



**KONTROL**  
ENERGY CORP.

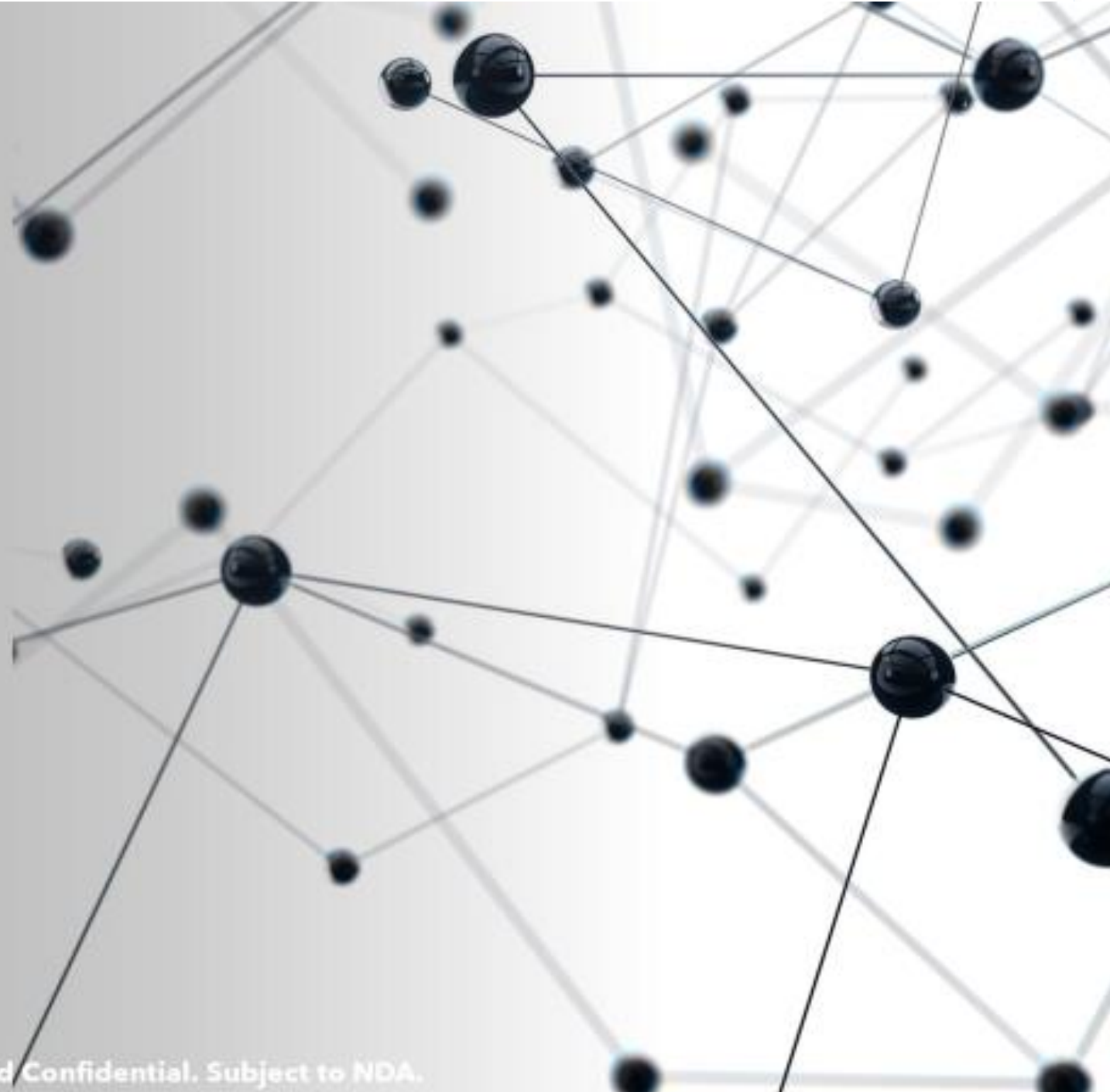
Capture/Detection  
of SARS-CoV-2

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**Kontrol BioCloud®**

*A Division of Kontrol Energy*

Private and Confidential. Subject to NDA.



# About Kontrol

➤ Smart Buildings Leader

➤ Established blue chip customer base

➤ Proven history of delivery energy management and continuous air quality monitoring in industrial and commercial facilities

➤ Recent launch of Kontrol BioCloud (COVID-19 and airborne virus technology)



+Canadian Public Company

+Head office and operations in Ontario

+65 employees

+15% of revenues from USA



# BIOCLOUD MANAGEMENT TEAM

MORE THAN 60 YEARS COMBINED  
EXPERIENCE

EXPERTS IN ENERGY  
MANAGEMENT AND AIR QUALITY



**Paul Ghezzi, CPA,  
CA  
CEO**



**Gary Saunders  
President**



**Claudio Del Vasto, CPA, CA  
CFO**



**Brad Young  
Technical**



**Nic Timmers  
Controller**



**Cam Regan  
Software**

# ***BioCloud***

# Development





## Gary Saunders, EP

- Chief Operating Office of Technology BioCloud
- Vice President CEM Specialties
- Recognized Expert in the field of gas analysis
- Over 28 years of expertise: Custom industrial gas monitoring analyzer for military, nuclear power, nuclear fuels, petrochemical, chemical, industrial manufacturing and foods




# Team at CEM Specialties

- >9000 s.f. of research and fabrication space
- Global supplier of customer gas analysis equipment with distribution in Canada, USA, Mexico, Europe, India, Saudi Arabia, UAE, Egypt and Oman
- Group is comprised 17 staff members: Professional Engineer's, Masters in Engineering, Computer Programmers, Electronics Technologist's, Robotic Technologist's, and Designers.
- The group includes full compliment of administration from accounting, sales and logistics.



