



# Crowd Control Solution

Presentation by VIVOTEK







Source: BBC News

**London**



Source: Khaleej Times

**Dubai**



Source: Mothership Singapore

**Singapore**



Source: ABC News

**Australia**



# Reduced Crowd is a Government Regulation

## STORES ARE GOING TO HAVE FEWER PEOPLE INSIDE

The new executive order limits the number of people allowed inside stores at one time, which means fewer people crowding the aisles, but also, if you go at a busy time, you may have to wait in line outside.

[Some stores were already doing this](#) — Target, Trader Joe's, Wegmans and Harris Teeter were already placing limits on occupancy. But now there are concrete rules requiring the metering of occupants and guidelines for how occupancy must be calculated.

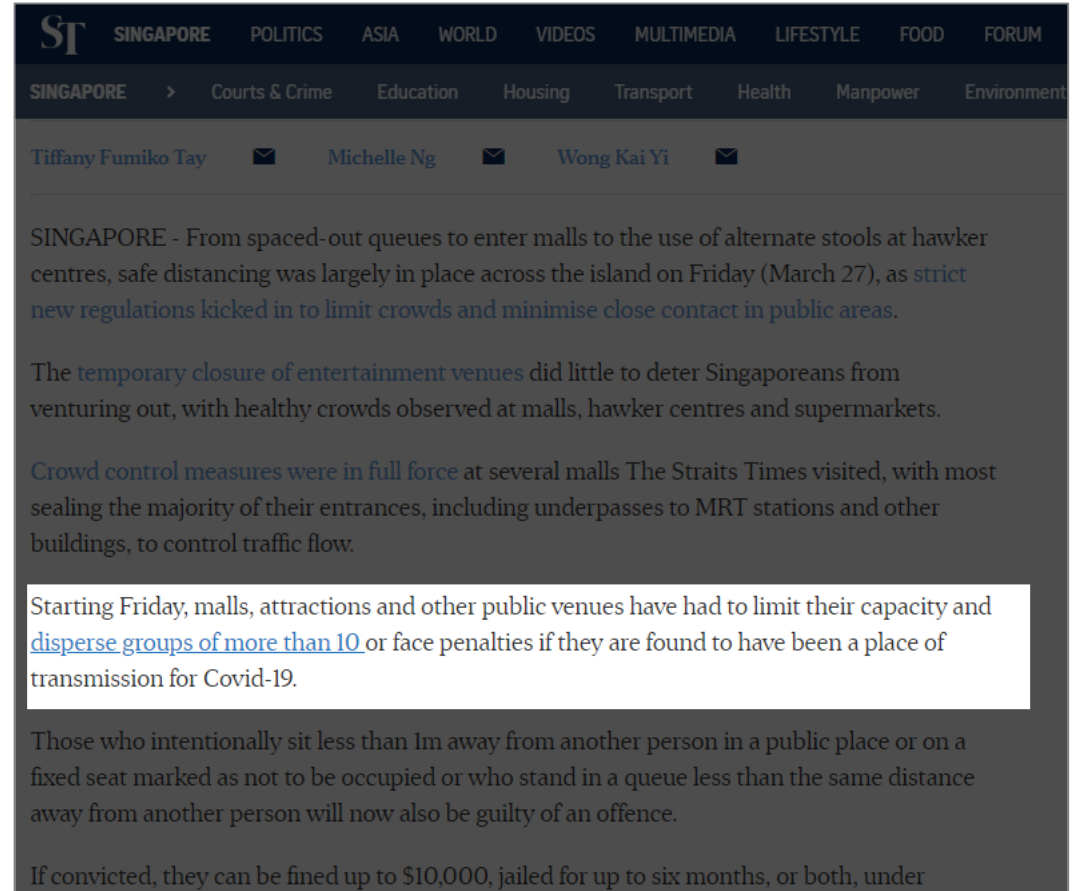
- The new executive order dictates that stores are limited to 20% of the stated fire capacity, or they can have 5 persons per 1,000 square feet. This is called Emergency Maximum Occupancy.
- Stores must have personnel at the door to limit access once the store has Emergency Maximum Occupancy.
- When Emergency Maximum Occupancy is reached and people are lined up outside stores, the store must clearly mark lines six feet apart where people can stand while waiting.

## ONCE YOU'RE INSIDE, STAY FAR APART

The CDC has repeatedly said the best way to slow the spread of COVID-19 is to maintain a distance from others. If you must go out, stay six feet apart from other people.

But anyone who has been inside a store lately knows that not everyone follows that rule. (Note: Experts say it's [OK to quickly pass others in an aisle](#), but you should not linger near other shoppers or workers, contemplating which cut of meat looks better. Likewise, if someone is looking at the chicken, stand back and let them finish before crowding in.)

Source: New Observer



The screenshot shows the top navigation bar of the Singapore Times website with categories like SINGAPORE, POLITICS, ASIA, WORLD, VIDEOS, MULTIMEDIA, LIFESTYLE, FOOD, and FORUM. Below the navigation, there are sub-sections for Courts & Crime, Education, Housing, Transport, Health, Manpower, and Environment. A row of author names is visible: Tiffany Fumiko Tay, Michelle Ng, and Wong Kai Yi. The main article text begins with 'SINGAPORE - From spaced-out queues to enter malls to the use of alternate stools at hawker centres, safe distancing was largely in place across the island on Friday (March 27), as strict new regulations kicked in to limit crowds and minimise close contact in public areas.' A highlighted section of the article states: 'Starting Friday, malls, attractions and other public venues have had to limit their capacity and [disperse groups of more than 10](#) or face penalties if they are found to have been a place of transmission for Covid-19.' The article continues to discuss crowd control measures and potential penalties for non-compliance.

Source: Singapore Times

# *Current*

# Crowd Controlled Market

**Maximum Occupancy**  
15 people



# Crowd Controlled Market

**Maximum Occupancy**  
15 people



## Reduced Entrances

- Simplify crowd control
- Reduce workforce for each entrance
- Reduce risk of employee health

# Crowd Controlled Market

**Maximum Occupancy**  
15 people



## Manual Counting

- Single entrance and exit
- Assign employee for crowd control
- 1-in and 1-out



# Crowd Controlled Market

**Maximum Occupancy**  
15 people

## High Health Risk

- Long time exposure to customer
- Queued line is difficult to remain social distance
- If infected, all staffs quarantined

