

SURF@Education™

Insights on Crowd Density with Video Content Analytics

Crowd Detection (VCA)



Introduction

In most institutions of higher learning with a vibrant campus experience, one would often see people interacting in common areas, or people getting from one point to another in between classes. What happens next when walkways become choke points, or occupancy within common areas or buildings exceed the maximum occupancy load? Indeed, it is inevitable that different areas or buildings would observe varying levels of crowd density, at times warranting a need for effective crowd management control or traffic diversion, be it to facilitate movement or to ensure the safety of the campus population.

With NCS' Crowd Detection (VCA) module, insights on crowd density could be harnessed easily. Heat maps visualized clearly on the interactive floor plan of IntelliSURF™ would aid building and estate managers in establishing a safer and better planned campus environment. Here, they may enforce timely crowd management control in times of large-scale events or scenarios or divert traffic in times of congestion when necessary.

Hot spots determined could also aid in effective planning for future expansions or amenities such as washrooms, notice boards and ventilation systems, especially given the constraints of space. Imagine, too, if insights on crowd density could potentially be processed further and then disseminated to the campus population to help them avoid crowded places such as canteens during peak hours, so that they can plan their time and journey in between classes more effectively.

Challenges

- Sudden surges in crowd density might well pose a threat to general safety
- Timely crowd management to be enforced in times of large-scale events or scenarios, planned or otherwise
- Need for close monitoring of congregation around sensitive areas such as server rooms and laboratories
- Optimal building and amenities planning required given the constraint of space

Solution

- IntelliSURF™ and Crowd Detection (VCA) Module

Key Product Components

Software

- ▼ IntelliSURF™
- ▼ Crowd Detection (VCA) Module

Hardware

- ▼ Video Cameras

Benefits

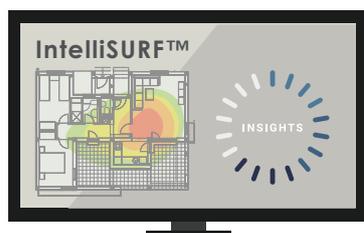
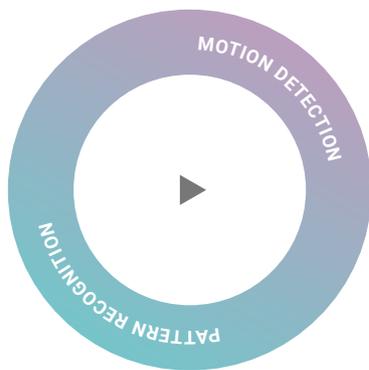
- Compliance with building/area occupancy guidelines, so as to safeguard the safety of people within your building or campus
- Real-time alert notifications to trigger the need for effective crowd management or traffic diversion when required
- Insights-driven planning of future expansion or installations of new amenities

How It Works

After the video cameras capture the situation on the ground in real-time, the live video streams would be subjected to two main forms of video content analysis:

- **Motion Detection:** picking up the slightest movement by examining each pixel in each frame.
- **Pattern Recognition:** objects being distinguished within a frame; the machine can be trained further to better recognise specific objects or patterns over time.

Crowd density would then be visualised as heat maps on the interactive floor plan of IntelliSURF™.



Features and Benefits

	FEATURES	BENEFITS
SAFETY AND BUILDING PLANNING	Visibility on the occupancy and crowd density of various areas in real-time.	Measure and monitor the crowd density, and when necessary, divert the traffic in times of congestion.
	Alert notification when the crowd density of an area is nearing or has exceeded a pre-defined building/area occupancy limit.	Ensure measures to safeguard the safety of the people within the building or campus. Also, achieve compliance with building/area occupancy guidelines.
	Access past historical information on crowd density within a defined period of time.	Better plan for future expansions or amenities such as washrooms, notice boards, ventilation systems, etc.

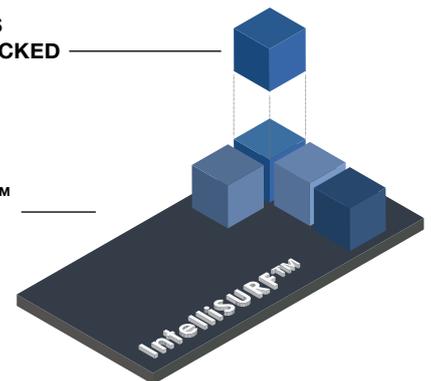
The Modular Feature of IntelliSURF™

More than the standard command-and-control platform, IntelliSURF™ integrates with a suite of modules which comprises best-of-breed technology, insights and domain knowledge.

Be it monitoring the crowd density of specified areas so as to divert traffic in times of congestion or tracking the speed of spread of a trending topic on social media, our modules represent a range of functionalities across the unique needs and contexts of various industries, so you could pick only the ones to complement what you truly need.

MODULES OF VARIOUS FUNCTIONALITIES STACKED UPON IntelliSURF™

IntelliSURF™ PLATFORM



Interested to find out how IntelliSURF™ can bring you performance gains based on insights on crowd density through video content analytics? Speak to us today, or request a consultation today.

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