The image shows several rolled-up architectural blueprints resting on a light-colored wooden surface. The blueprints are partially unrolled, revealing detailed technical drawings with various lines, dimensions, and annotations. The dimensions are in millimeters and include values such as 2650, 5940, 810, 820, 2180, 150, 320, 740, 970, 1385, 990, 330, 150, 900, 25, 250, 740, 150, 760, 830, 40, 1030, 1480, 890, 2560, 2810, 150, 1780, 880, 380, 155, 270, 425, 1125, 350, 1185, 2500, 3175, 3100, 1010, 5, 6, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100. The text is overlaid on the bottom left of the image.

Scientific Project Design Behind  
Detection of SARS-CoV-2

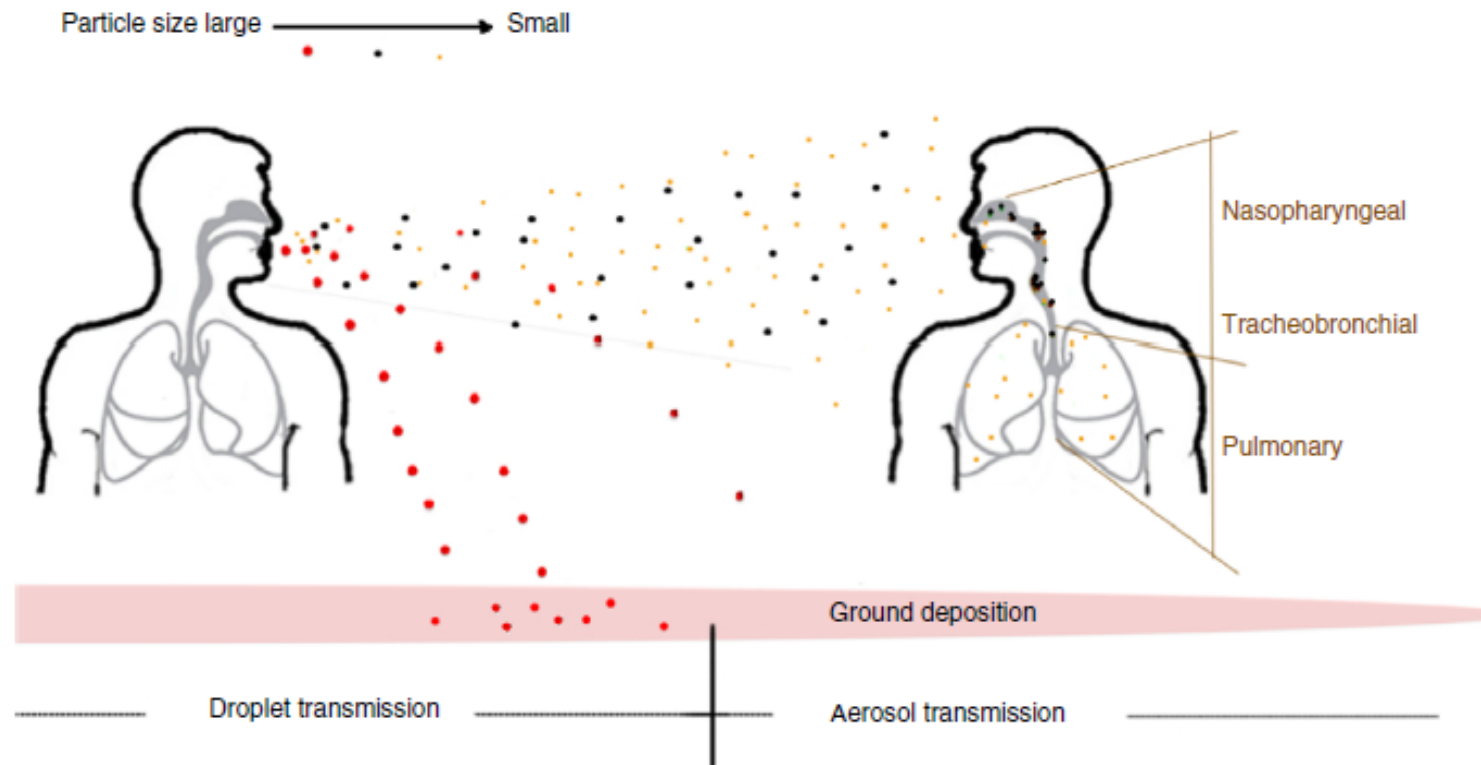


Can we measure for  
SARS-CoV-2 like we do  
Air Quality?