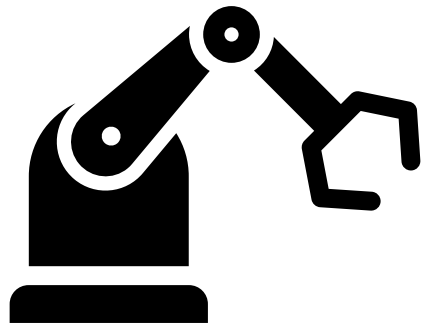




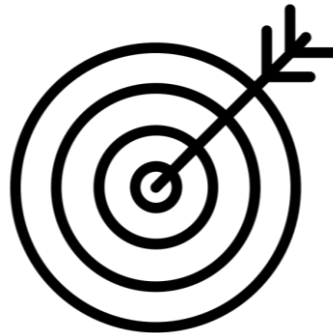
# VIVOTEK Crowd Control Solution



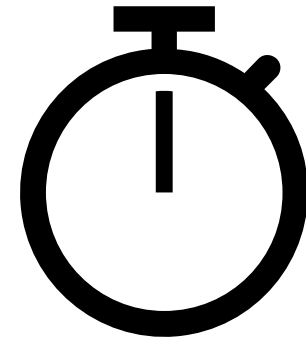
# VIVOTEK Crowd Control Solution



Automatic

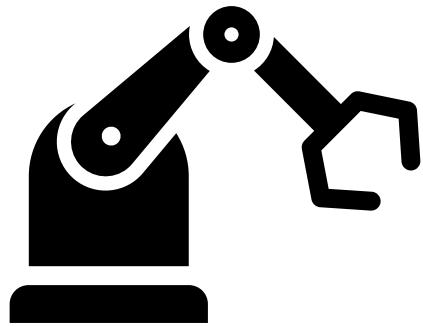


Accurate



Simple

# VIVOTEK Crowd Control Solution



Automatic



Accurate



Simple



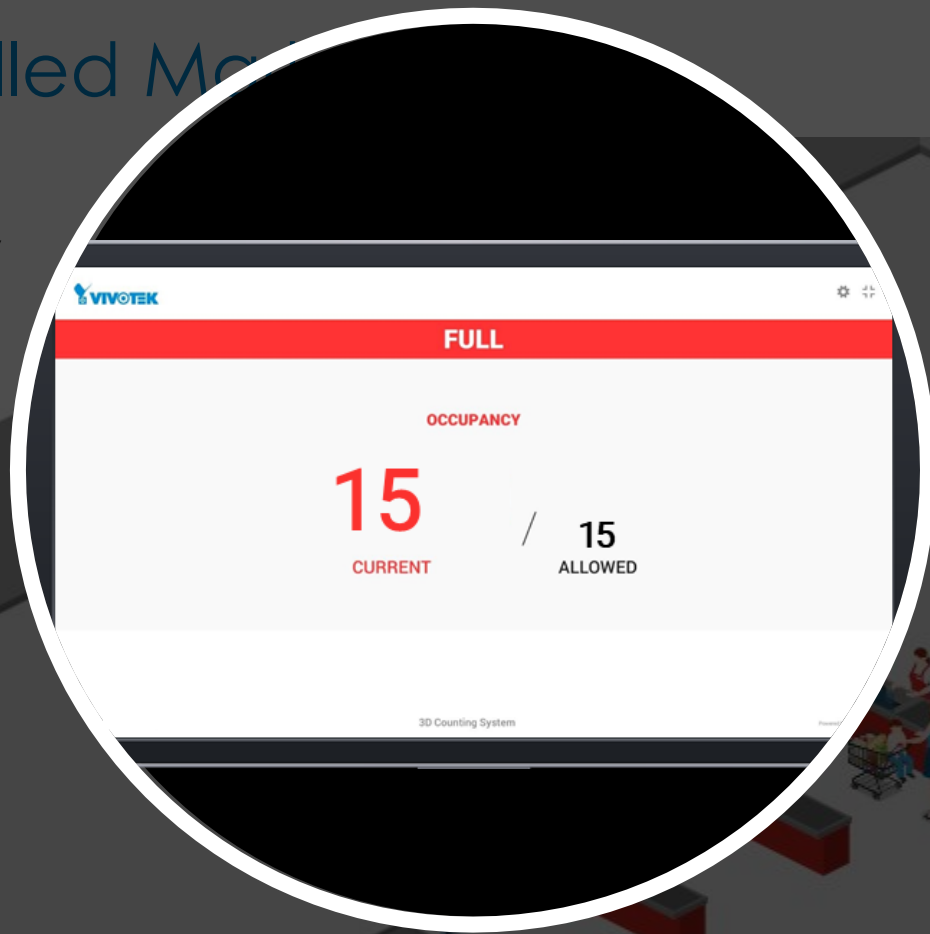
# Crowd Controlled Market

**Maximum Occupancy**  
15 people

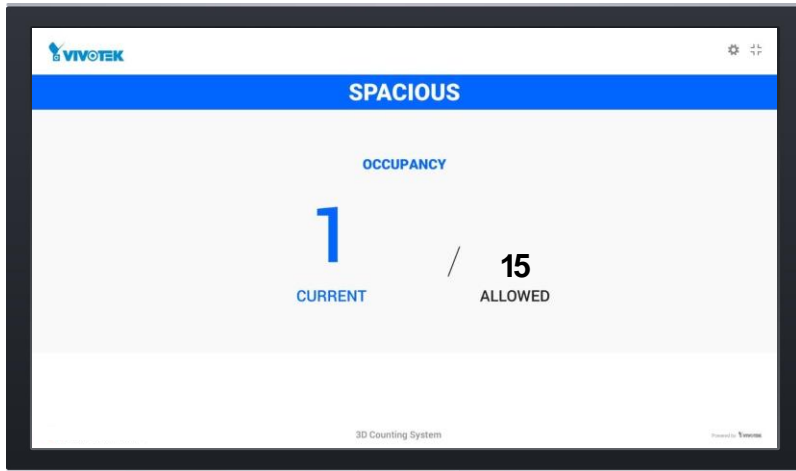


# Crowd Controlled Management

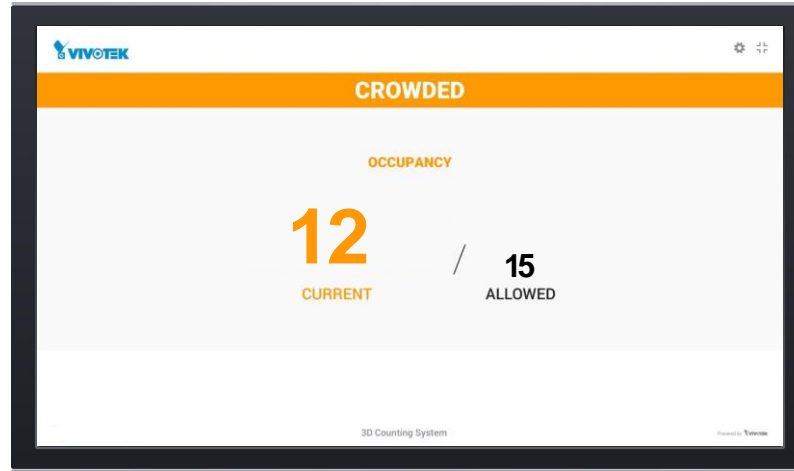
Maximum Occupancy  
15 people



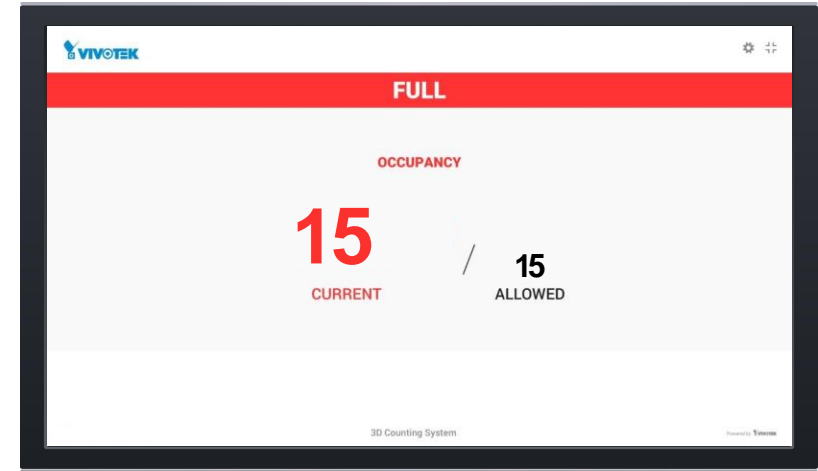
# Cold-Warm-Hot Dashboard



***Enter***



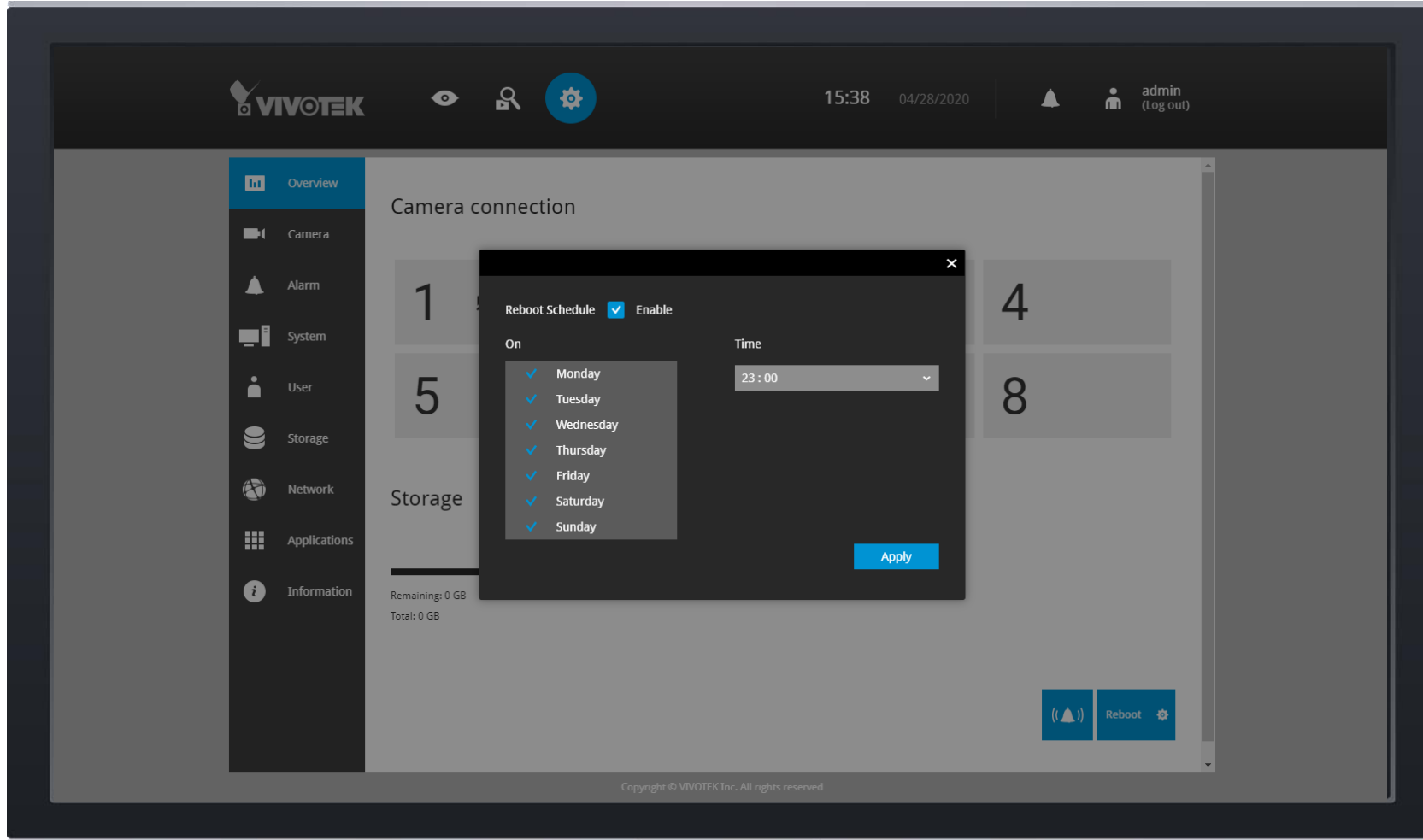
