

Post-Pandemic Management Series

# Ensuring Safe Spaces with Edge AI



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## Overview

With many countries and businesses struggling to re-open after Covid-19 lockdowns, the big question remains: how? Many governments have been putting forth recommendations for social distancing and infection control, yet how does that translate into real-world operations? This paper looks at the various challenges certain industries face with post-pandemic re-openings and highlights some opportunities technology may have for returning to our work and social lives.

# The Post-Pandemic World

Returning to business as usual is not going to happen any time soon. Based on various recommendations from both the World Health Organization (WHO)<sup>1</sup> and the U.S. Centre for Disease Control (CDC)<sup>2</sup>, it is fairly certain a combination of the following restrictions will be put in place in jurisdictions around the world:



- 1. Social Distancing**  
The common recommendation is for people to keep a safe distance of 1.5 metres (6ft).
- **2. Masks**  
It is recommended to wear a medical/face mask in public spaces and especially when riding on public transit.
- **3. Contact Tracing**  
Jurisdictions need to have the ability to track down the contacts of an infected individual for the previous 14 days.
- **4. Temperature Checks**  
Entrance into public spaces, restaurants and classrooms will need a method of checking people's temperatures to confirm of any fevers.
- **5. Large Gatherings**  
Large groups of 10 or more people congregating are dissuaded especially if social distancing requirements cannot be met.
- **6. Avoid Touching Commonly Used Surfaces**  
Workers should avoid person-to-person contact and should refrain from touching items that have a lot of use (elevator buttons, hand railings, etc.).

**Note:** These guidelines are subject to change over time.

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<sup>1</sup> <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/guidance-for-schoolsworkplaces-institutions>

<sup>2</sup> <https://assets.documentcloud.org/documents/6840739/Guidelines-PDF.pdf>

## Potential Roadblocks

Not all of these guidelines and recommendations can be implemented uniformly across all industries. Following through might be harder depending on what your job is and how your job requires you to interact with others. Let's examine the challenges that several industries will have to face.

### ENTERPRISES



- ✓ ~~need to maintain social distance~~
- ✓ ~~temperature checks~~
- ✓ ~~no large gatherings~~
- ✓ ~~contact tracing~~
- ✓ avoid touching items

Most businesses typically operate from 9-5 in large buildings or factories. Workers will need to gain access into the facilities and also ensure that they are spread out an appropriate distance from each other. Break rooms, conference rooms and dining areas will likely be unavailable and contract tracing is necessary should a worker fall ill.

### EDUCATION



- ✓ ~~need to maintain social distance~~
- ✓ ~~temperature checks~~
- ✓ ~~no large gatherings~~
- ✓ ~~contact tracing~~
- ✓ avoid touching surfaces

Schools will have a great difficulty in reopening as class sizes might be too large under these recommendations. Libraries and gathering sites will need to enforce distancing rules. Elementary schools will have a unique challenge with young children and their penchant for exploring and touching things.

## HEALTHCARE



- ✓ ~~need to maintain social distance~~
- ✓ ~~temperature checks~~
- ✓ ~~contact tracing~~
- ✓ ~~masks required~~
- ✓ avoid touching surfaces

Hospitals and special care facilities, while having experience with the pandemic, need to find longer-term strategies to keep their health care workers safe on a daily basis. And as more patients arrive with other conditions or for surgeries, how do hospitals monitor these people and maintain overall safety?

## TRANSPORTATION



- ✓ ~~need to maintain social distance~~
- ✓ ~~temperature checks~~
- ✓ ~~masks required~~
- ✓ avoid touching surfaces

Transportation hubs (such as airports, train stations and subways) rely on having a large flow of people in small confined areas. Reorganizing entrances/exits, lineups, seating patterns and limiting contact will be critical especially during peak travel times.

## RETAIL



- ✓ ~~need to maintain social distance~~
- ✓ ~~temperature checks~~
- ✓ avoid touching surfaces

Stores and restaurants will likely have to limit their customers inside as well as ensure all entrants have their temperatures checked and their hands disinfected. Items within the store will require frequent disinfection.

## Technical Innovations

As Covid-19 continues to be an issue across the globe, numerous governments and local enterprises are turning to technology as a way to monitor and prevent its spread. From the European Union's recommendation to leverage mobile apps and data<sup>3</sup>, to small businesses testing out thermal cameras<sup>4</sup>, organizations are seeing the myriad of ways today's tech can keep their businesses thriving.