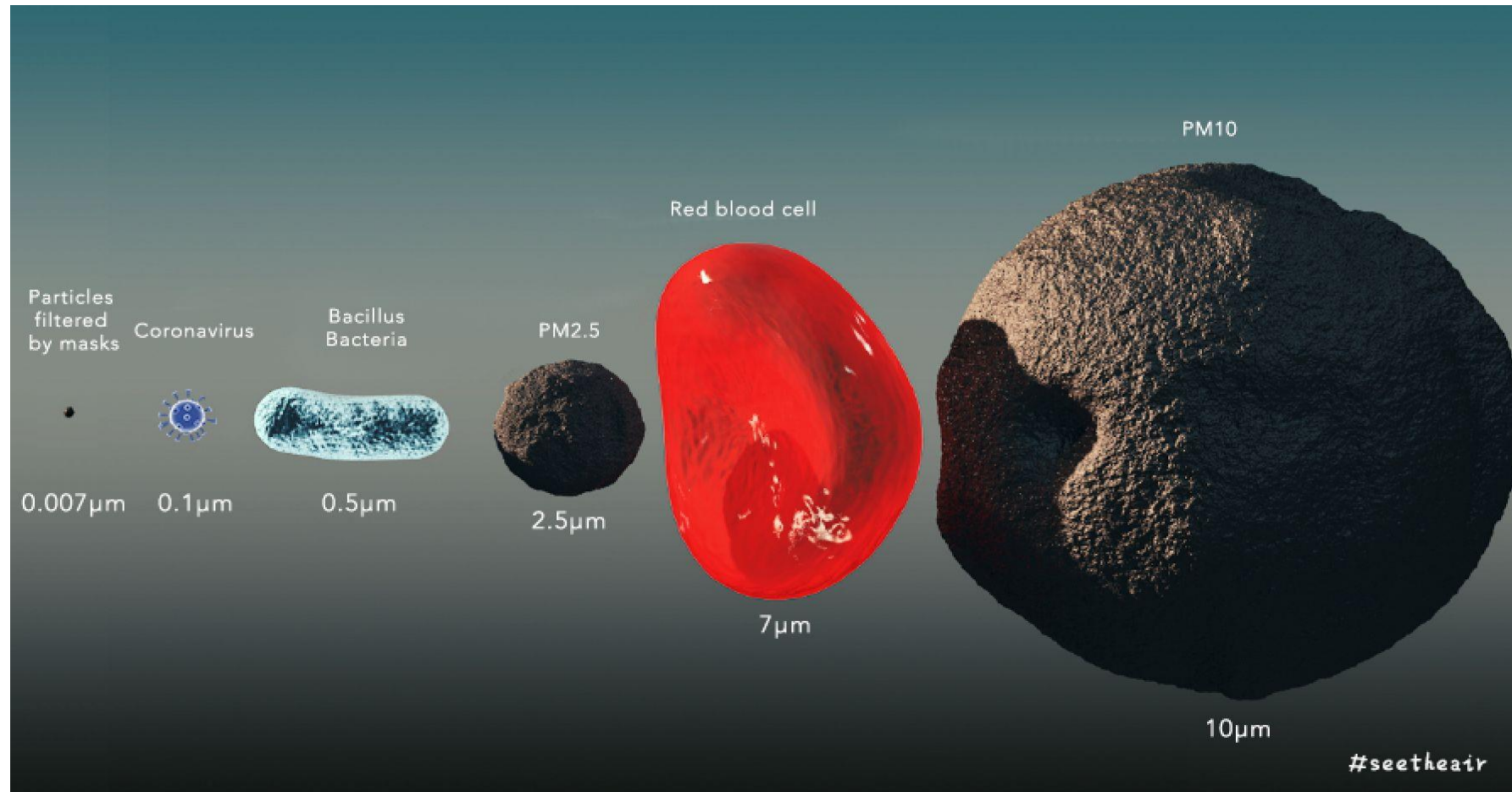


# Transmission Diagram

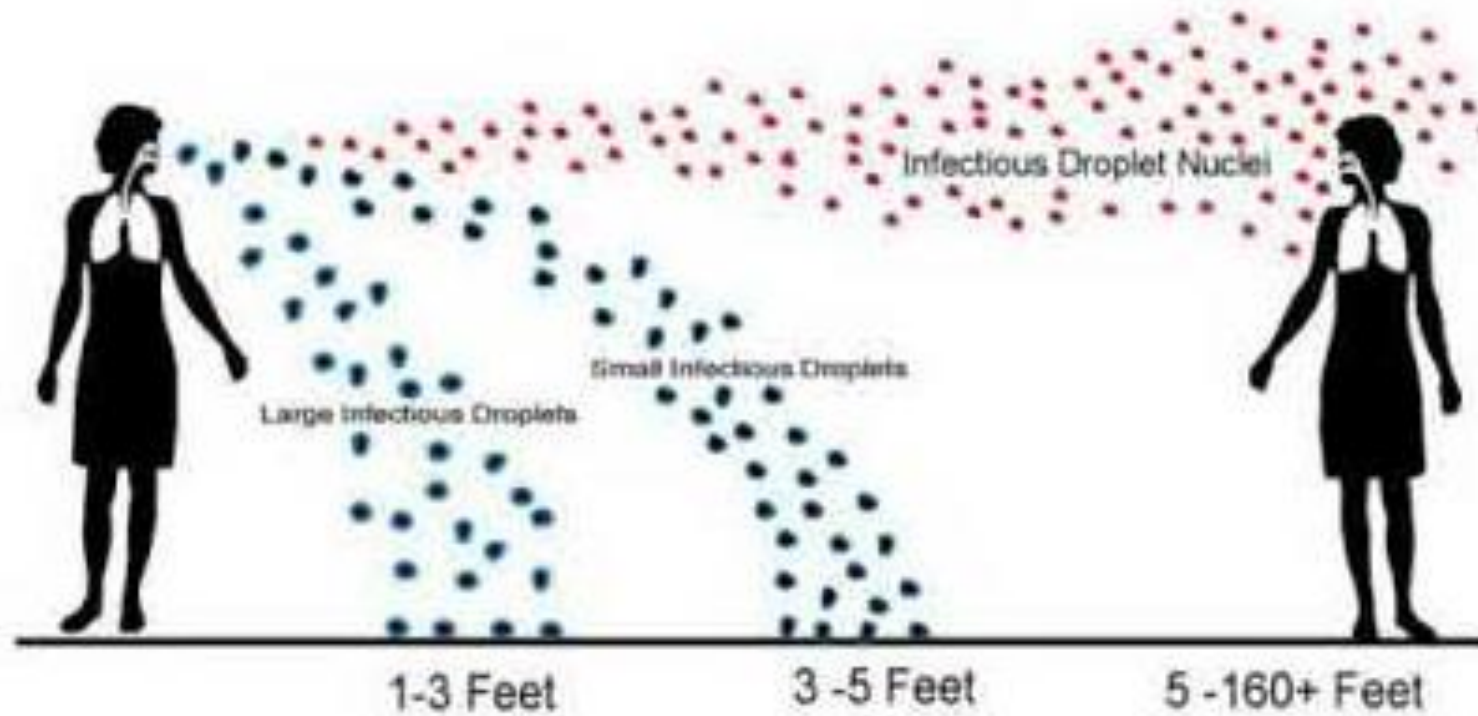
It has been estimated that 90-92% of all transmittance of COVID-19 are due to person to person transmission through the air.