***Control***



***Stop***

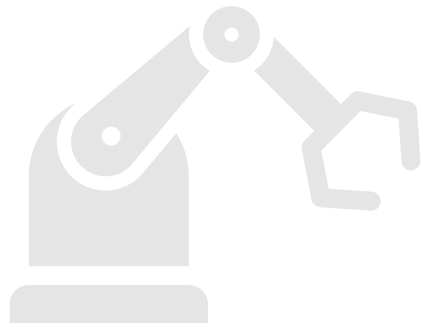


# Auto Reset Count to Zero

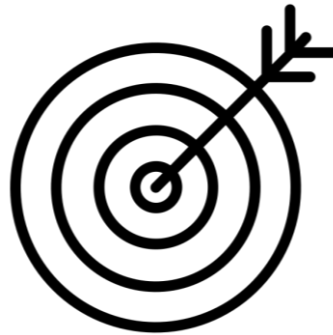


- Reset counter each day
- Automatic restart to counter page without configuration

# VIVOTEK Crowd Control Solution



Automatic



Accurate



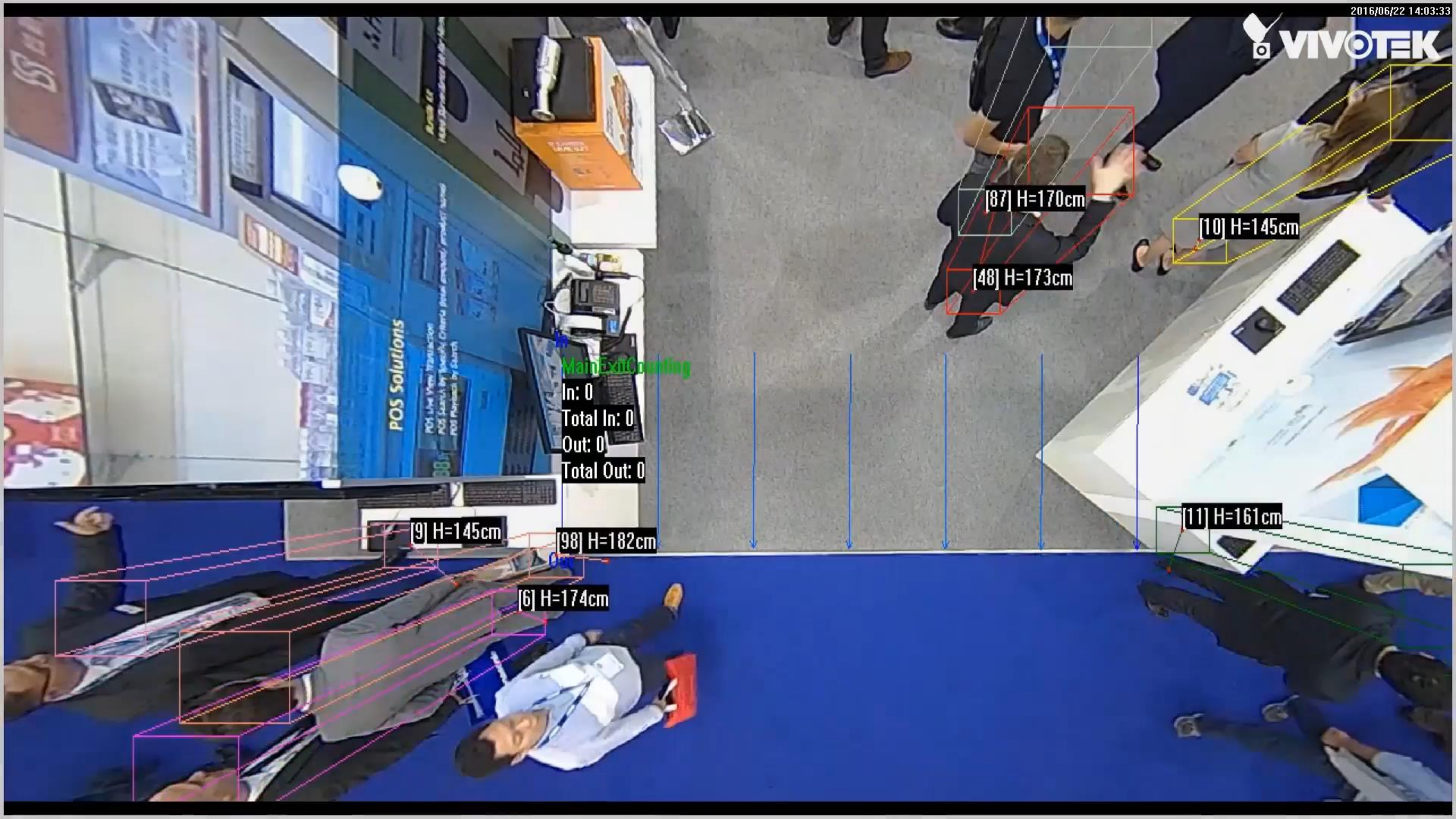
Simple

# Counting camera

- VIVOTEK's 3D Depth Technology
- **Up to 98% counting accuracy rate**
- Real-time data  
(system/counting/daily reports; time/region reports)
- Object tracking path
- **Filter carts, children and strollers**
- **Bi-directional counting on definable flow**
- Detection of U-turns to avoid double counting
- Not Influenced by shadows, reflections or glare conditions







