SMART SURVEILLANCE SOLUTION

PROSONIC

for

SECURITY
&
BUSINESS INTELLIGENCE

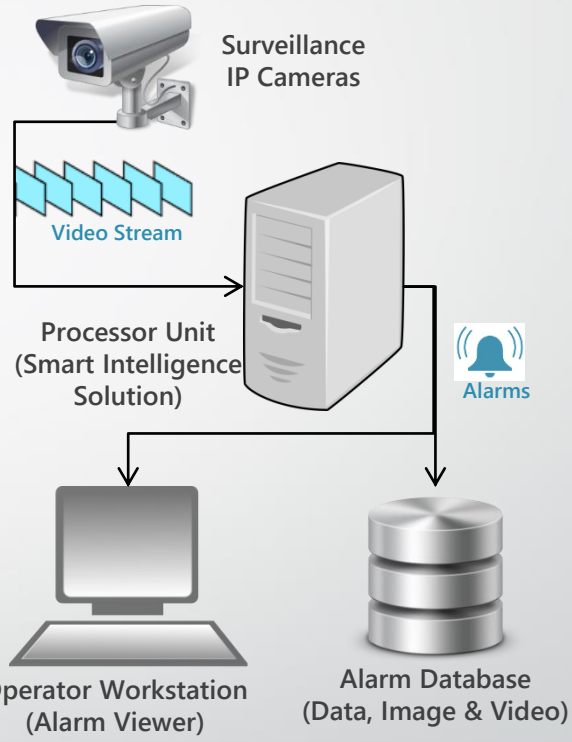
HOW INTELLIGENCE WORK ?

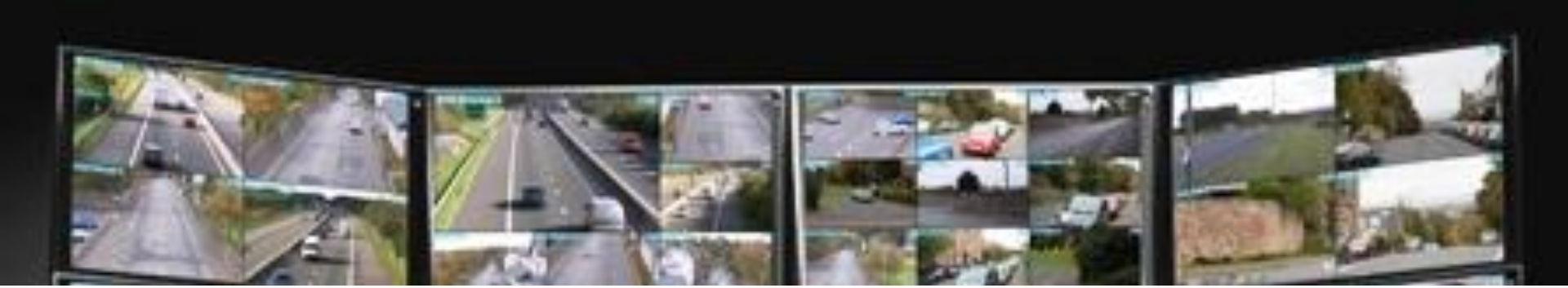
Video Solution = Visible Intelligence
Computerized Processing & Analysis of Video Stream

Software > Learns the Scene, Detects Object & Tracks it
User> Configures Rules with Virtual Line & Area, Count, Time

Rule Violations > considered as security breach
Statistics > Data on count, time/duration as decision intelligence

Input > Video received from IP Cameras
Output > Real-time Alerts & Reports sent to Database & Client





As per a study done on the effectiveness of manual monitoring,

the average human attention span is only around 20 minutes!

In **City Surveillance** scenario: **Too many** cameras / video screens. **Too few** people to monitor.
Important events and potential security threats might be **overlooked!**

WHY INTELLIGENCE ?

VIDEO INTELLIGENCE
the **BRAIN** *of your*
Surveillance System

IP Cameras are the Eyes of your System
Smart Intelligence Solution makes it intelligent

Paradigm Shift: Evidence Analysis is Passé
Proactive System: Prevention is the buzzword

Automation in Security Monitoring
Real time alerts through Analytics

Effectiveness & Efficiency
Works 24x7, saves manpower & cost

Decision Intelligence! not just monitoring.
Footfall | Occupancy | Profiling, and more…

WHY PROSONIC ?

SPECIALIST	in Smart Intelligence Solution with focus on **Accuracy** and **Reliability**
PROVEN	Installations **world-wide** across various industries / verticals
OPEN PLATFORM	Solution **integrates** Tightly with many VMS software
COMPREHENSIVE	Solution with **Advanced Algorithms** and **High Level Scene Analysis**
FEATURE RICH	with **40 plus** Basic & Advanced Smart Intelligence Solution features
FLEXIBLE OPTIONS	for Analytics - **Edge / Server** based (can also be installed in same machine)
MORE CHANNELS	per Server, reducing Hardware Cost, increasing **Efficiency**.
EASE OF USE	Intuitive **GUI**, Easy to **Install / Configure**, High quality **Support**

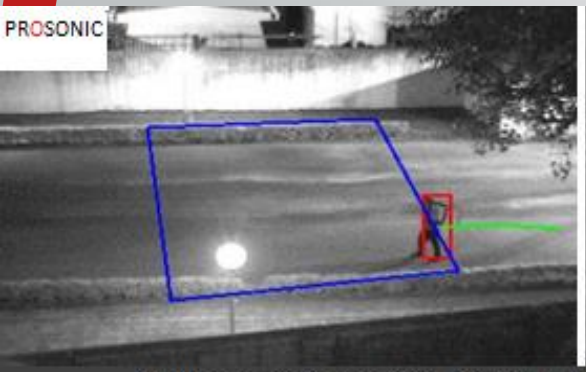
When it comes to Reliability & Accuracy,
you choose a SPECIALIST.

PTZ / Auto PTZ - Captured in PROSONIC surveillance during Typhoon time.

Occlusion

Occlusion Detection

- Advanced **Machine Learning** (Artificial Intelligence) Algorithms
- Outstanding **Advanced** Object Tracking Algorithms
- Superior **Robustness** to Environmental Changes (wind/rain/snow)
- Industry best **Object Occlusion Handling**
- **Accurate** Results even at gradual & sudden Illumination Changes
- Capability of Object **tracking** even in crowd

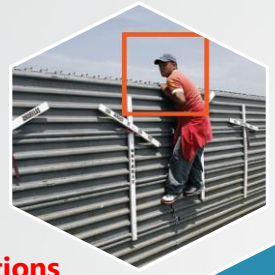


Reliable Performance even during Night & Rain conditions

Occlusion

Occlusion Detection

APPLICATIONS



City Surveillance

Unauthorized Crossing of Railway Lines

Boundary Surveillance of Critical Infrastructure

Suspicious Object & Behaviour Detection

Unauthorized Crowding / Overcrowding

Black Listed Person / Suspect identification

Effective traffic control at intersections

Detection of illegal traffic behaviour

Toll evasion detection at toll booths

Detection of unauthorized parking

Available parking slot detection

Traffic & Parking Mgmt.