# COVID 19 Virus Size Chart

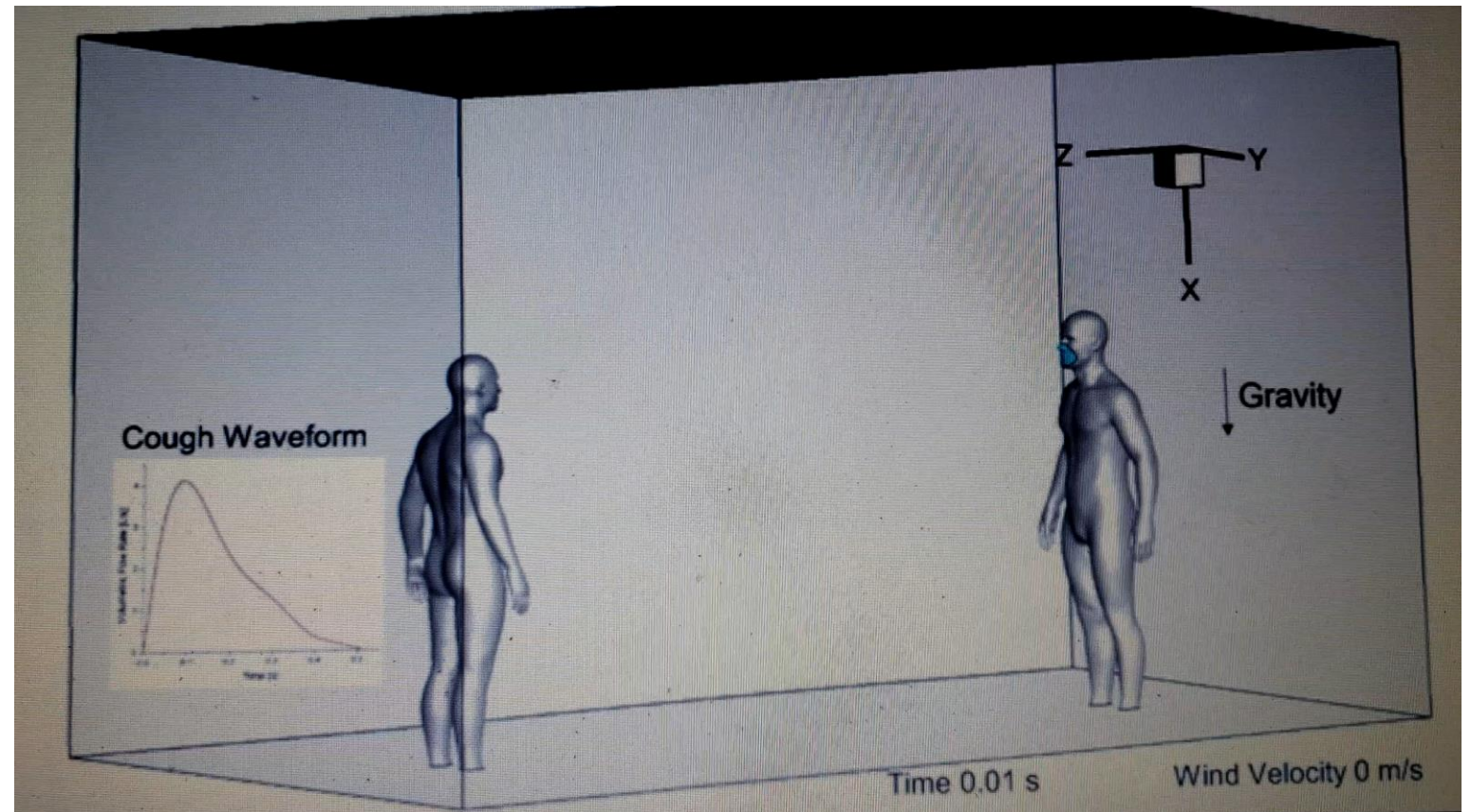


# EXAMPLE: Travel Distance of Droplets and Droplet Nuclei



# Experimental Data: Modeling of Distribution of a Cough

Cough with no air flow and a droplet size from 2 to 2000 microns in diameter, which is 20X greater than a standard COVID-19 virus