Main Exit Counting  
In: 0  
Total In: 0  
Out: 0  
Total Out: 0

[87] H=170cm

[48] H=173cm

[10] H=145cm

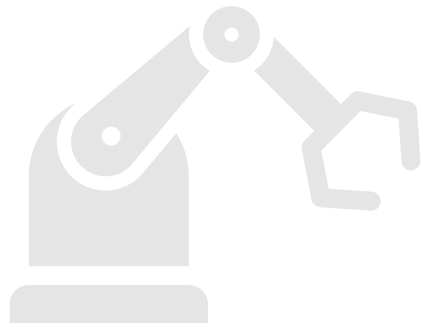
[11] H=161cm

[9] H=145cm

[98] H=182cm

[6] H=174cm

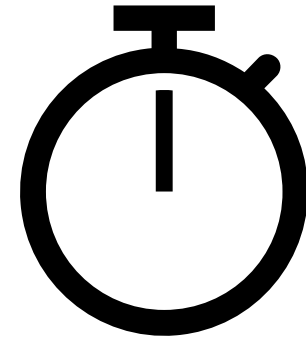
# VIVOTEK Crowd Control Solution



Automatic



Accurate



Simple

# Architecture



**Counting camera**

Power over Ethernet

Ethernet



**AW-FET-060C-065**

4-port unmanaged PoE switch



**ND9312**

H.265 8-ch NVR

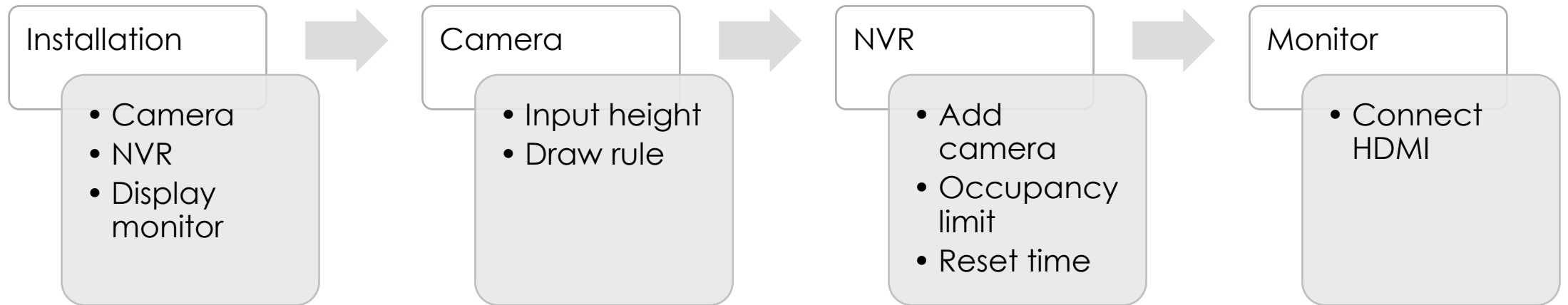
HDMI



**Monitor**



## 4 Phase 9 Steps



# Before vs After



# Crowd Controlled Market

Maximum Occupancy  
15 people

# Before



# Crowd Controlled Market

Maximum Occupancy  
15 people

# After





# Crowd Controlled Market

Maximum Occupancy  
15 people

Market  
Centralized  
Entrance & Exit

Before



# Crowd Controlled Market

Maximum Occupancy  
15 people



# Crowd Controlled Market

**Maximum Occupancy**  
15 people

**Market**  
**Independent**  
**Entrance & Exit**

A 3D isometric rendering of a market layout. The central area is labeled "Market Independent Entrance & Exit". The layout includes several checkout counters, shopping carts, and aisles. Two callout boxes highlight specific entrance and exit points. The entrance callout shows a line of people waiting to enter, with a camera positioned above the entrance. The exit callout shows people leaving the market, with a camera positioned above the exit. The overall design emphasizes independent flow of traffic to avoid congestion.

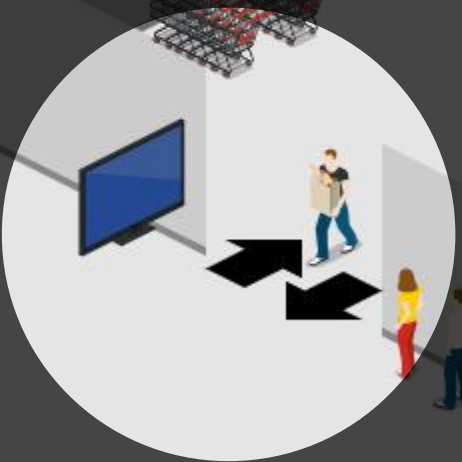
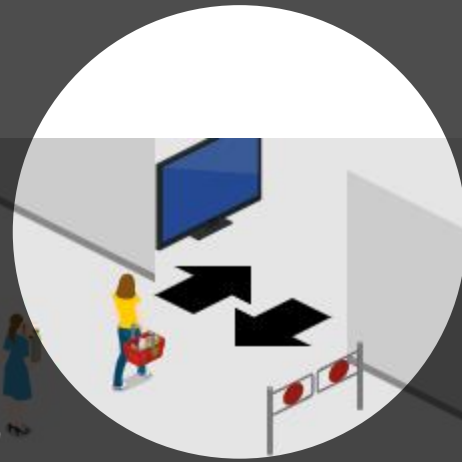
## Independent entrance & exit

- Avoid crowd at single entrance and exit
- Counting camera at entrance and exit

# Crowd Controlled Market

**Maximum Occupancy**  
15 people

**Market**  
**Multiple**  
**Entrances & Exits**



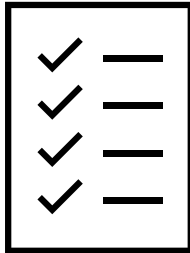
**Multiple entrance & exit**

- Avoid crowd at single entrance and exit
- Centralized crowd control system
- Dashboard at each entrance and exit