Building Surveillance

Monitoring Entry at Restricted Spaces

Access Control / Lobby Management

Abnormal Behaviour & Unidentified Objects

Early Warning through Video Smoke Detection

Monitoring Important Monuments for Vandals

Foot Fall Statistics & Queue Monitoring

Reduce Shrinkage by Pilferage Detection

Counting beverages served over the counter

Viewership & Engagement Analysis

Profiling by demographic data (age, gender)

Business Intelligence

SECTORS WE SERVE

BANKING

ENTERPRISE

GOVERNMENT

EDUCATION

CRITICAL INFRA

POWER

CITY

HOSPITALITY

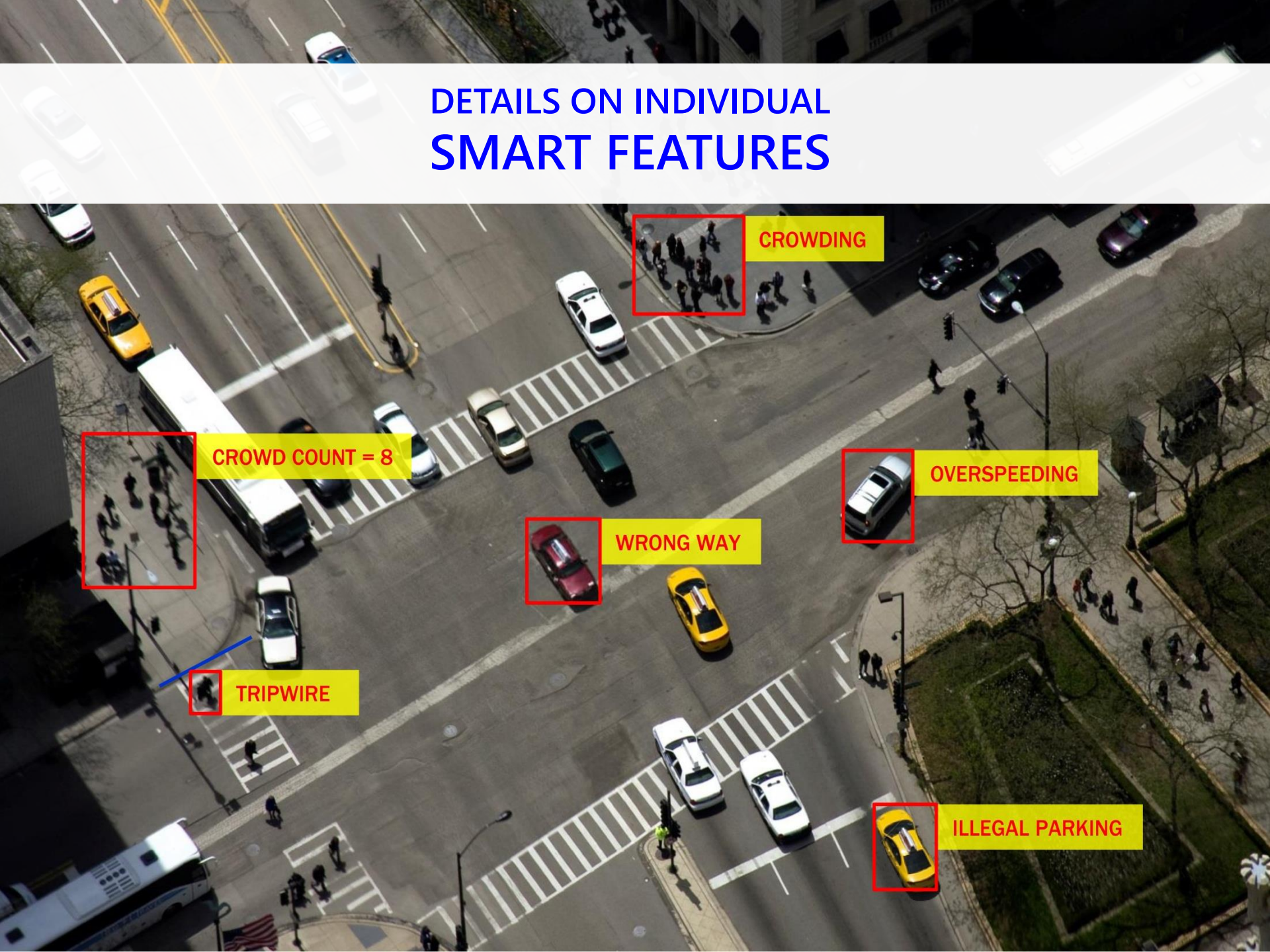
TRANSPORTATION

RETAIL

OIL & GAS

INDUSTRIES

DETAILS ON INDIVIDUAL
SMART FEATURES



FEATURES – AT A GLANCE

BASIC SECURITY	ADVANCED AUTO PTZ	ENHANCED MONITORING	ENHANCED MASKING
Zone Crossing / Trespass	Auto PTZ & Smart Auto PTZ	Video Stabilization	Face Masking
Line Crossing / Tripwire	PTZ Handoff	Video Stitching	Object Masking
Camera Tampering	PTZ Pre-set Position Analytics	Multi Camera Tracking	ONVIF Streaming

SUSPICIOUS OBJECT	SUSPICIOUS ACTION	SMOKE & FIRE SAFETY	ADVANCED SAFETY-PERSON
Left Object Detection	Loitering Detection	Video Smoke Detection	Slip & Fall Detection
Missing Object Detection	Tailgating Detection	Video Fire Detection	Gesture Recognition

CROWD MANAGEMENT	TRAFFIC MANAGEMENT	VEHICLE & PARKING MGMT	COUNTING APPLICATIONS
Crowding Detection	Speeding Detection	Illegal Parking	People Counting
Crowd Counting	Wrong Way Detection	Vehicle Counting	Queue Management
Crowd Flow Analysis	Congestion Detection	Parking Availability	Cup Counting

FACE DETECTION	FACE RECOGNITION	FACE ANALYTICS	VEHICLE LPR/ANPR
Face Detection	Face Recognition	Count, Presence, Frequency	License Plate Detection
Face Capture	Face Verification	Age Group & Gender Detection	License Plate Recognition

PLUS: Reporting & Analysis, Heat Map, Motion Map, Flow Map, Video Summary, Comparison Reports etc.

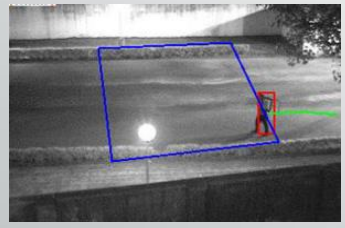
INTRUSION DETECTION

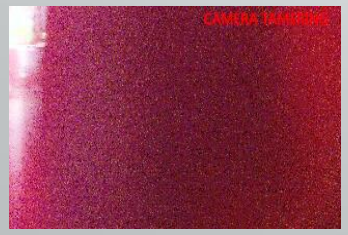
- **Features:** Tripwire, Trespass, Camera Tampering, Auto PTZ Features
- Works for all weather conditions , day **and** night
- Auto zoom to get closer snapshot of the intruder
- **Usage:** Intruder detection on fenced areas, critical infra, restricted zone monitoring

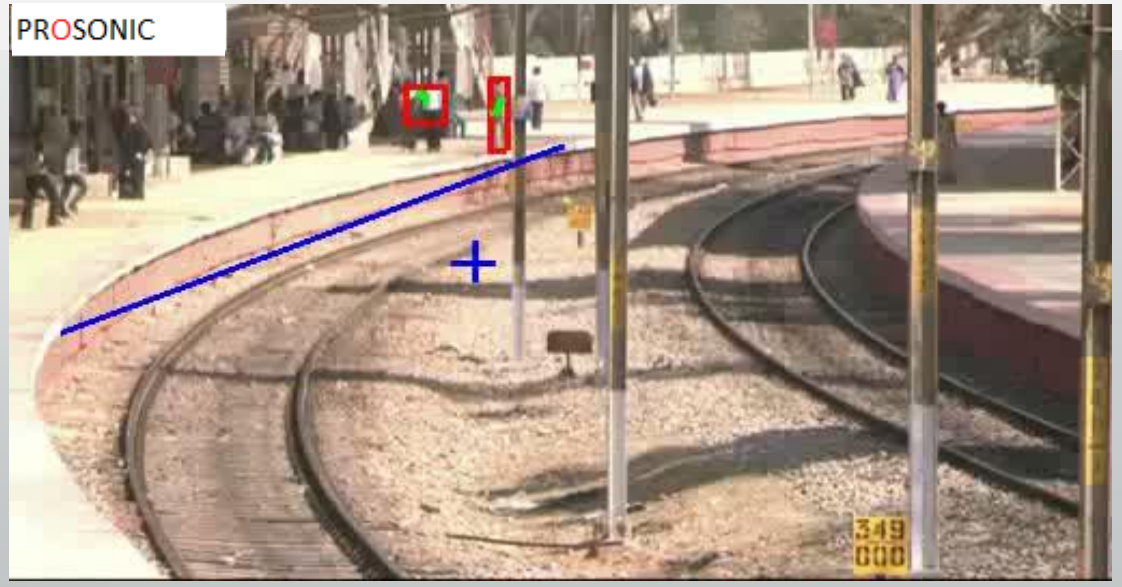
Tripwire: Detection of Person or Vehicle crossing a virtual line.

