SPECIALIST ARTICLE

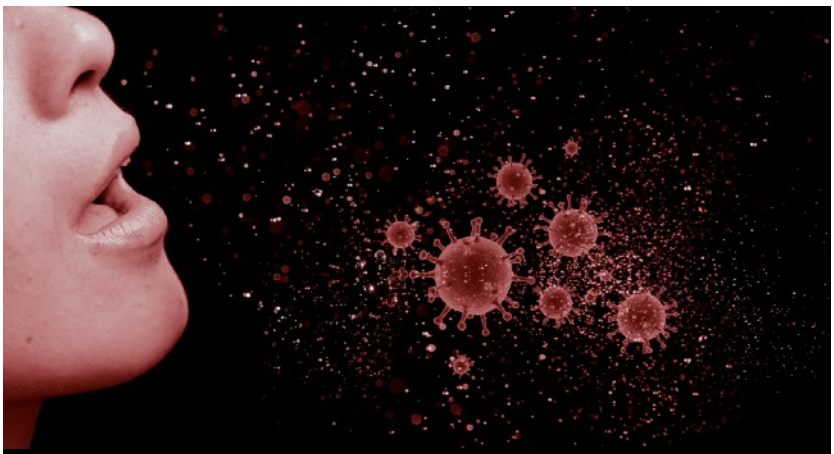
KENTIX Innovative Security

Reducing the risk of infection with innovative technology

How smart IoT can be used to perform prescribed people counts and reduce aerosols

Idar-Oberstein, 08/25/2020 **+++** Whether in offices, schools, at events, in food production or in retail – a single infected person can transmit viruses to other people in the room via exhaled aerosols. And that even with a face mask!

Aerosols - often heard about, but what is behind them and what do they have to do with people counting?



The MultiSensor-TI can warn of low-quality air with its integrated CO2 sensor. Ventilation can reduce the number of potentially virus-contaminated aerosols in the room. Photo Pixabay

Aerosols are the smallest solid and liquid suspended particles that are released into the air when we breathe or speak. These tiny particles can carry viruses such as SARS-CoV-2 or influenza.

Depending on the number of people, the temperature and humidity, these can spread more or less quickly in the room and can also cover greater distances of several meters.

While scientists focused on droplet and smear infection in the early months of the pandemic, now scientists consider aerosols to be one of the main vectors of the coronavirus.

Facial masks only keep them away to a limited extent, as the droplets of breath are clearly none other than those ejected when sneezing or coughing. According to Martin Kriegel, head of the Hermann Rietschei Institute at the TU Berlin, about 80 to 90 % of aerosols get into the room air through leaks at the mouth and nose protector (1).

Since only very few rooms have exhaust air systems installed, such as those in aircraft or laboratories, the small particles are distributed throughout the entire room within minutes. You probably know this situation: you're sitting in the office with your colleagues and only when someone comes in after a long time and says "Phew, there's stuffy air in here!

The danger: With more people in a room, there are more aerosols in the air and, in the worst case, also more viruses.

This is why the number of persons is already regulated in many areas. However, counting people with counted chips or shopping trolleys, e.g. in the entrance area of a supermarket, is time-consuming. And what about the aerosols in the indoor air?

"Imagine you can foresee dangers and count people with just one instrument and measure air quality at the same time.“

This question from Thomas Fritz, CEO of the software and hardware company Kentix, was the starting point for the development of such an all-in-one sensor called "MultiSensor-TI".

The company, based in Idar-Oberstein in Rhineland-Palatinate, has specialised for years in the development of intelligent IoT solutions (IoT: Internet of Things) for the protection of system-relevant infrastructure. After the technologically advanced fever scanner "SmartXcan", a bestseller in the middle of the corona lockdown, has already been used thousands of times worldwide in hospitals, public authorities and industry for the early detection of virus hotspots, the new "MultiSensor-TI" now completes the range of products in the field of corona prevention.

Passage counting with MultiSensor-TI above the entrance.
Photo Kentix

By fusing several intelligent sensors in just one unit, networked together by clever software, the smart IoT sensor counts the number of people entering a room (passage counting), counts people staying in a room (presence counting) and simultaneously measures air quality.

Transit Counting
With the built-in thermal sensor, it is possible to precisely register people entering and leaving a room. If a previously defined, maximum number of persons is exceeded, this can be signalled visually, e.g. via a connected display, or acoustically via a warning signal.

Presence counting
Another form of peoplecounting is presence counting. This can be carried out in a room or in a specific area within a building. If, for example, there are already two people in a room and a third person is added, although no more than three are allowed, the MultiSensor registers the situation and issues a corresponding warning.

Permanent measurement of air quality – reducing aerosols
In order to avoid high aerosol pollution and thus a possible spread of viruses in closed rooms, the measurement of the CO2 content in the air is a good solution. As people exhale CO2, the CO2 content in the room also increases with increasing occupancy and use over time. From this it can be deduced that there are also more aerosols in the room.

In accordance with the CO2 limit values for workplaces, the exceeding of the limit value can be reported and window ventilation can be initiated. A high CO2 concentration >1,000 ppm means that ventilation should be initiated.

The built-in air quality sensor uses certain algorithms to calculate the carbon dioxide content with which the air quality can be permanently monitored.

The integrated software in the MultiSensor-TI can count people and measure air quality at the same time. Photo Kentix

In this case the user has the possibility to set the quality level for triggering the alarm himself. The various levels of the so-called "Air Quality Index" (IAQ) serve as a basis, which has levels from "excellent" to "extremely dirty" and can display corresponding action measures such as "improve ventilation" on a connected monitor.

Conclusion:
Via one or more entrances, or installed on the ceiling in the middle of the room, the small 90 x 90 mm MultiSensor-TI can be used to warn customers, visitors or your own employees immediately of overfilling and increased CO2 content - and so of too many aerosols.

This will help companies, shops, schools, day-care centres or the food industry to make a valuable contribution to Covid19 prevention. Thanks to the IoT technology, the system can be easily integrated into the existing network and managed centrally - without any additional software.

More information about the versatile MultiSensor-TI as well as helpful, short videos can be found at https://kentix.com/en/people-counting/

(1): Source: https://www.spiegel.de/wissenschaft/mensch/aerosole-und-coronavirus-die-gefahr-in-der-luft-a-744efba4-6a9f-41f2-acd4-a4749aecb60a

Contact/contact person press:

Oliver Lanz
Kentix GmbH
Carl-Benz-Strasse 9
D-55743 Idar-Oberstein
Phone: +49 6781 56 25 10
E-Mail: o.lanz@kentix.com

About Kentix:

Kentix GmbH, based in Idar-Oberstein, Germany, is a manufacturer of professional smart building security products for the physical security of business-critical IT infrastructures.

Our 360° integrated security solutions include environmental monitoring, access control, power monitoring and IP video surveillance, completely remote controllable via cloud and all from one source. This saves costs and effort compared to several individual systems. The use of networkable wireless systems and modern IoT technologies also enables cost-effective integration into existing IT networks. We attach great importance to the ease of use of all products, which are manufactured exclusively in Germany to the highest quality standards.

Kentix systems offer network-based solutions for every requirement and are suitable for use in all sectors of the economy. With Kentix you can easily increase your IT availability and avoid system failures before they happen.