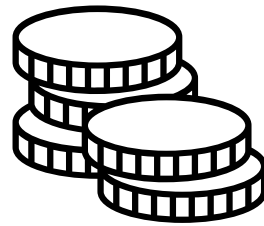
# Benefit for all parties

## Government



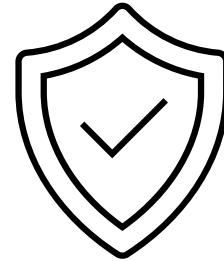
*Regulations are followed*

## Store Manager



*Cost is lowered*

## Customer

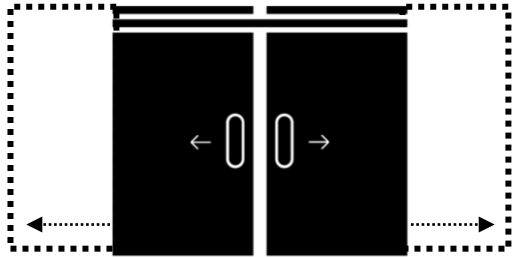


*Store is safer*

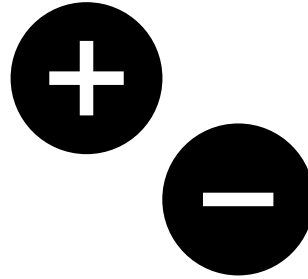
# Extended Scenarios



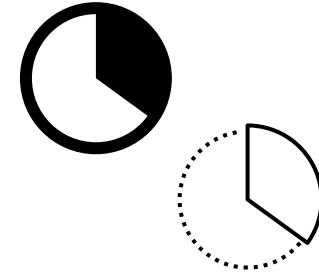
# Extended Scenarios



Wide Door



Adjustment



Occupancy Mode

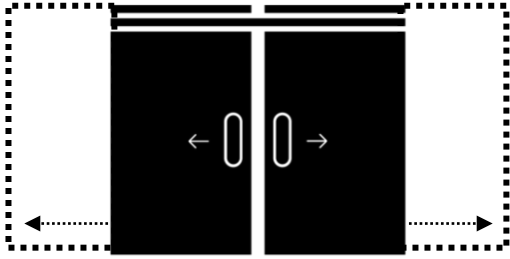


Language

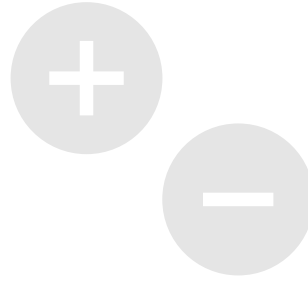


2021

# Extended Scenarios



Wide Door



Adjustment



Occupancy Mode



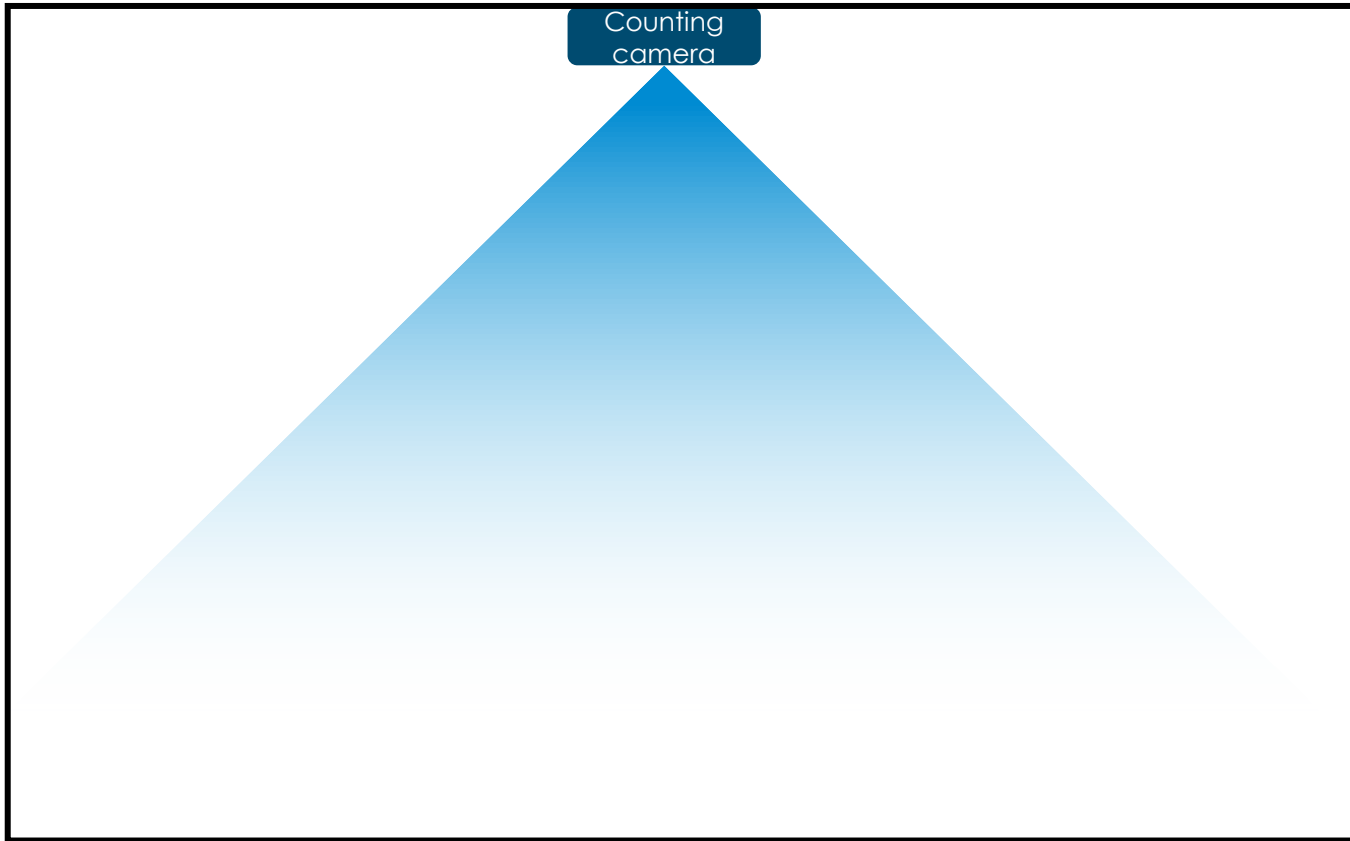
Language



2021

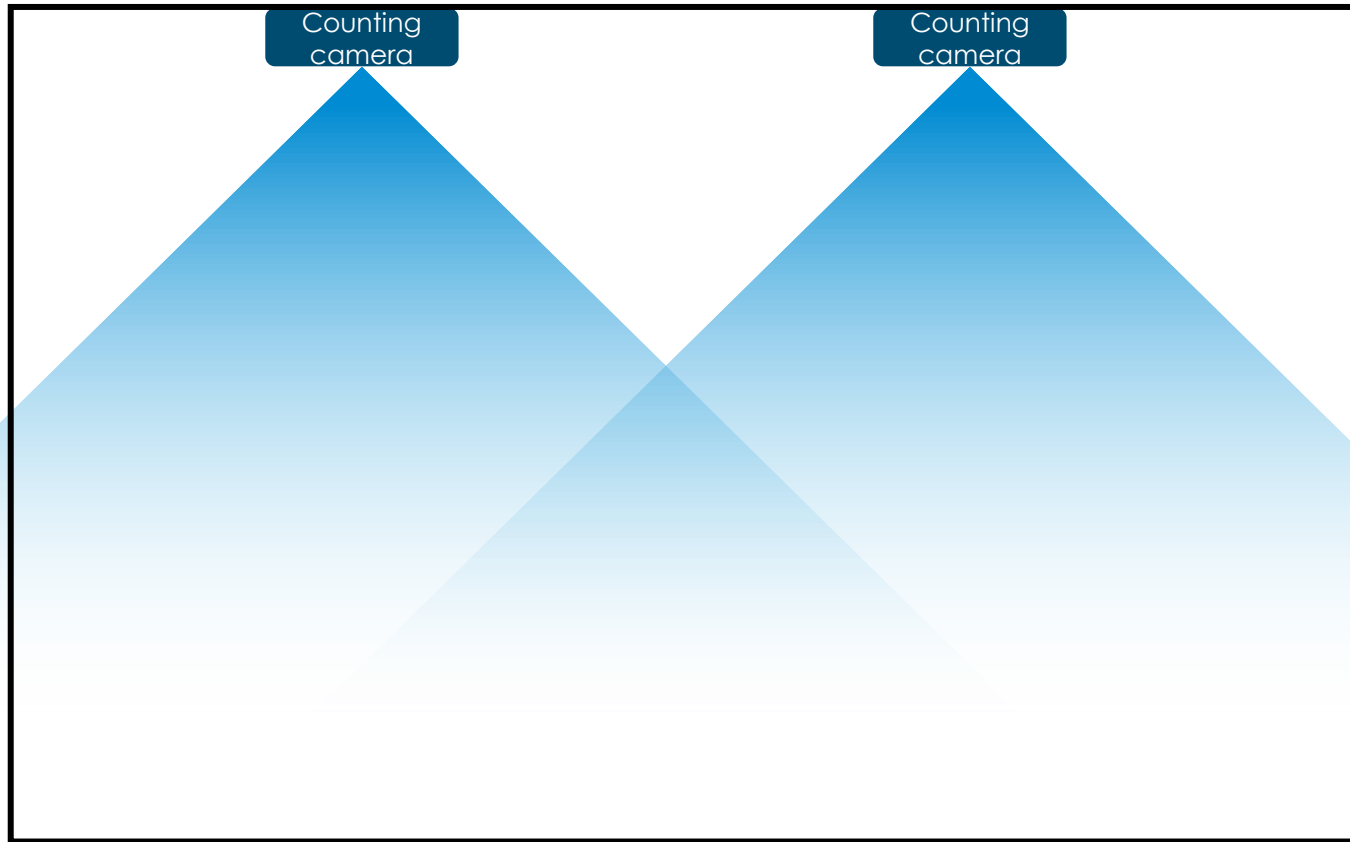


# Wider Door



What if the door width is wider than the FOV of single counting camera?

# Wider Door

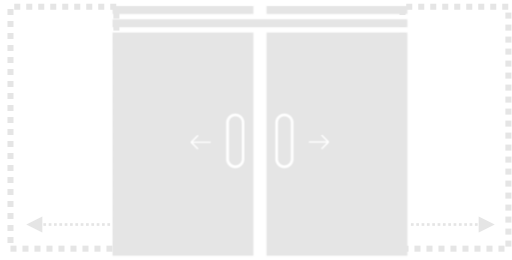


What if the door width is wider than the FOV of single counting camera?

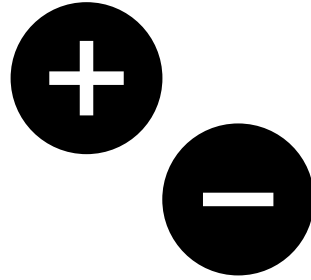
## Stitch

multiple counting cameras together to cover the door width.