Trespass: Detection of Person or Vehicle entering a virtual area.

Camera Tampering: Detects camera focus change / obstruction / video cable cut.







INTRUSION DETECTION

Continuous Auto PTZ: Tracks object (Single or Multiple) using PTZ camera.

Smart Auto PTZ: Automatic one-step PTZ to capture closer view of the violator.

PTZ Handoff: Violation detected on Fixed camera triggers PTZ camera to its view.

PTZ Preset Analytics: Analytics on each pre-set position of a patrolling PTZ camera.

Fixed Camera

PTZ Camera

PROSONIC

AllGoVision

Services Camera View Setup Others

Server Setup | Analytics Setup | Advanced Setup | Video Stitching | Trigger Based | Face Recognition | Report

General Setup

Camera

Select Camera: Camera 4

Camera GUID: 9C9A8DA7-CA07-41C4-AEB4-BE273FD7404D

Analytics Server

Remote Server

Enable Remote Server Analytics — Configure Remote Servers

Enable Edge Analytics — Configure: Camera | Features

Alarm Recieval Port: 10001

Alarm Server: Event Server Alarm | Generic VA Alarm

Analytics Event Port: 9090

Alarm Server IP: 192.168.

License

Trial Version | Full Version

License Key: 6F8428B7A

Export GUIDs

Pan and Tilt

U+L | U | L | H | D+L | D

Zoom

IN

FailOver Settings

Enable Failover

Main Server — Port No: — Start — Stop

StandBy Server — Port No: — ADD Camera — Start — Stop

Camera Settings

Enable Direct Camera PTZ — Configure

8558

8093

0:00:00:00

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ure

Direct Camera Feed

Enable — Camera URL: http://192.168.0.186

Milestone JPEG Feed

Enable — Resolution: Auto

rtsp://127.0.0.1:8556/mpeg4 - VLC media player

Media Playback Audio Video Tools View Help

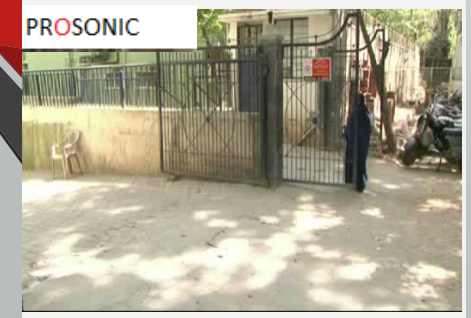
100%

rtsp://127.0.0.1:8556/mpeg4 | 1.00x | 06:02/--:--

TeamViewer

11:46 AM
5/28/2014

SUSPICIOUS INCIDENCES



- **Loitering Detection:** Specified moving objects remain within specified area of interest (AOI) for a specified period of time within camera's view. Detection time can be set.
- **Tailgating Detection:** Detects a person or vehicle following too closely the person or vehicle in front of it to get past access control. The time gap between the two successive objects is set.
- **Left Object Detection:** When an object is left in the scene for more than predefined time, an alarm will be sent. Used in Threat detection due to baggage left unattended in waiting rooms, ticket counters.
- **Missing Object Detection:** When an object is moved out of the outlined area for more than 10-15 seconds, Missing Object Alarm would be generated. Applications: Museums, Critical Asset Protection

CROWD MANAGEMENT

- **Crowd Detection:** When in a specified area the number of people exceeds a threshold. It can also detect sudden crowd surge.
- **Crowd Counting:** The counting gives approximate count of the crowd in an area. Gives crowd information either in terms of no. of people or percentage of area occupied.
- **Crowd Movement Detection:** This can detect movement of the crowd in a wrong direction. Counter flow detection can alert personnel and help in preventing mishaps.

VEHICLE COUNTING FEATURES

Vehicle Counting

Vehicle Counting counts the vehicles crossing a virtual line in a specific lane.

Integrated with advanced Auto Report E-mailer for Text, Graphical Reports.

Vehicle **COLOUR** based search is possible for post-accident investigations.

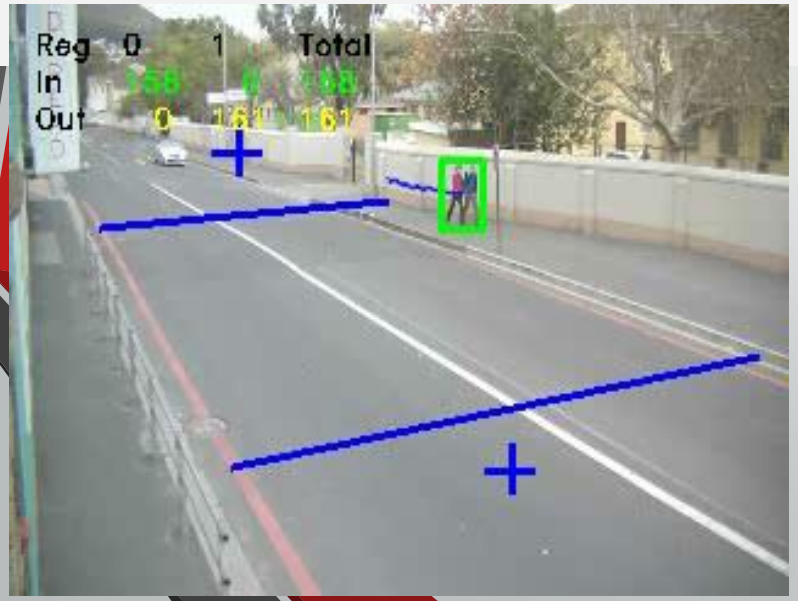
Vehicle Counting based Applications:

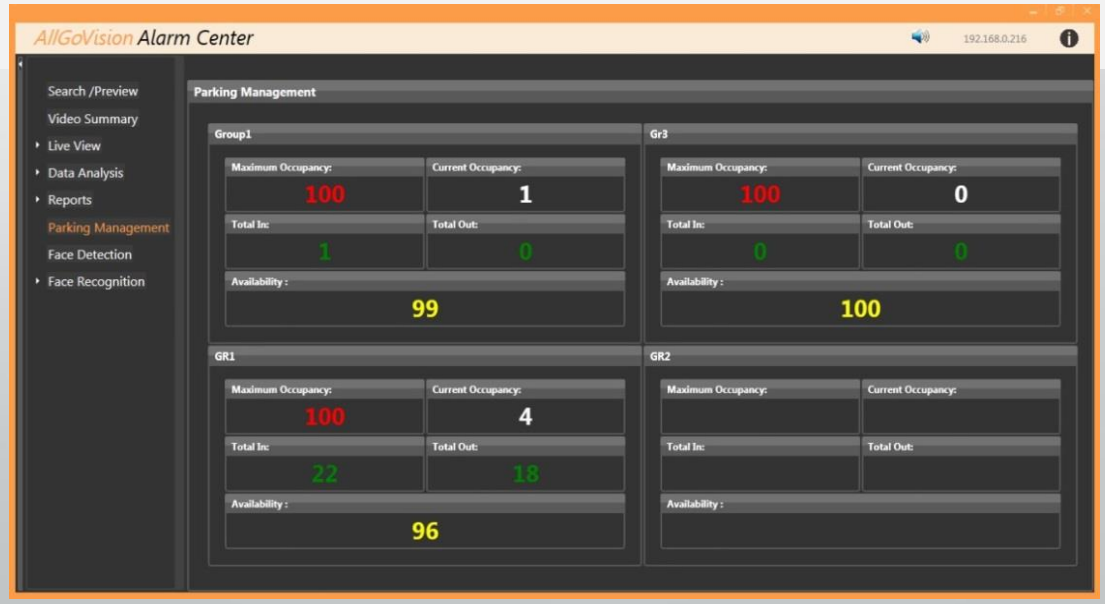
Vehicle Queue Management provides insights on waiting time mgmt.