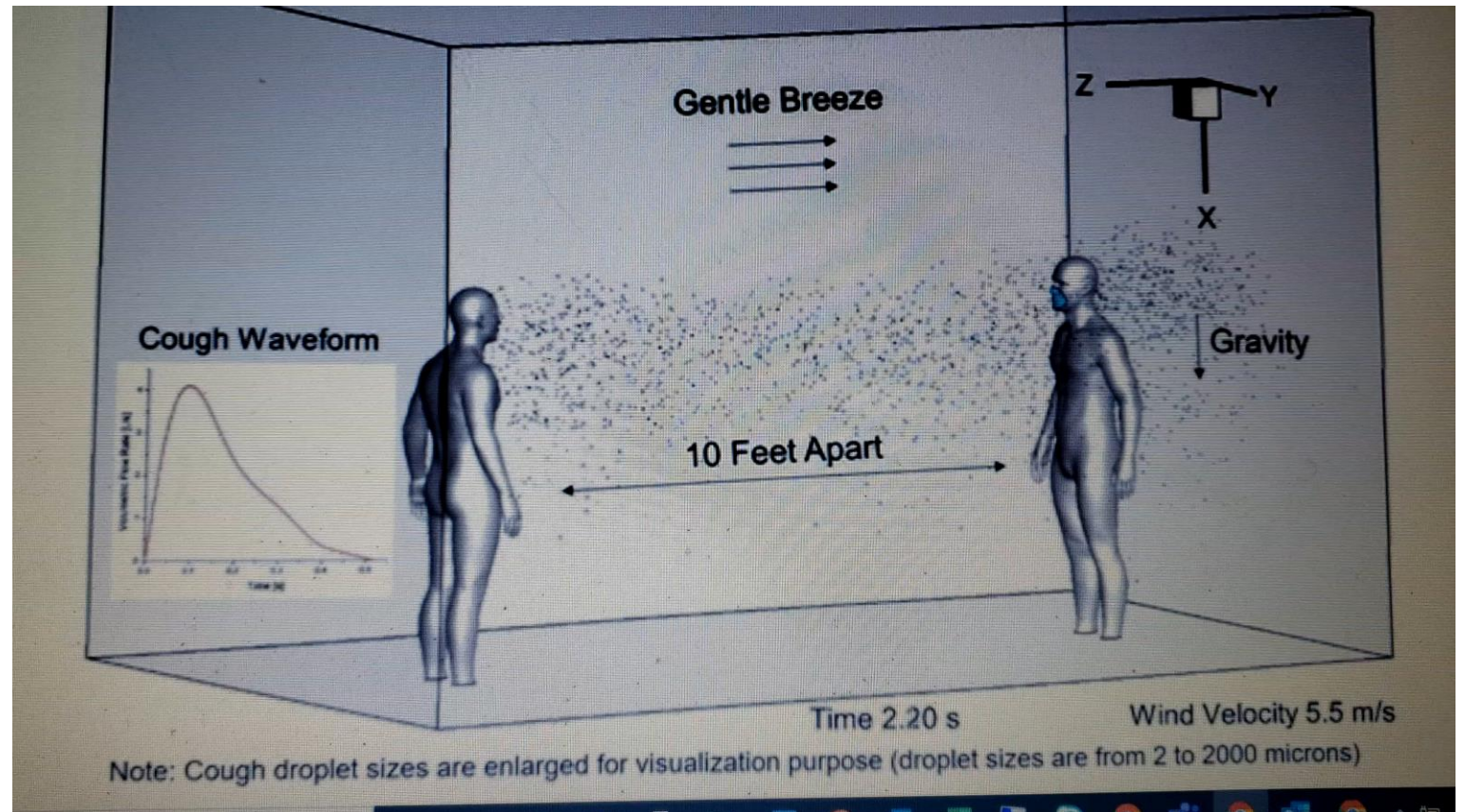


Credit to University of Oklahoma researchers

# Experimental Data: Modeling of Distribution of a Cough

Cough with a 5.5 m/s wind speed and a droplet size from 2 to 2000 microns in diameter, which is 20X greater than a standard COVID-19 virus