# Extended Scenarios



Wide Door



Adjustment



Occupancy Mode



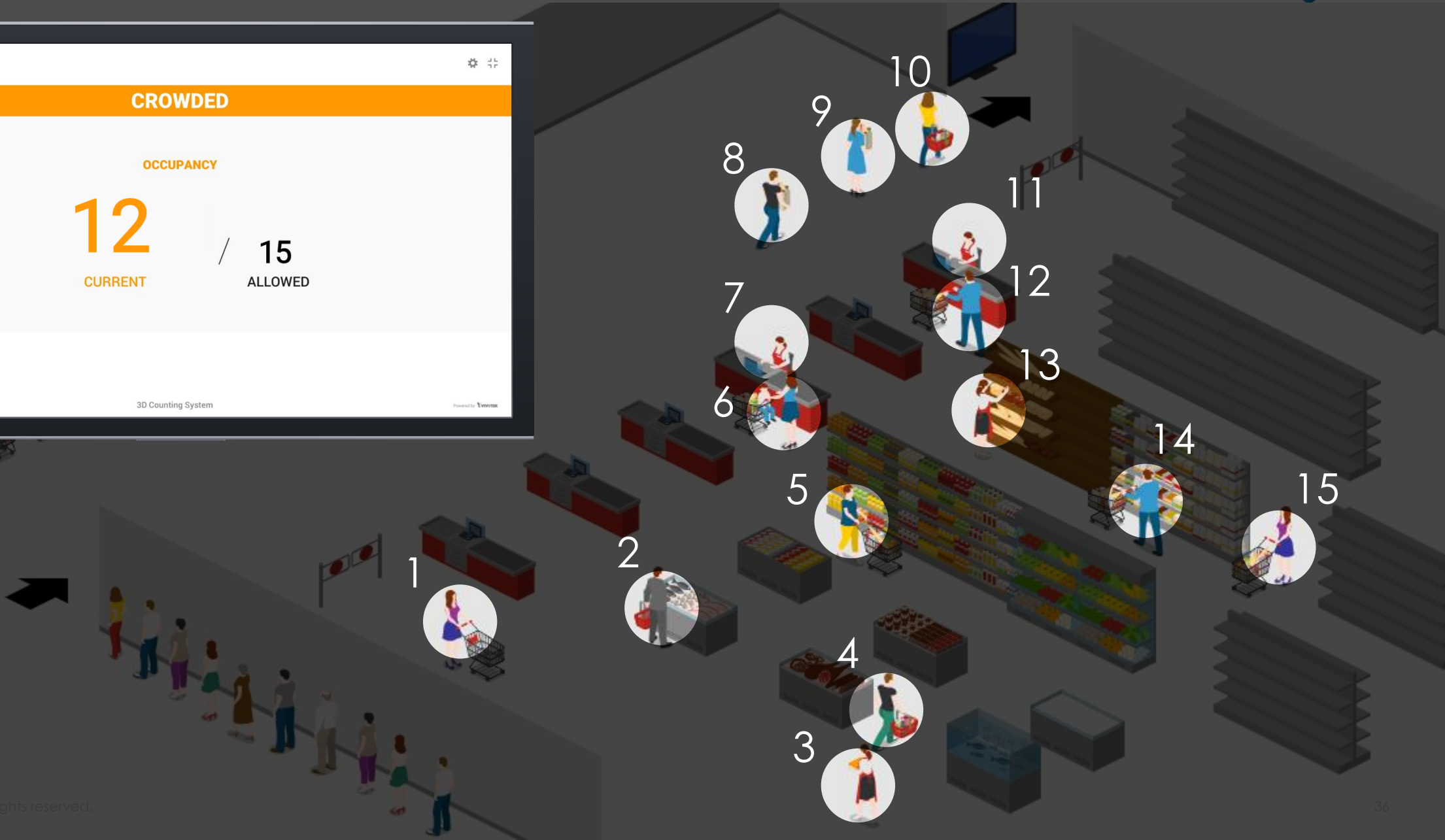
Language



2021

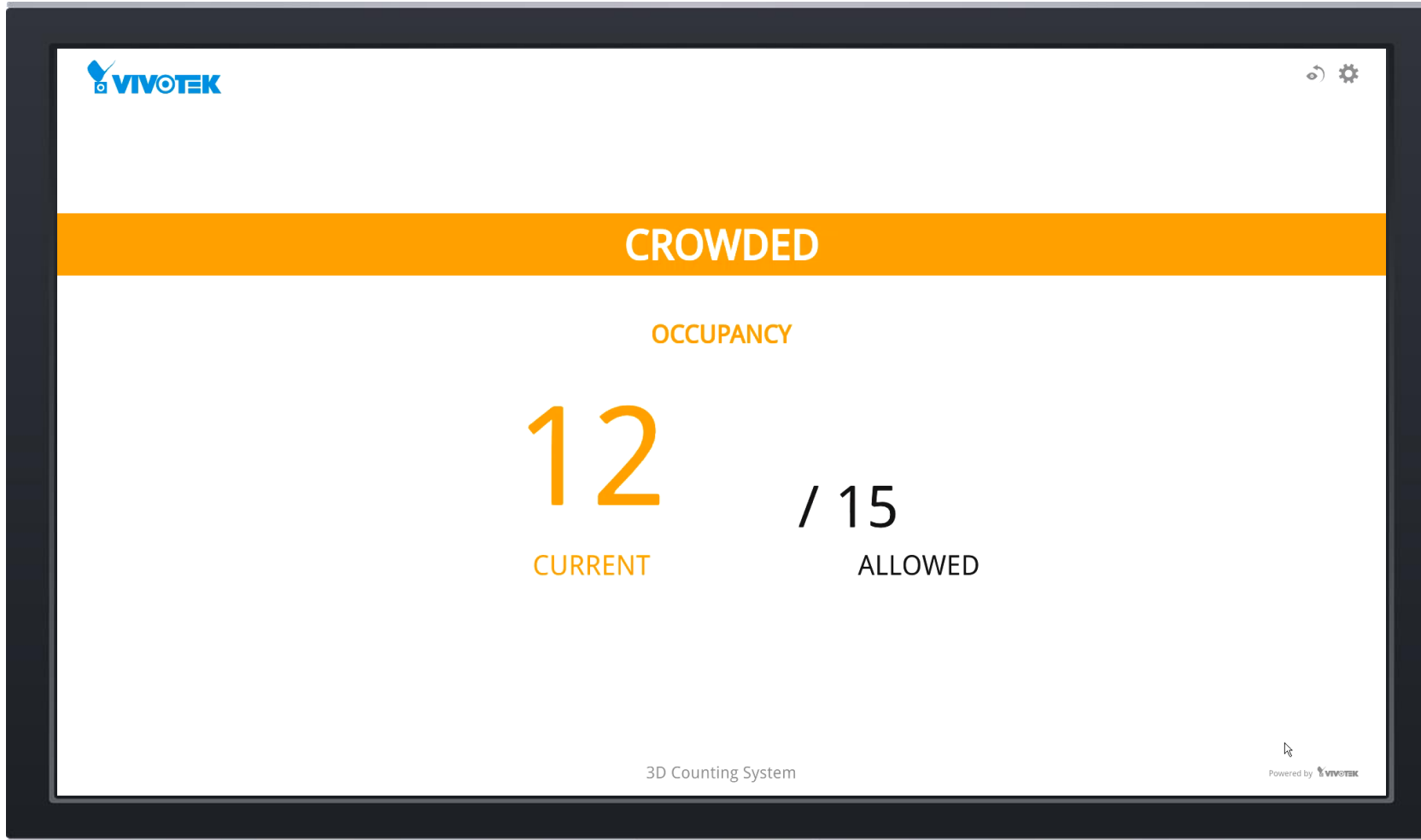
# Crowd Controlled Market

The interface displays the VIVOTEK logo at the top left. Below it, an orange bar contains the word "CROWDED". Underneath, the word "OCCUPANCY" is shown above a large orange "12" labeled "CURRENT" and a black "15" labeled "ALLOWED". At the bottom, it says "3D Counting System" and "Powered by Vivometrics".