Vehicle Congestion Detection alerts for congestion at Traffic Intersections

Parking Management feature provides parking availability in parking lots

Vehicle Classification differentiates between types of vehicles (Car, Truck etc.)



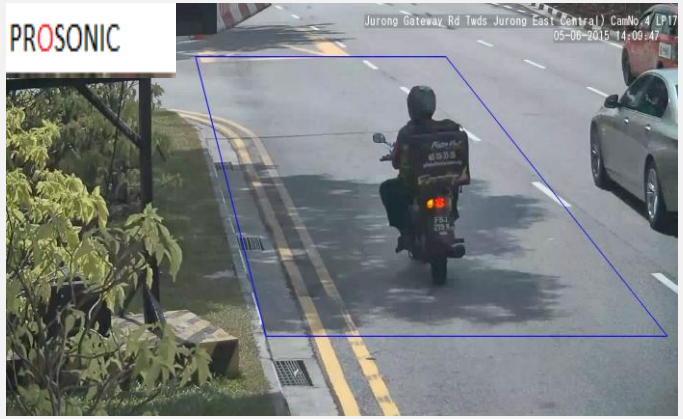


TRAFFIC MANAGEMENT

Illegal Parking: Raise alarm in case vehicle is parked in no parking zone

Speeding Detection: Identifies in case vehicle exceeds the required speed limits. Used for Airport pathways where there are speed limits to be maintained.

Wrong way detection: Detects in case vehicle is moving in opposite direction. Like if vehicle in entering through exit gate, alarm will be raised



Applications

- Traffic Monitoring in City Road Sides & Traffic Junctions
- Traffic Surveillance in Highways
- Vehicle Management and Violation Detection in Public Place Pathways.

LPD & LPR/ANPR

- LPD: Detects the vehicle license plate in the camera view, captures the license plate image.
- LPR/ANPR: Recognizes the license plate by identifying license number from detected plate.

Application Areas

Parking Management: Ingress with no Egress

Traffic Monitoring: Red light violation or any other traffic rule violation **Law Enforcement:** Stolen cars can be detected and Place of registration can be tracked through traffic surveillance system in the city/highway.

Task Automation: Trigger operations such as access control

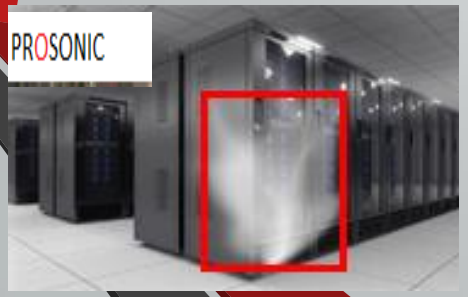
Automatic Toll Management: Automatic charging for recognized cars

Camera Installation Scenario

*Good quality IP cam, high shutter speed. Full HD, 120 DB WDR, 30 fps Frame Rate, Night IR illuminator

SMOKE & FIRE DETECTION

- Rapid detection (in 5-10 seconds) of smoke even when it is formed in 10-15% of the view.
- Detects smoke with or without fire at both indoor and outdoor environment.
- Usage: Early warning for Smoke & Fire at Server Rooms, Warehouses, Critical Resources

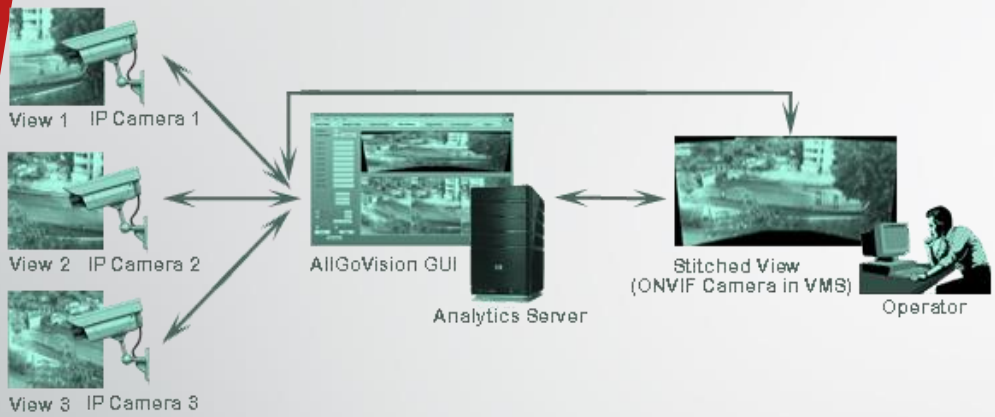


ENHANCED MONITORING

- **Video Stitching**

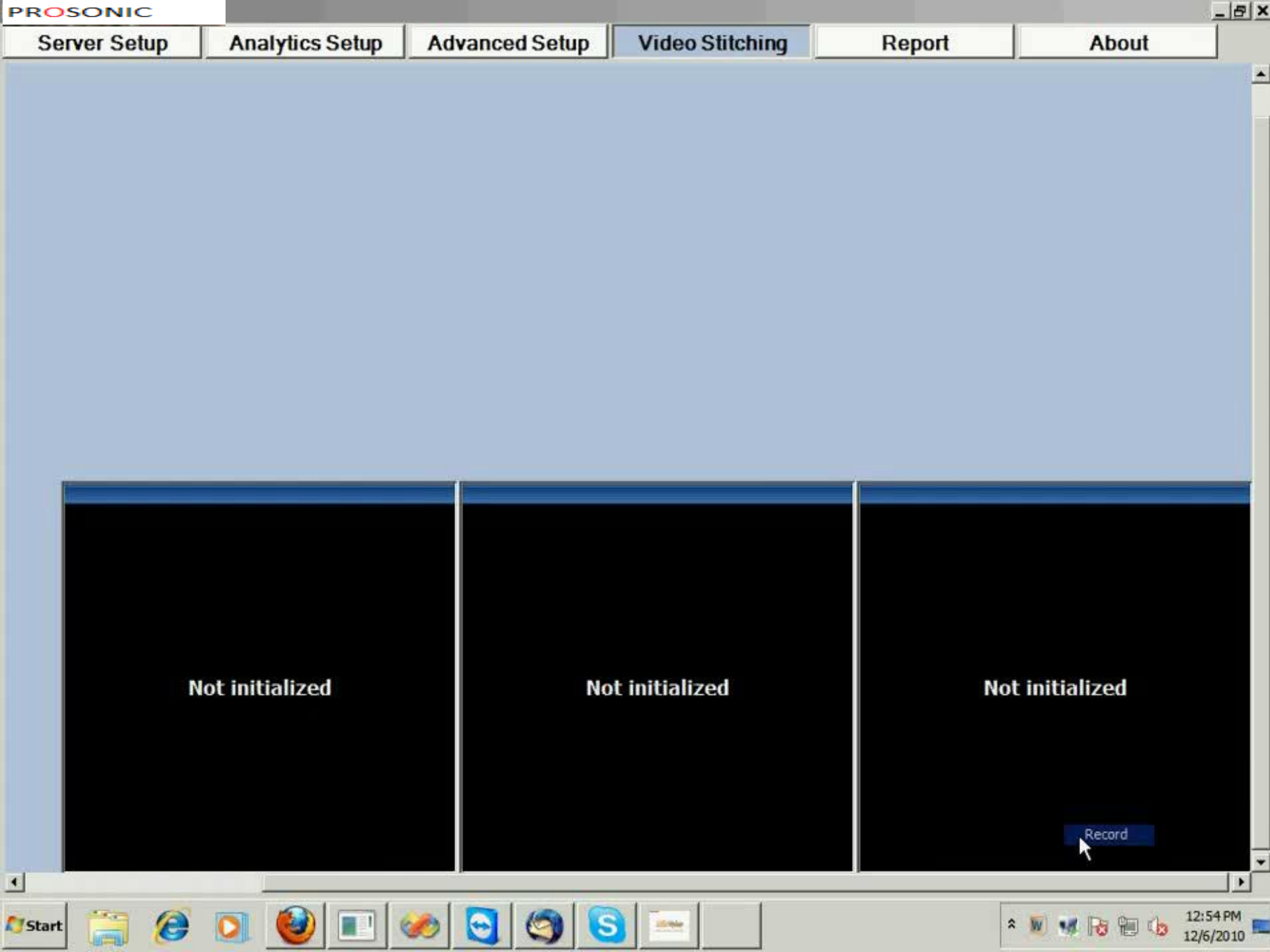
Overlapped video feeds are stitched to make one seamless video in real time.