Credit to University of Oklahoma researchers



# Commercial Physical Design layout

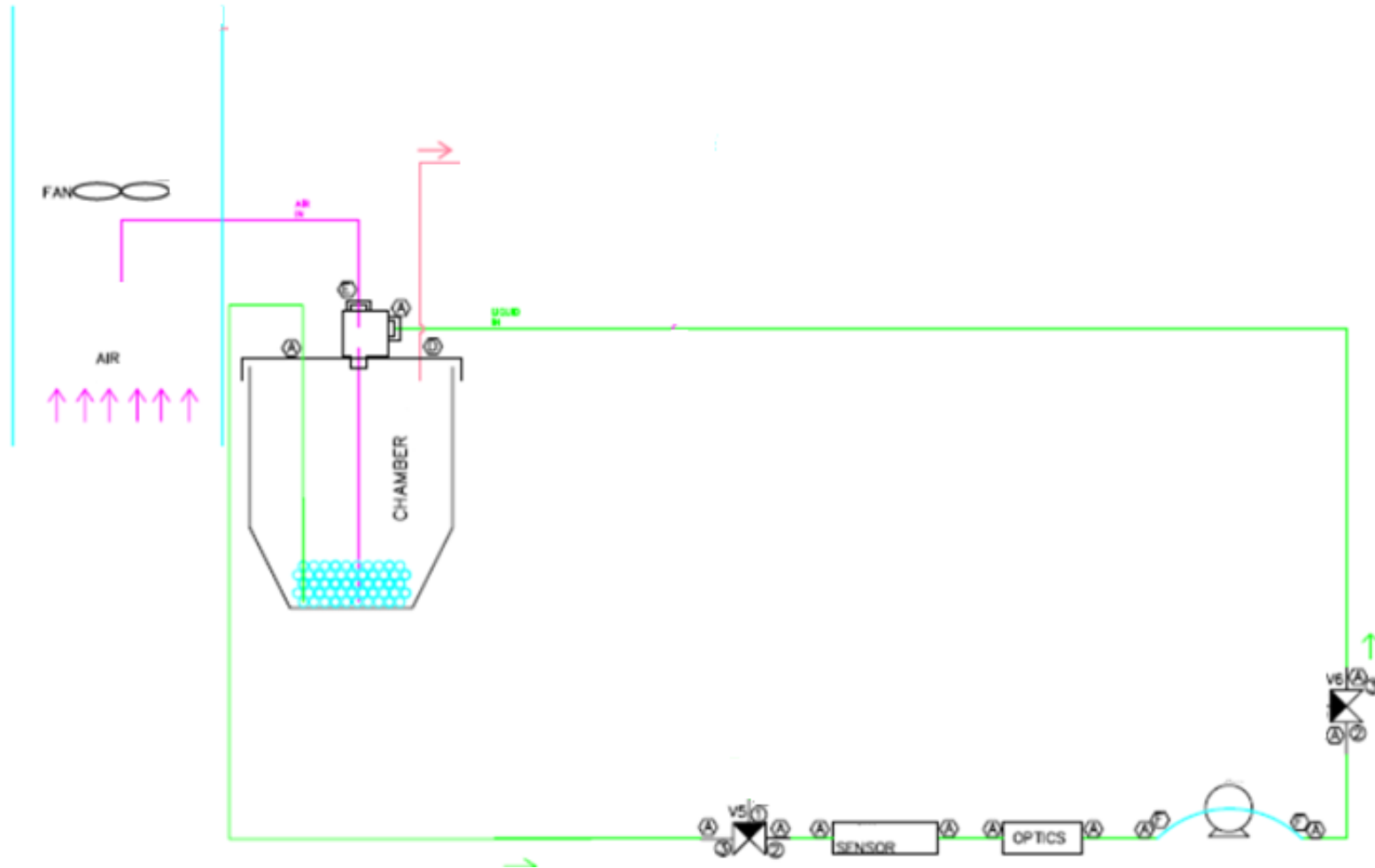
**KONTROL** BioCloud®

BioCloud®

REAL-TIME AIR SAMPLING  
FOR THE CAPTURE AND  
DETECTION OF SARS-COV-2



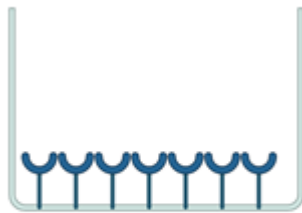
# Kontrol BioCloud: Flow Diagram



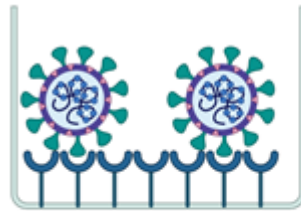
# Reaction Chamber

- The Heart of the BioCloud device is the Detection Mechanism / Virus Capture System. The Detection Mechanism will to be patented to protect the product going forward
- Samples are collected through the air in a non-invasive proprietary inertial impact viral collider. This device utilizes a combination of three independent capture techniques that allows for intact virus sampling while also achieving a high capture ratio.
- No need for complicated swabs, clinical blood test, or interaction with medical personnel, the BioCloud continuously monitors the air in your environment and indicates the presents of the virus real time

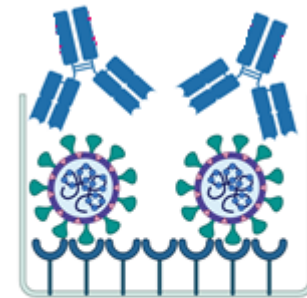




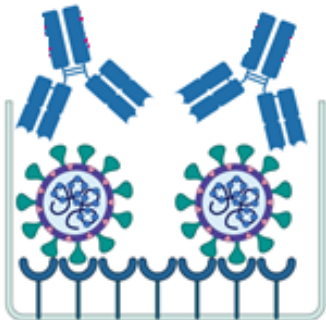
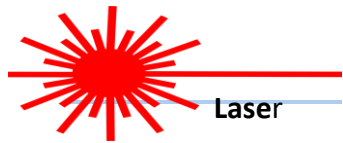
**Viral Target Coated for SARS-COV-2**



**SARS-COV-2 Virus is introduced through the capture system and is bound to the Target**



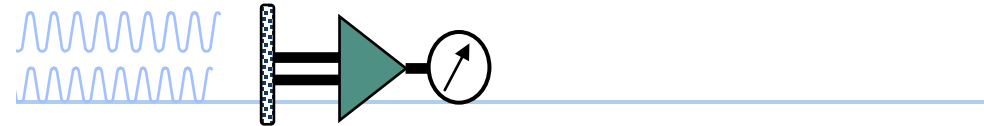
**Addition of reagent that binds to the SARS-COV-2 virus**



