. It especially benefit children and individuals with respiratory problems or diseases, for whom this innovative solution promises to greatly ease everyday life."