Object tracking supported on Stitched Video, sent as ONVIF camera to VMS.



- **Video Stabilization**

Outputs stabilized video from shaking video inputs usually due to wind


PROSONIC
Server Setup
Analytics Setup
Advanced Setup
Video Stitching
Report
About
Not initialized
Not initialized
Not initialized
Record
Start
12:54 PM
12/6/2010

FACE CAPTURE & RECOGNITION

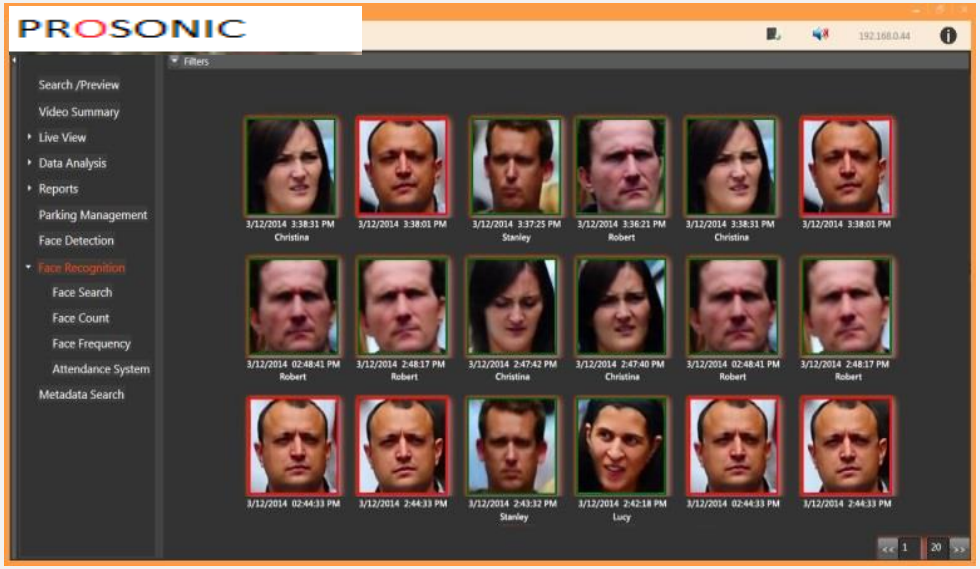
Face Capture: Detects face in the camera FOV, captures it and stores it

Face Recognition: Matches Face detected with the faces in the database and sends alarm.

Alarms: Option to send Alarms (Face Matching/non Matching) to VMS or Alarm Center

Applications:

- Detection and Capture of Human Faces (for record keeping) appearing in restricted areas
- Black List Alarm – Identification of miscreants appearing in the surveillance cameras
- Face Forensic Search option for detecting closest matches for suspect images



FACE RECOGNITION IN CROWD

PROSONIC

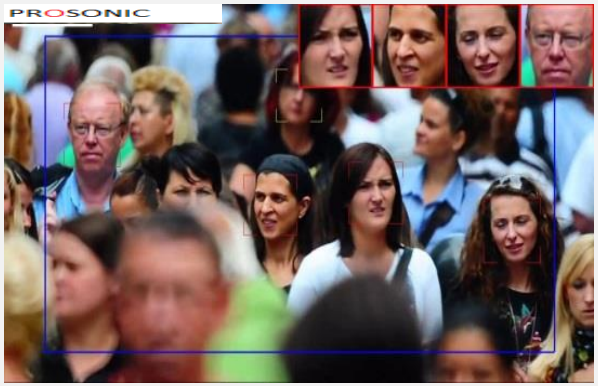
FACE COUNTING & ANALYSIS

Face Counting: Counts the number of faces in the camera view and over a time period

Face Presence: Detects for how much time any face was in the view

Face Frequency: Detects how frequently a recognized face appeared in the camera

Age Group & Gender Detection: Detects gender & approx. age group of the subject face



Applications:

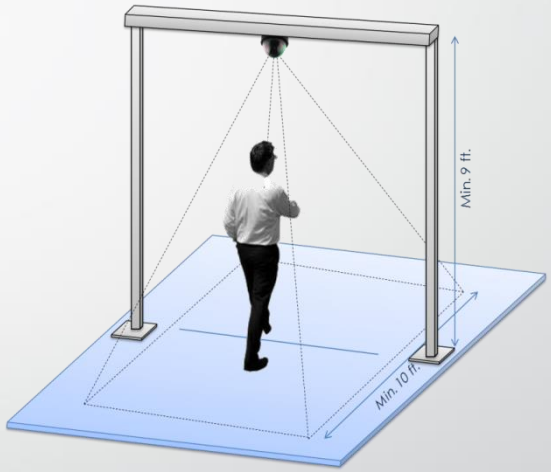
- Used for Digital Signage, Ads in Public Places
- Viewership / Audience Measurement (Face Count)
- Viewership / Audience Engagement (Face Presence)
- Frequency of Visit by VIP Guests etc. (Face Frequency)
- Profiling of Visitors to Public Amenities based on demographic analysis (age group & gender)

PEOPLE COUNTING FEATURES

- **People Counting & Reporting**

  Count the people traversing a certain passage (both IN & OUT directions, Accuracy: 90-98%

  Application is integrated with advanced Auto Report E-mailer for Text, Graphical Reports.