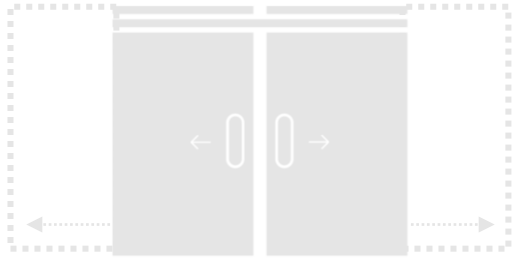


# Manual Counting

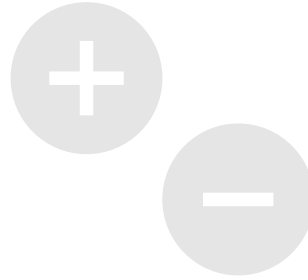


The screenshot shows a digital display interface for a 3D counting system. At the top left is the VIVOTEK logo, and at the top right are navigation icons. A prominent orange horizontal bar across the middle contains the word "CROWDED" in white capital letters. Below this bar, the word "OCCUPANCY" is centered in orange. The main display area features a large orange number "12" on the left, with "CURRENT" written below it in orange. To the right of the "12" is a black slash followed by the number "15", with "ALLOWED" written below it in black. At the bottom center, the text "3D Counting System" is displayed. At the bottom right, there is a mouse cursor icon and the text "Powered by VIVOTEK".

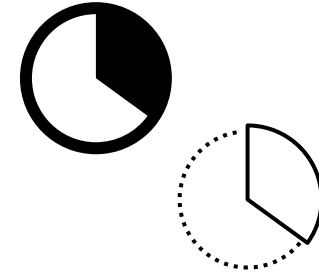
# Extended Scenarios



Wide Door



Adjustment



Occupancy Mode

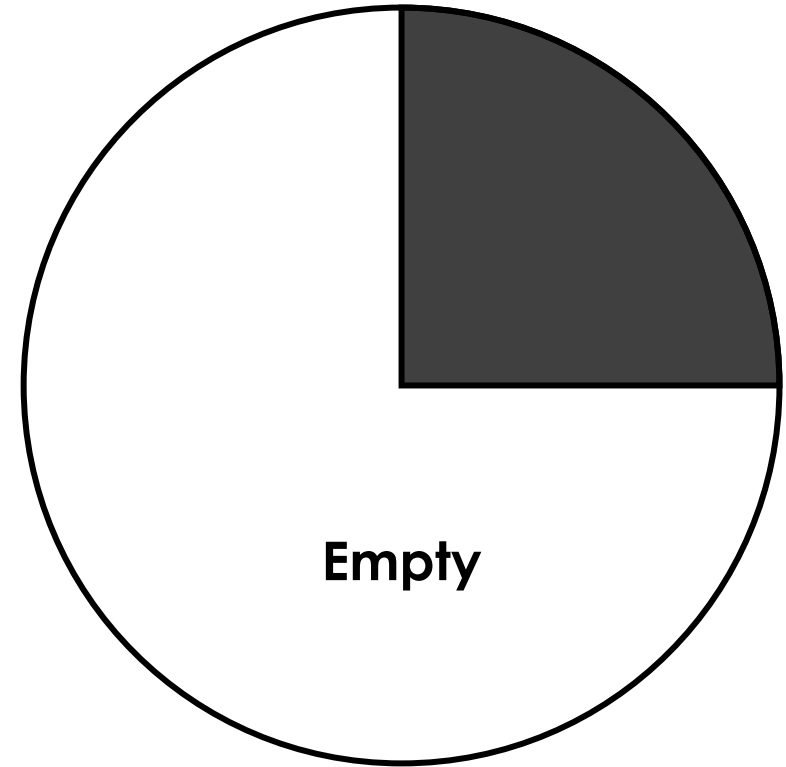
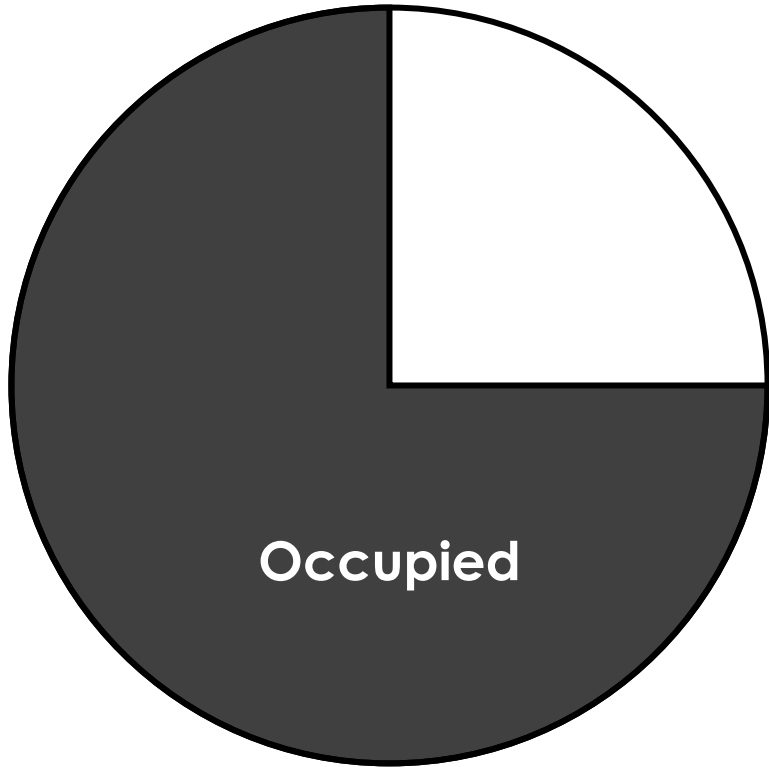