**Introduction of high energy laser to react with reagent**

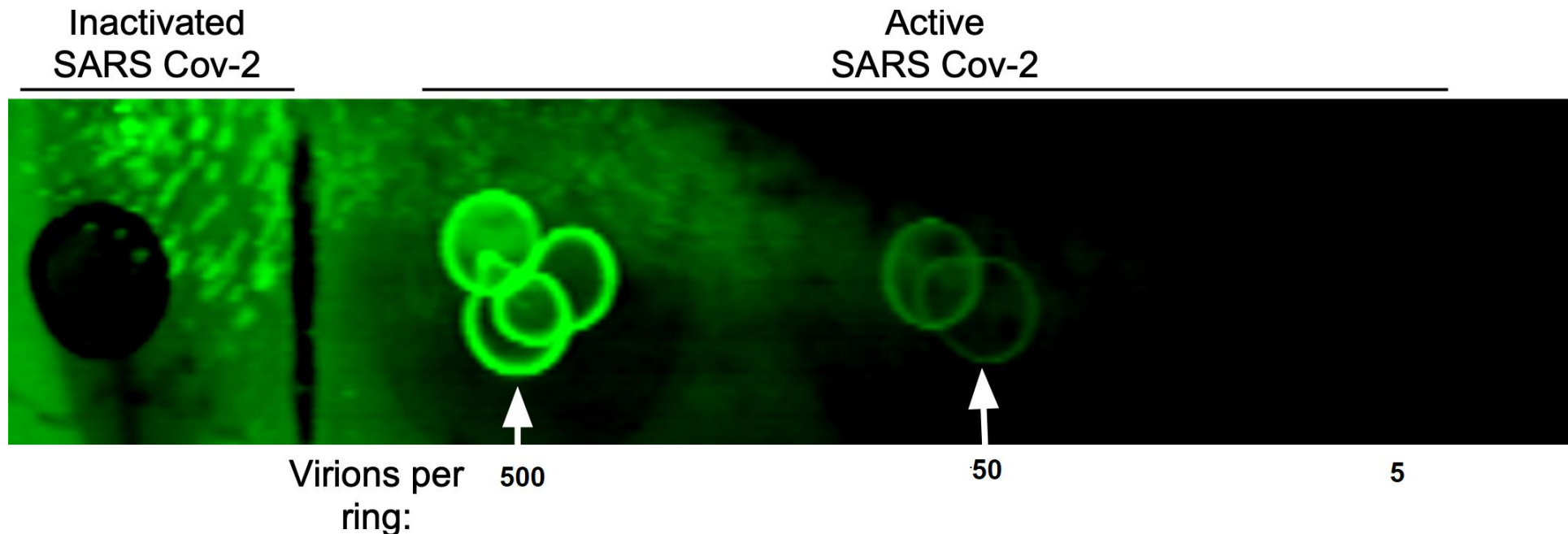


**Bonded reagent excited by laser frequency "A", emits energy at frequency "B" monitored by photo detector**



# Lower Detection Test Data: Lower Detection Limit of Active SARS Cov-2 virus (October 28, 2020)

- Utilizing active SARS Cov-2 virus in the level 3 laboratory, multiple capture tests were performed at decreasing viral concentrations of 10,000, 1,000, 500, 50 and 5vp (viral particles) per sampling.
- Data appears to show consistent detection response at 50vp (viral particles) as determined using active SARS Cov-2 virus.
- Based on the data, a lower detection maybe validated, but additional testing at lower increments is required.



A wide-angle photograph of a coastal dune landscape. A wooden boardwalk, made of light-colored planks, winds from the foreground into the distance, curving to the right. The dunes are covered in green and brown grasses, with patches of sand visible. In the background, a line of trees marks the horizon under a grey, overcast sky. A small blue rectangular graphic is located in the top-left corner of the image.

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Commercialization and Manufacturing of  
BioCloud Sensor for Mass Production at  
20,000 units / Month

# Commercialization Plan

- Current design model being tested
- Commercialization design and components protocol to meet and exceed a capacity of 20,000 units / month
- Initial Distribution and Sales currently set up for Canada and the USA through Kontrol Energy owned companies
- Initial Shipping and Customs support in place