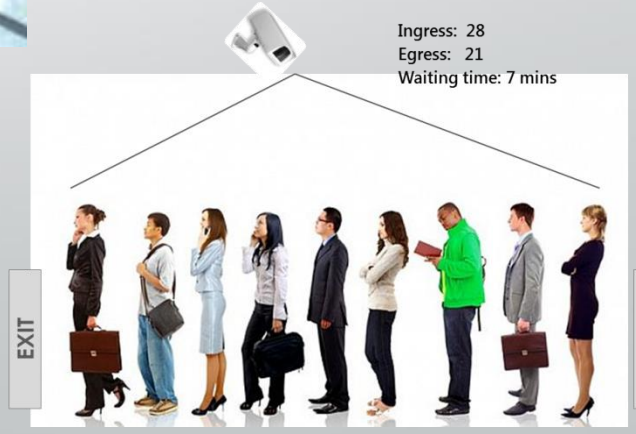


- **Queue Management**

  Detects queue properties - used for waiting time analysis

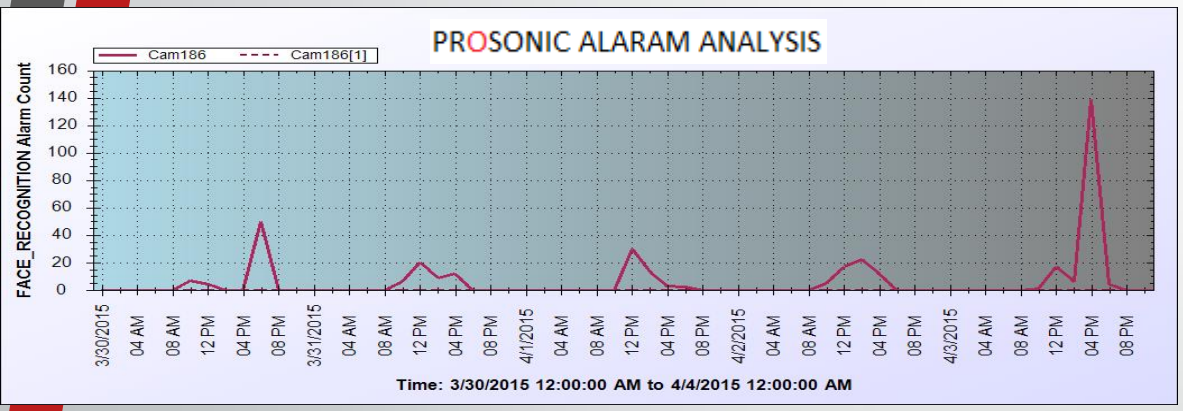
  Application: Service Counters such as ticket counters

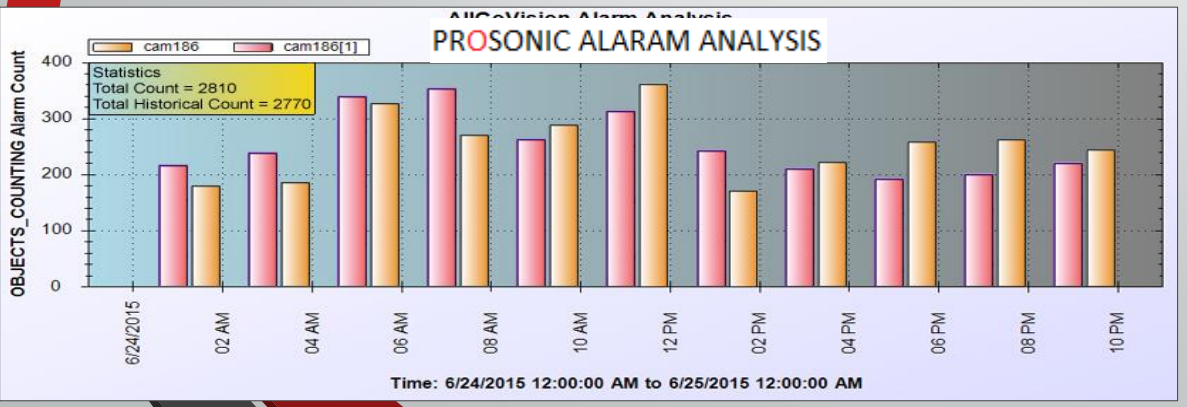
  Provides: **Ingress** (in flow), **Egress** (out flow), **Waiting time**



REPORTING & ANALYSIS

- Report of counting with different time duration, interval and plot options.
- Export of plot in JPEG and report CSV format
- Zonal Report with multiple cameras added in each zone
- Scheduling of Reports, Auto Report E-mailer, FTP upload of Reports, Comparison Reports
- Heat Map, Motion Map & Flow Maps



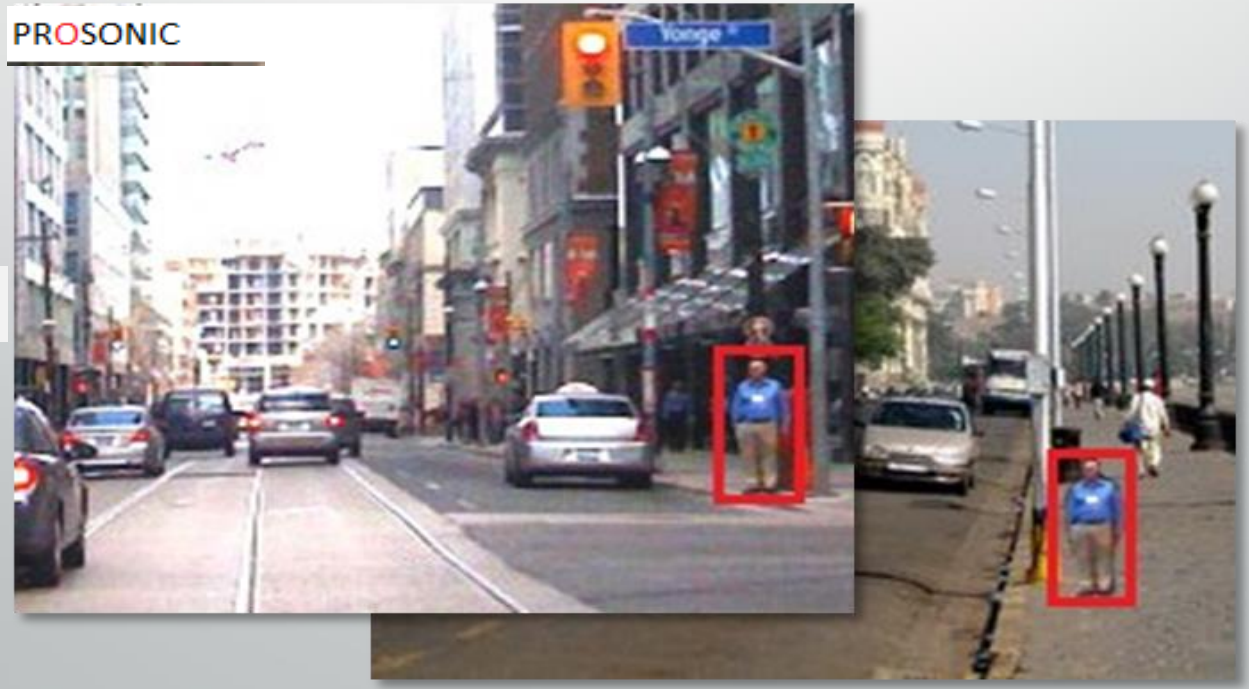


MULTI CAMERA TRACKING

Multi Camera Tracking

- By this feature, a person is tracked in adjacent cameras in the multi camera network.
- Uses object properties to track any person in adjacent cameras.
- Persons to have similar profiles (Front/Side) at similar distance in multiple cameras.

Application: Saves time, makes the task easy for operators of surveillance monitoring who would otherwise manually track suspects from camera to camera.



Multi Camera Tracking

PRIVACY MASKING

Privacy Masking

- Face and Skin area is masked to protect the identity of the persons appearing in the camera view of surveillance system
- While unmasked video is recorded & stored, masked video is viewed by operators during surveillance monitoring.

Application: Privacy for people under surveillance, unmasked video for storage, masked video for monitoring & evidence export.