Language

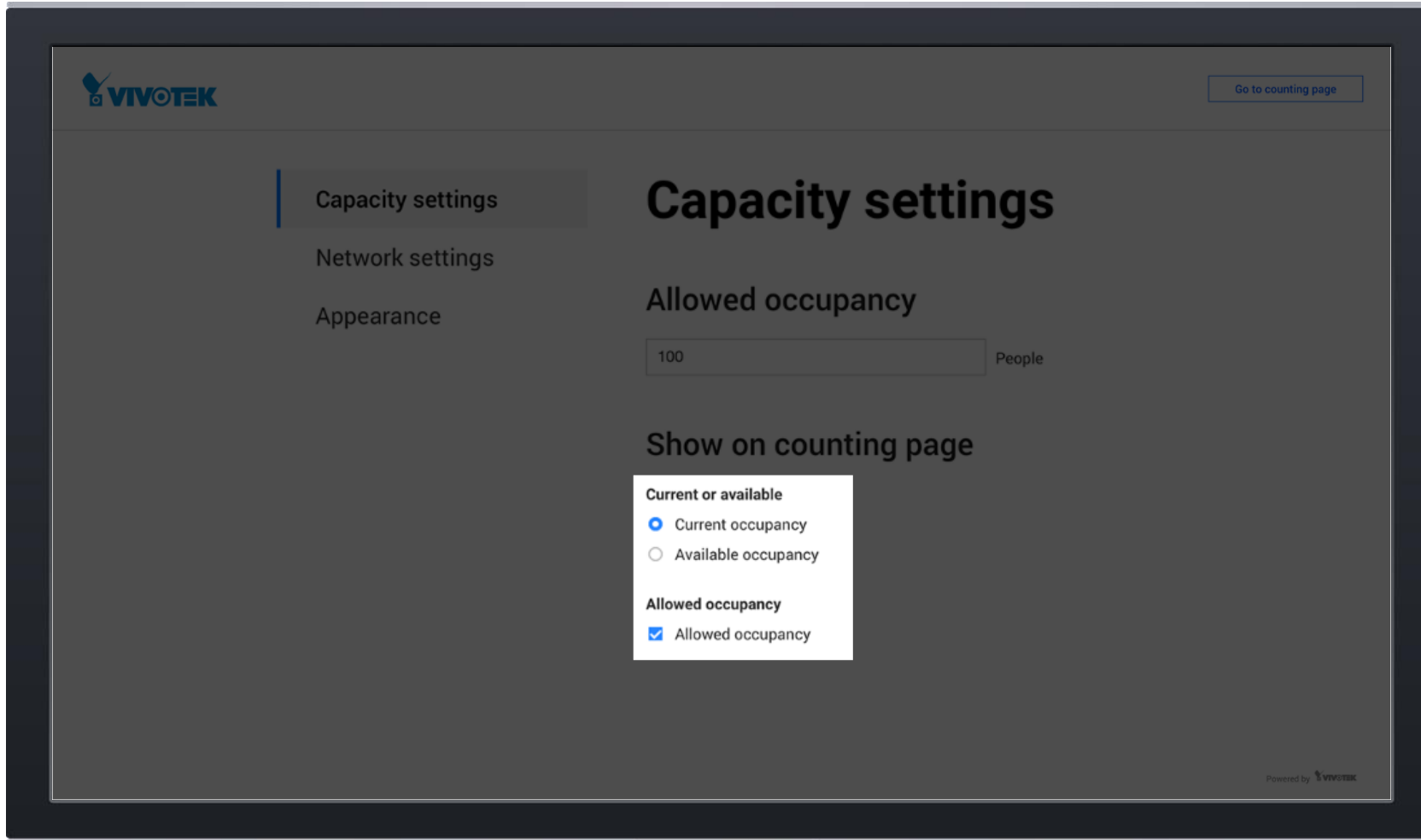


2021

# Occupancy Mode



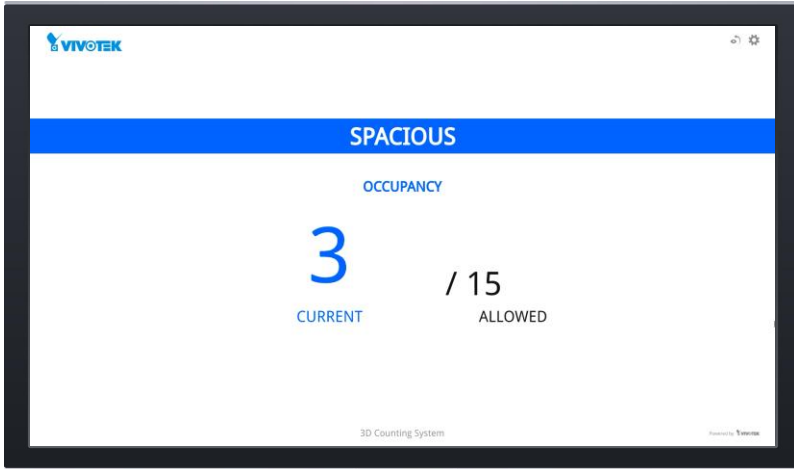
# Display in Current or Available occupancy



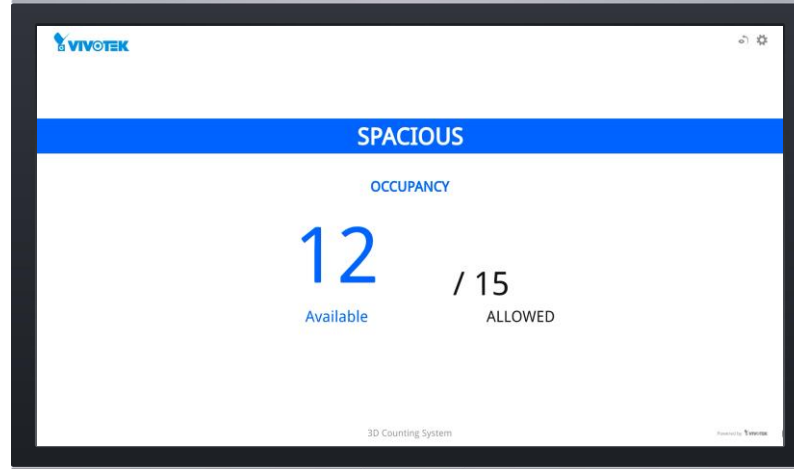
The screenshot shows the VIVOTEK web interface for Capacity settings. On the left is a navigation menu with 'Capacity settings' selected. The main content area is titled 'Capacity settings' and includes a 'Go to counting page' button in the top right. Under the heading 'Allowed occupancy', there is a text input field containing '100' and the unit 'People'. Below this is the 'Show on counting page' section, which contains two radio button options: 'Current occupancy' (selected) and 'Available occupancy'. At the bottom of this section is a checked checkbox for 'Allowed occupancy'. The footer of the interface reads 'Powered by VIVOTEK'.



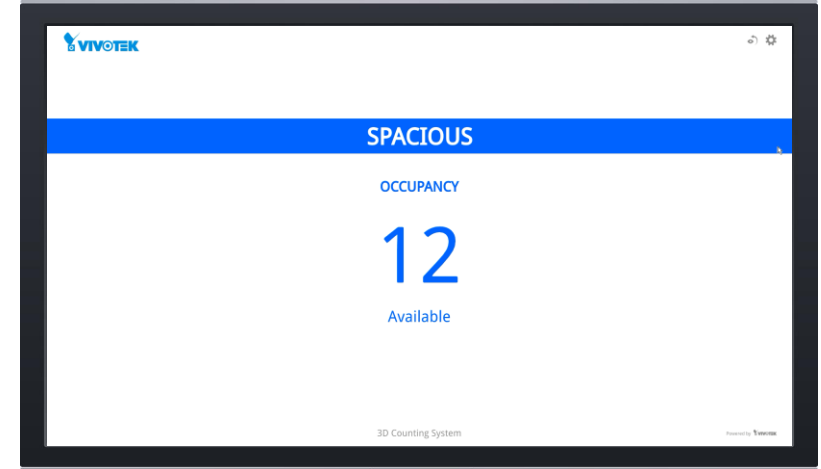
# Display Mode



***Occupied***

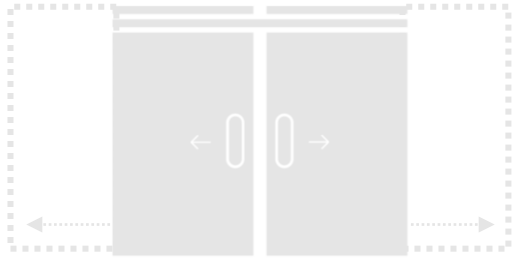


***Available***

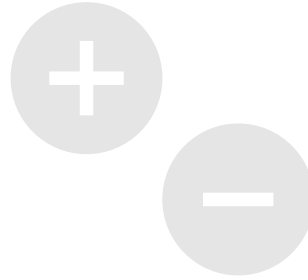


***Simplified***

# Extended Scenarios



Wide Door



Adjustment



Occupancy Mode



Language



2021

# 13 Language Supported

**Czech**

**English**

**French**

**German**

**Italian**

**Japanese**

**Korea**

**Persian**

**Polish**

**Portuguese**

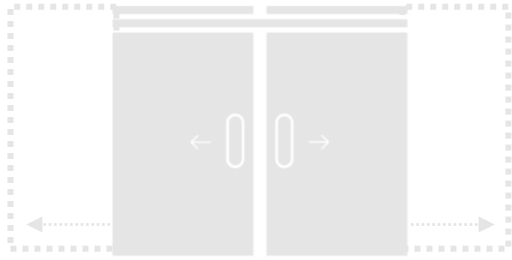
**Russian**

**Simplified Chinese**

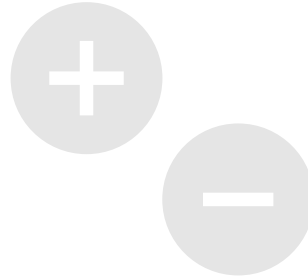
**Spanish**

**Traditional Chinese**

# Extended Scenarios



Wide Door



Adjustment



Occupancy Mode



Language



2021

# What happens after COVID-19 ends







## ND9321

- H.265 Compression Technology
- Up to 8 Channel IP Camera Input
- HDMI Video Output up to 4K Resolution
- 1 x 3.5" SATA HDD
- Up to 8MP Camera Live View and Playback
- Trend Micro IoT Security
- Multiple Browsers Supported
- Live and Playback Fisheye Dewarp
- VIVOCLOUD App & Portal for 24/7 Viewing
- Compact Size with Fanless Design

*\*\*Crowd control solution does not require HDD installed.*



- Stores Long-Term Counting Data up to 2 Years
- Customize Counting Data Reports
- Supports Web Portal and App
- Direct Use of VIVOCLOUD Account
- Supports VIVOTEK Counting Cameras

*In the future*

# Purchase Guide



# Crowd Control Bundle Kit



Mouse included



Counting camera

100137200G



ND9312

100218100G



AW-FET-060C-065

100179400G