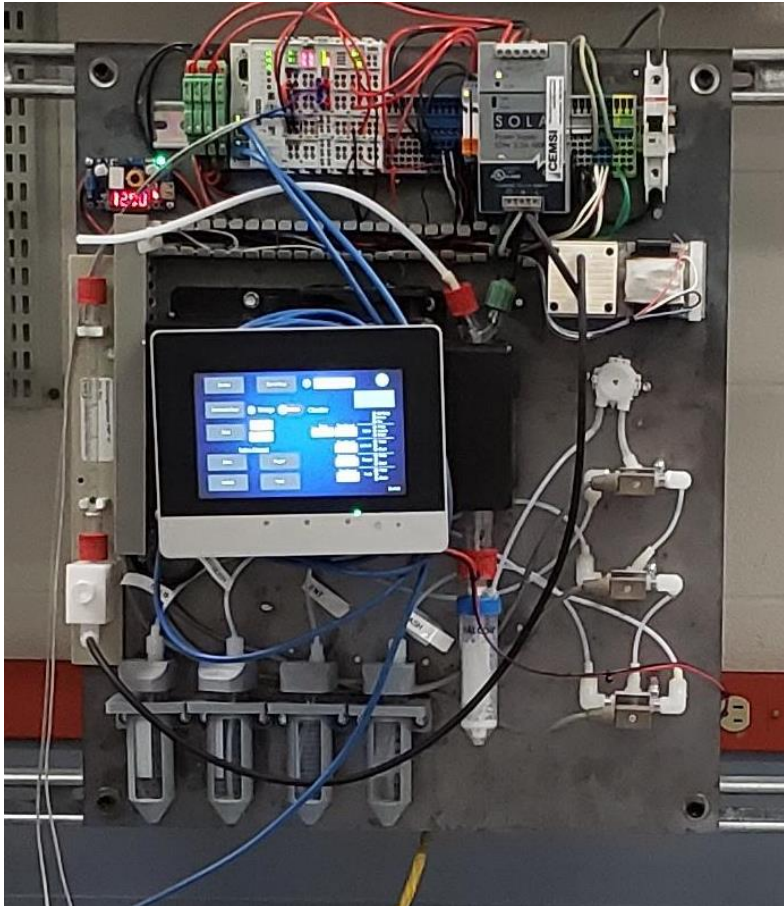
# Commercial Physical Design layout



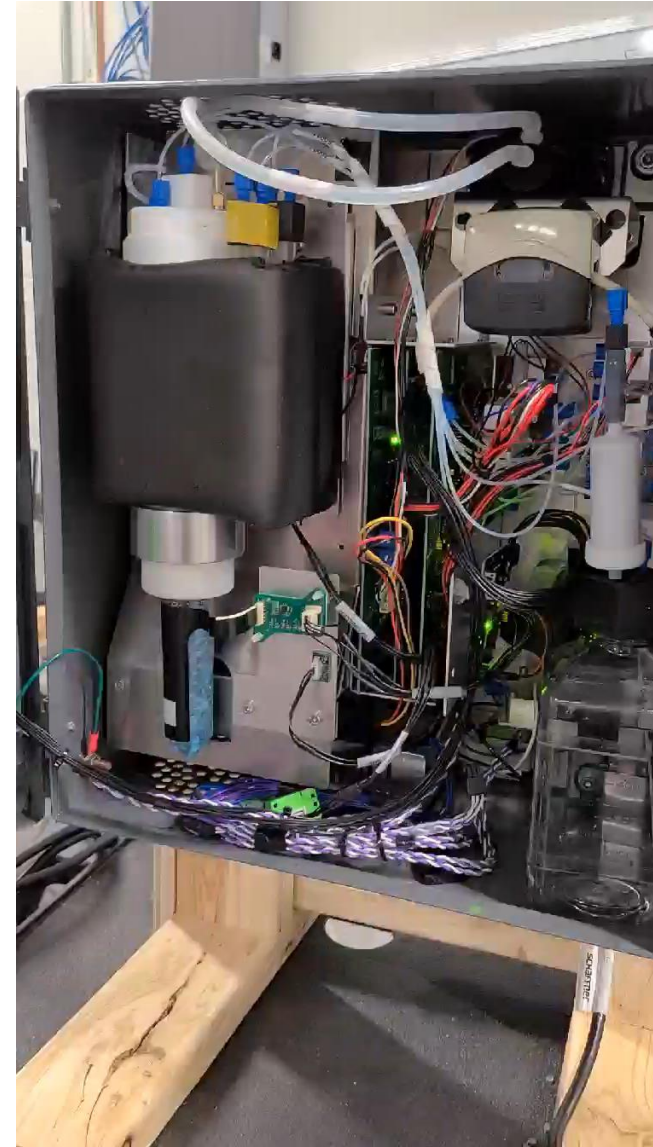
# BETA Proto-Type Test Build



# BETA Proto-Type Test Build



# Final: Completed Build





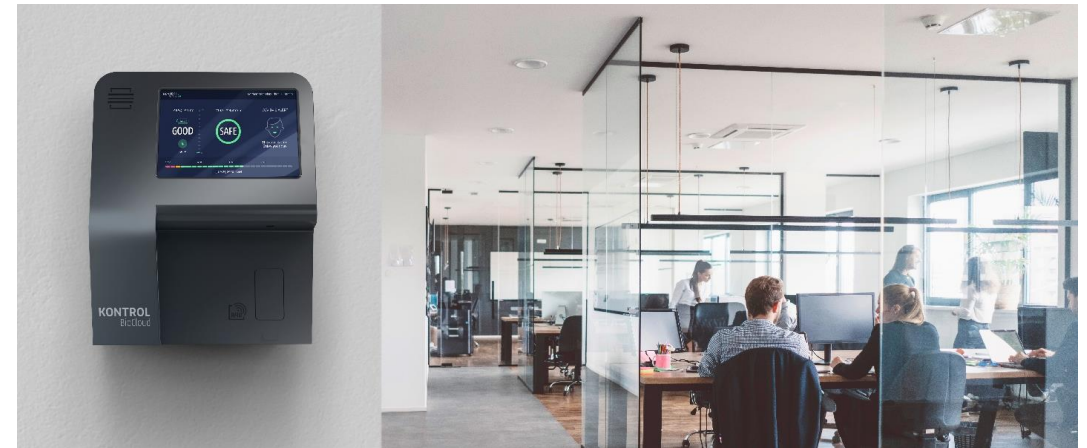
# Safe Space Technology™

- Creating safe spaces is more important than ever
- BioCloud detects COVID by continuously monitoring air over time
- Can be adapted in several different ways



# Applications

Applications of the BioCloud are immediate for *ventilation systems of **planes, buses, subways, hospitals, elevators or workspace.*** With real time analysis and localized detection within minutes, it allows for a level of safety previously not imagined



Additionally, it may be used to provide proactive virus detection capabilities to help maintain confidence in public settings and in the reopening of previously contaminated locations. BioCloud could be used to provide surveillance and mapping of virus hot spots to further assist in the prevention of additional virus infection.

The BioCloud one platform design allows for real time analysis of a variety of different viruses with only the change of a pod