SYSTEM ARCHITECTURE

SERVER & EDGE BASED ANALYTICS

FLEXIBILITY – SERVER / EDGE

- **SERVER ANALYTICS**

Flexibility in Installation
In the same machine with VMS / on a separate machine

Takes video feed from VMS or directly from cameras
Supports ONVIF for video stream exchange with camera / VMS

Supports several leading VMS providers
Sends alarms to VMS Viewer (VMS Client) or Alarm Center

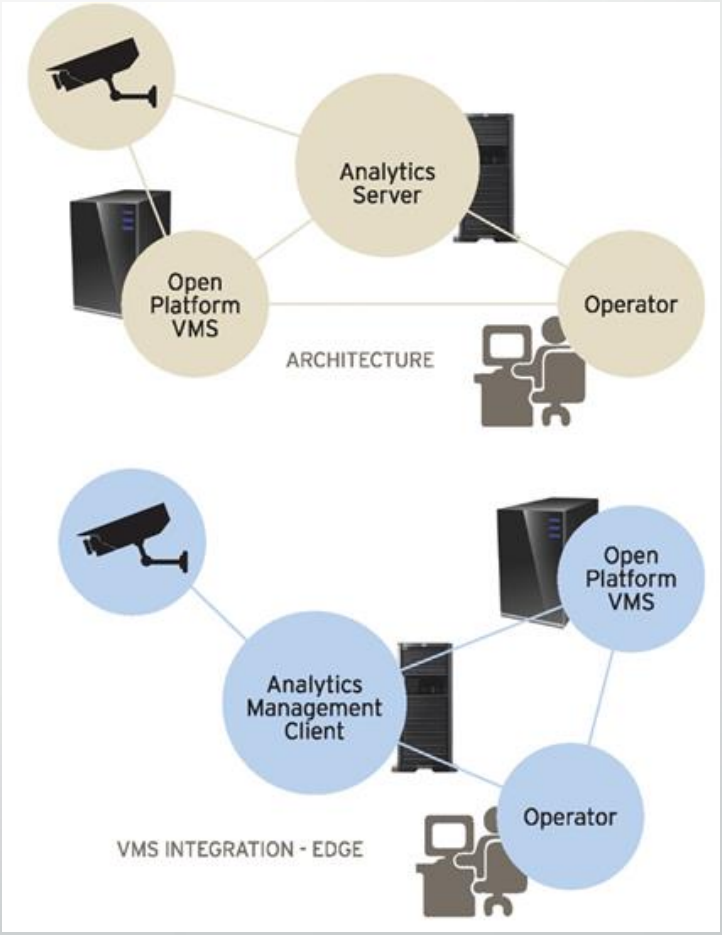
Runs as Windows service, supports up to 100 channels/server
Supports Failover

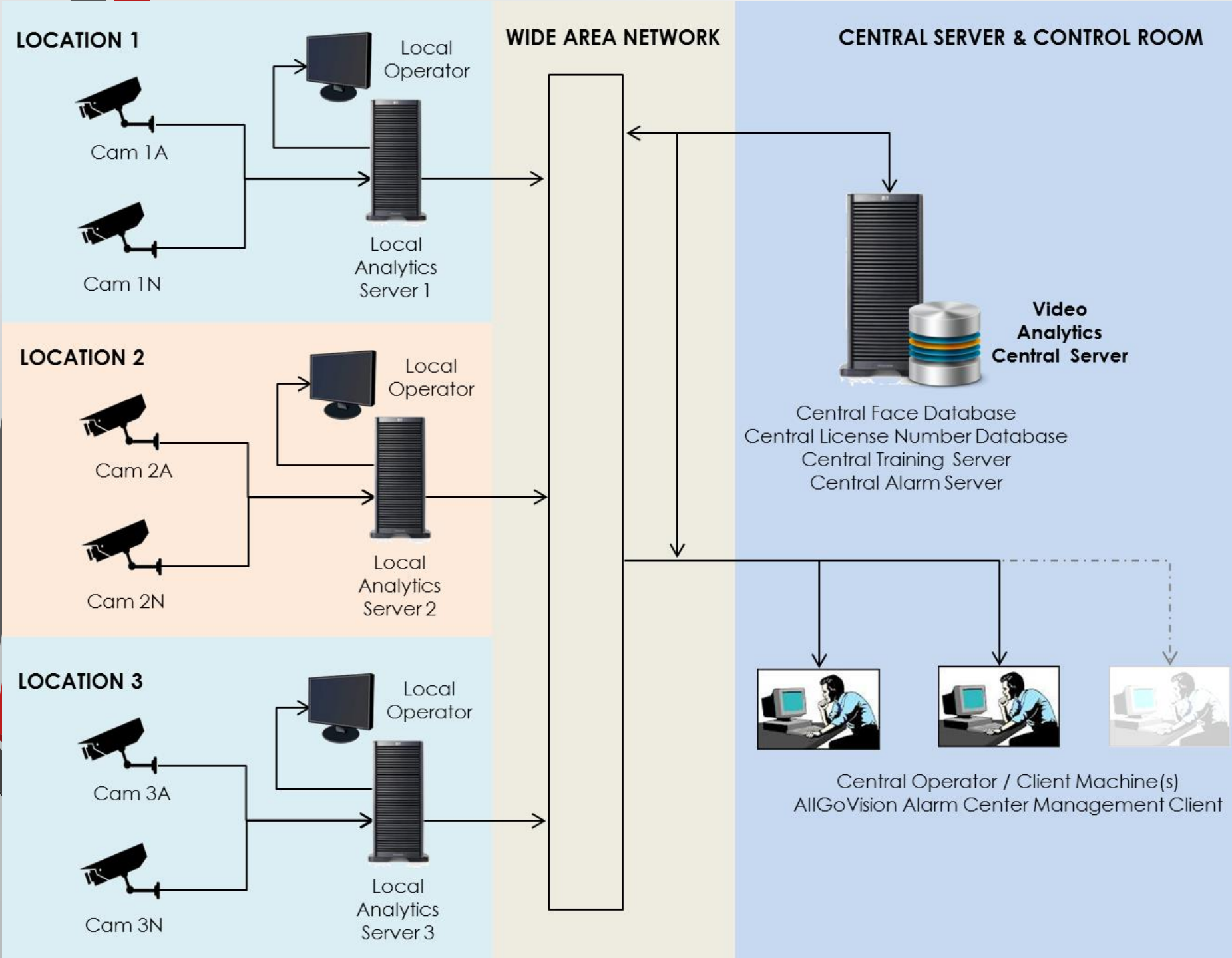
- **EDGE ANALYTICS**

Available on Axis Camera
Can send alarms to VMS Viewer (VMS Client)

Runs as Windows service, supports up to 200 channels/server
Saves extra hardware cost

Intrusion Detection, Suspicious Incidences, Counting Features
Supports several features simultaneously

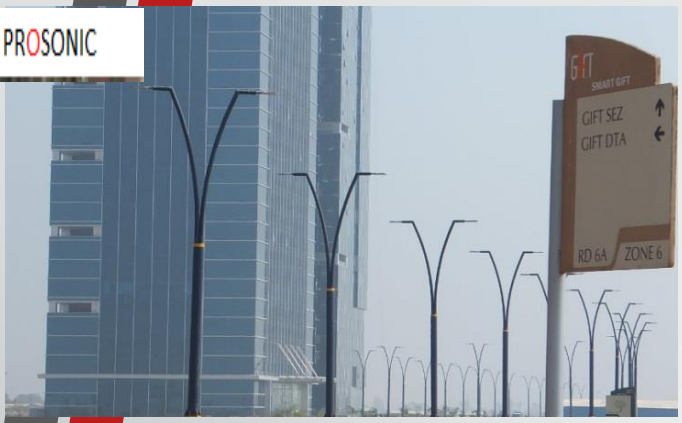



LOCATION 1
Local Operator
Cam 1A
Cam 1N
Local Analytics Server 1
WIDE AREA NETWORK
CENTRAL SERVER & CONTROL ROOM
Video Analytics Central Server
Central Face Database
Central License Number Database
Central Training Server
Central Alarm Server
LOCATION 2
Local Operator
Cam 2A
Cam 2N
Local Analytics Server 2
LOCATION 3
Local Operator
Cam 3A
Cam 3N
Local Analytics Server 3
Central Operator / Client Machine(s)
AllGoVision Alarm Center Management Client

LIST OF OTHER INTEGRATIONS

- Milestone Xprotect VMS
- Genetec Security Center
- IndigoVision Control Center
- Exacqvision VMS
- PROSONIC VMS & 3S
- Cisco VSM
- Digital Watchdog Spectrum
- Verint Nextiva
- Axis Camera Station
- Axis edge

CASES – SMART CITY / SURV.