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<sup>3</sup> [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_20\\_626](https://ec.europa.eu/commission/presscorner/detail/en/ip_20_626)

<sup>4</sup> <https://abc13.com/coronavirus-texas-covid-19-thermal-technology/6127369/>

## Tech-based Solutions

IoT devices and video analytics are showcasing some unique answers to the questions around reopening. Technologies like people counting, IoT data compiling and facial recognition could provide a real boon for managing the virus<sup>5</sup>.

COVID-19 GUIDELINE	TECH USED	DEPLOYMENT	POTENTIAL SOLUTION
<b>Social Distancing</b>	<ul style="list-style-type: none"> <li>• Video Analytics</li> </ul>	<ul style="list-style-type: none"> <li>• Group Detection</li> </ul>	Some human behavior analytics can detect when individuals are gathering together and can send out an alert immediately.
<b>Masks</b>	<ul style="list-style-type: none"> <li>• Video Analytics</li> </ul>	<ul style="list-style-type: none"> <li>• Mask Detection</li> <li>• Facial Recognition</li> </ul>	Here at Gorilla we have developed a facial recognition system with mask detection, which can perform identification and can notify when people are/aren't wearing face coverings.
<b>Contact Tracing</b>	<ul style="list-style-type: none"> <li>• Access Control Systems</li> <li>• Big Data</li> <li>• IoT</li> </ul>	<ul style="list-style-type: none"> <li>• Clock In/Out Times</li> <li>• Data Fusion</li> <li>• Big Data Searches</li> <li>• App Creation</li> </ul>	Access control systems can record clock in/out times and store in a database as needed. Searching wide swaths of data will also be needed. Many apps are similarly being developed using Bluetooth to determine who's been in contact with whom.
<b>Temperature Checks</b>	<ul style="list-style-type: none"> <li>• Access Control Systems</li> <li>• Video Analytics</li> </ul>	<ul style="list-style-type: none"> <li>• Infrared Cameras/Sensors</li> <li>• Temperature Detection</li> </ul>	Many businesses are testing out thermal cameras to scan when someone's body temperature is unusually high and permit entry accordingly. Infrared cameras when used with video analytics can scan public spaces for anyone exhibiting high temperatures.
<b>Large Gatherings</b>	<ul style="list-style-type: none"> <li>• Video Analytics</li> </ul>	<ul style="list-style-type: none"> <li>• People Counting</li> </ul>	For stadiums, theatres and large venues, people counting systems can detect when an area is close to capacity and can limit the amount of entrants.
<b>Avoid Contact &amp; Common Items</b>	<ul style="list-style-type: none"> <li>• Video Analytics</li> <li>• Access Control Systems</li> </ul>	<ul style="list-style-type: none"> <li>• Facial Recognition</li> <li>• Self-serve kiosks</li> </ul>	Contactless kiosks using face or voice recognition can avoid physical contact. Identity verification can allow employees or guests access to buildings without having to touch a keypad or swipe a card.

<sup>5</sup> <https://www.securityinfowatch.com/video-surveillance/video-analytics/article/21137335/why-video-content-analytics-has-a-critical-role-to-play-in-the-pandemic>



## Industry Benefits

Each vertical has the ability to leverage existing technologies in order to make their work environments safe according to the new guidelines.

TECHNICAL SOLUTIONS					
	ENTERPRISE	EDUCATION	HEALTHCARE	TRANSPORTATION	RETAIL
➤ <b>Access Control:</b> perform identity verification for contactless entry into building	✓	✓	✓		
➤ <b>Access Control &amp; Facial Recognition:</b> record the entry/exit times for contact tracing investigations	✓	✓	✓	✓	✓
➤ <b>Access Control &amp; Facial Recognition:</b> utilize thermal cameras to perform temperature checks	✓	✓	✓	✓	✓
➤ <b>Facial Recognition:</b> perform crowd detection to determine large gatherings	✓	✓		✓	
➤ <b>Facial Recognition:</b> people counting to limit entrants	✓			✓	✓
➤ <b>Access Control &amp; Facial Recognition:</b> perform mask detection to determine who is/isn't wearing a mask	✓	✓	✓	✓	✓

## Future Considerations

Life in a post-Covid-19 world will forever change our daily work and home lives. Edge AI solutions can offer real help during this transition – whether it's keeping businesses alive with self-automated services for social distancing, or for schools to stay open by scanning for fevers and masks.

With an increased reliance on edge devices, more questions need to be explored:

- ❖ How will an organization's network security approach be affected?
- ❖ How do governments and companies manage all the new data being produced?

These topics are further examined in our additional whitepapers.



## Conclusions

While government regulations around the world may be in flux, people and organizations can still take the lead in implementing technologies to keep everyone safe and healthy. Video analytics on the edge is a real tool for public health and disease prevention to get us out in the world again.



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