SMART City - India

- Use case: Building Surveillance for Safe & Smart City
- Solution: Prosonic Smart Intelligence Solution + Alarm Center
- Features: Perimeter Protection and Indoor Security features

Video Intelligence for Smart Villages

- Solution: Prosonic Smart Intelligence Solution
- Features: Security Features, Loitering, Wrong-way Detection

Smart Solution Through Mobile Vans

- Solution: Prosonic Smart Intelligence Solution
- Features: Riot Detection, Crowd Detection

CASES – CITY SURVEILLANCE

Surveillance Design For GANESH VISARJAN

- Use case: Crowd Management
- Solution: Prosonic Smart Intelligence Solution + Alarm Centre
- Features: Crowd Counting, Crowding Alert, Crowd Flow Detection

City Surveillance

- Solution: Prosonic Smart Intelligence Solution
- Application: City Surveillance
- Features: Face Recognition

City Surveillance

- Solution: Prosonic Smart Intelligence Solution
- Application: City Surveillance
- Features: Security Features

CASES- TRAFFIC SURVEILLANCE

Traffic Surveillance

- Design: Illegal Parking Detection
- Solution: Prosonic + Milestone
- Features: Illegal Parking, Face Masking

Bridges

- Solution: Prosonic + Alarm Center
- Features: Illegal Parking Detection

Traffic Surveillance

- Solution: Prosonic
- Features: Traffic Surveillance, Left Object Detection

CASES- SAFETY & SECURITY

Trains International Airport

- **Solution:** Prosonic + VMS
- **Features:** Detecting unattended object / unauthorized people for preventing Human trafficking and smuggling
- **Use case:** >99% detection,< 1% false positives

Places of Pilgrimage / Holy Temples

- **Solution:** Prosonic + VMS + IP Cameras
- **Features:** VCA features to avoid mishaps, raise alerts for events such as intrusion, suspicious behaviour, overcrowding.

CASES- PERIMETER SECRUTIY

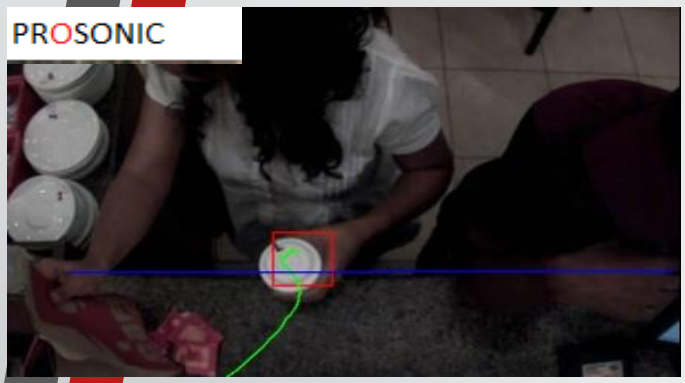
Banking Solutions

- **Design:** Smart Intelligence for Perimeter Security
  Solution: Prosonic Smart Intelligence Solution
- **Features:** Intrusion Detection features

TATA Power

- **Design:** Smart Intelligence for Perimeter Security
  Solution: Prosonic Smart Intelligence Solution
- **Features:** Intrusion & Suspicious Incidence Detection

CASES- BUSINESS INTELLIGENCE



Case Study – Cup Counting

- Cup counting software for Café Coffee Day
- Use case: Beverage counting for pilferage reduction
- Very challenging use case with unrestricted movement of cups
- IP Camera, Milestone X-Protect VMS and Prosonic VCA
- Achieved 95% + accuracy

Footfall Statistics at Forum Malls

- Solution: Prosonic + Alarm Centre
- Features: People Counting & Reporting

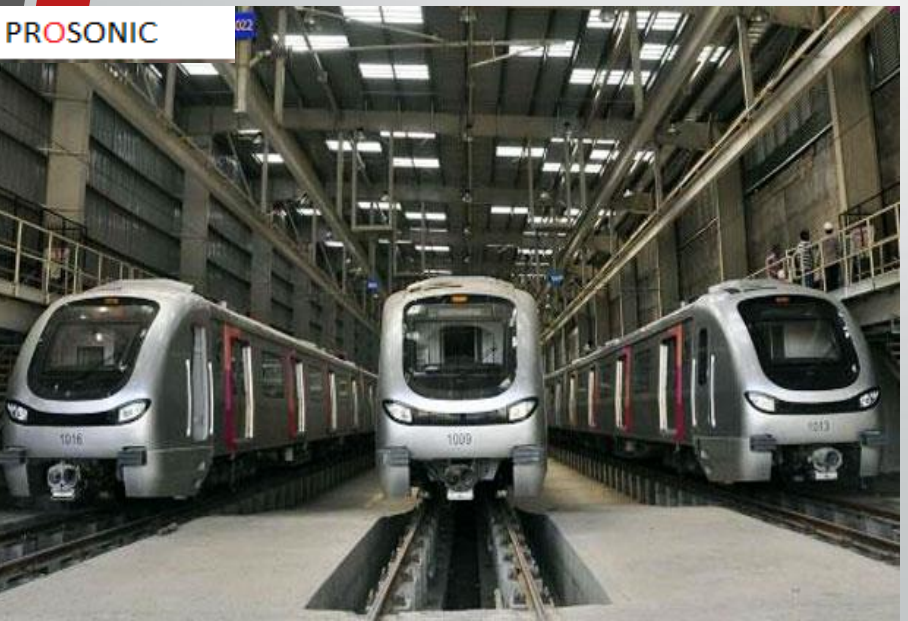
Visitor Statistics & Conversion, Retail Stores

- Solution: Prosonic + Alarm Center
- Features: People Counting, Reporting in LDM format for POS

DESIGN CASES

Banking Projects

- **Design:** Business Intelligence,
- **Solution:** Prosonic + Alarm Center
- **Features:** Tripwire/Trespass, Loitering, Counting, Face capture, Smoke detection at server rooms



METRO PROJECTS

- **Design:** Prevent fire hazard, Sterile zone security
- **Solution:** Prosonic + Alarm Center
- **Features:** Tripwire/Trespass, Loitering, Counting, Face capture, Smoke detection at server

CASES- EDUCATION

University

- Use case: Server room Smoke & Fire Detection
- Solution: Prosonic + VMS
- Features: Smoke detection and Intrusion detection

University

- Solution: Prosonic + VMS + IP Cameras
- Features: Intrusion Detection Features

Transportation

Delhi Airport • Hong Kong Int. Airport • Hanoi Airport • Indian Railways • Keretapi Tanah Melayu Berhad • CONCOR India

City / Traffic Surveillance

Singapore Traffic Surveillance • Qatar City Surveillance • Turkey Traffic Surveillance • Jakarta City Surveillance • Bandra Worli Sea Link, Mumbai • Kumbh Mela - Nashik • Mobile Van Surveillance - Chandrapur • Lavasa Township • Pushkaralu • Baroda Highway

Power, Oil & Gas

Bharat Oman Refineries • Indian PSUs (GAIL, HPCL, IOCL, ONGC, BHEL, NTPC) • Khazzan Oil & Gas - Oman • Tata Power

Critical Infrastructure

Baroda Museum • Macau Tower • Mysore Palace • Sabarmati Jail • Somnath Temple • Meenakshi Temple • Currency Press

Education

Changzhou University • Symbiosis International University • IITM – Pune, Noida

Retail

The Galleria Mall Jordan • Culture Kings – Australia • Abu Dhabi Mall • Mall, South Africa • Forum Mall, Hyderabad, • 7-Eleven Stores • Café Coffee Day • Sephora Retail, Kualalumpur • National Environment Agency, Food courts - Singapore

Government, Police, Defence

Indian Air Force • Abu Dhabi Police • Ministry of Interior, Abu Dhabi • Indira Gandhi Centre for Atomic Research • Indian Navy • Customs Office, Vietnam

Banking, Finance & Industries, Corporate

GIFT City–Gujarat • JSW Steel • Kotak Mahindra Bank • Reserve Bank of India • ACC Limited • State Bank of India • Deepak Fertilisers & PetroChem • ITC Limited • Syntel • Embassy Golf Links

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