

# In-vehicle CCTV with Xeoma

AI FEATURES, RECORDING,  
PASSENGERS COUNTING



[DESCRIPTION](#)

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# VIDEO SURVEILLANCE ON BOARD A VEHICLE

POLICE, AMBULANCE, CASH AND PUBLIC TRANSPORT

## RELENTLESS, VIGILANT, WITHOUT A BREAK

Video surveillance systems can operate even in the most dangerous conditions, eliminating the risk of injury to employees. Moreover, the vigilant, all-seeing eye of the cameras can work impartially, without interruption, without distraction or fatigue. Modern video surveillance is not only video security in terms of protection against theft and intrusion. This is also Artificial Intelligence capable of *analyzing* images from cameras, thus generating valuable data about business performance that can be utilized for optimization and better business outcomes.

## MORE THAN JUST CAMERAS

With the help of Xeoma video surveillance, a powerful VMS can be installed on board of a vehicle - a bus, police, SWAT or ambulance car, a cash transit transport, delivery trucks and many other moving vehicles. Such system can:

- act as a proactive crime deterrent ensuring safety of employees, vehicles and in-vehicle equipment;
- help reduce level of theft, losses due to lawsuits and compensation for injuries;
- provide information on business performance, or employees' activity;
- automate detection of abnormal events, notify authorities of emergencies;
- and many more.



# VIDEO SURVEILLANCE ON BOARD A VEHICLE

COMPACT VIDEO MANAGEMENT SYSTEM WITH POWERFUL FEATURES

GENERAL SCHEME OF A VMS ON BOARD OF A VEHICLE:



Management

Control room

Integration with systems

# VIDEO SURVEILLANCE ON BOARD A BUS

PASSENGERS COUNTER, TICKET CONTROL, RECORDING, OPERATOR CONTROL

BUS BUILT-IN VIDEO SURVEILLANCE IS EFFECTIVE FOR TASKS LIKE:

- Ticket control
- Crowd statistics

- Passengers counting

- Driver's camera



- Surround View

# VIDEO SURVEILLANCE ON BOARD A BUS

PASSENGERS COUNTER, TICKET CONTROL,  
RECORDING, OPERATOR CONTROL



## XEOMA INSIDE YOUR BUS

A video surveillance system inside of a vehicle is an effective mobile tool for crime prevention, investigation of incidents, and generating data about passengers - statistics that can be used to improve a transportation business.

Contents of an on-board VMS usually include a network or analog camera or several ones, a processing unit that handles camera streams, recording and video analysis, a video monitor (optional, when on-board view is required) and an Internet connectivity mediator if live remote access from a control room is required.

With Xeoma CCTV, even a compact single-board microPC can act as the processing unit and perform intensive video analytics powered by artificial intelligence.

Depending on the task, CCTV cameras need to be placed correctly around the bus allowing them to capture what they need to 'see'.

# VIDEO SURVEILLANCE ON BOARD A BUS

PASSENGERS COUNTER, TICKET CONTROL,  
RECORDING, OPERATOR CONTROL



## XEOMA INSIDE YOUR BUS

Recording and processing of cameras can be done on board of the vehicle inside an NVR or microPC with Xeoma.

Video footage impartially shows everything that happened.

With Internet connectivity, control room operators and management representatives can 'peek' into cameras live, control settings and view recordings. Video walls are available too.

Notifications and reporting systems will keep the authorized personnel updated on events.

The “**Detector of abandoned objects**” can constantly scan the area for anything suspicious and keeps its findings in the archive.

The “**Face Detector**” is there to keep a more extensive record of the passengers, track them across the bus.

Tip: Need special video analytics in a bus? Contact you for a personal development quote!

# VIDEO SURVEILLANCE ON BOARD A BUS

PASSENGERS COUNTER, TICKET CONTROL,  
RECORDING, OPERATOR CONTROL



## XEOMA INSIDE YOUR BUS

Xeoma's other module "Crowd Detector" uses the Artificial intelligence technologies: using its 'knowledge' and 'experience' (taken from the provided datasets), the module is looking for human heads in the camera view based on the specific characteristics of them. Then the module counts the heads and saves this data to a spreadsheet report file.

You can set a limit for crowd density and get notifications, alarms and other reactions triggered automatically at detection of a specified number of people – just connect the corresponding reaction module in modules chain after the Crowd Detector. The module's work can be integrated with external systems or programmable reactions.

Tip: the module has a "Detect social distance" option to trigger if the defined social distance is violated.



# VIDEO SURVEILLANCE ON BOARD A VEHICLE

SURROUND VIEW - NO BLIND SPOTS



## SURROUND VIEW

The “360° surround view” module is designed to stitch images from 4 cameras that are installed around the perimeter of some object to get the picture showing 360° view. With the help of this module you will get a smooth 'Bird view' picture.

The module will help you get a full view around your vehicle to better control the situation during your trip.

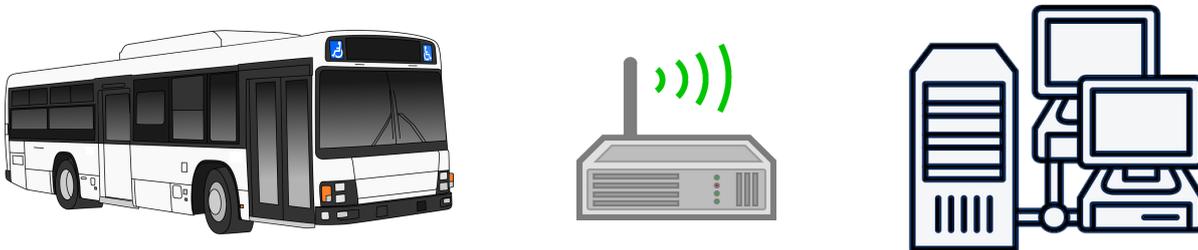
“360° Surround View” is similar but superior to the *parking sensor* technology in the way that it shows the all-round picture with no “blind spots” and can be used all the time, not just while parking.

The “Bird View” feature can be used for a more secure parking, or for investigation of accidents, and ultimately having video footage as proof for use in court.

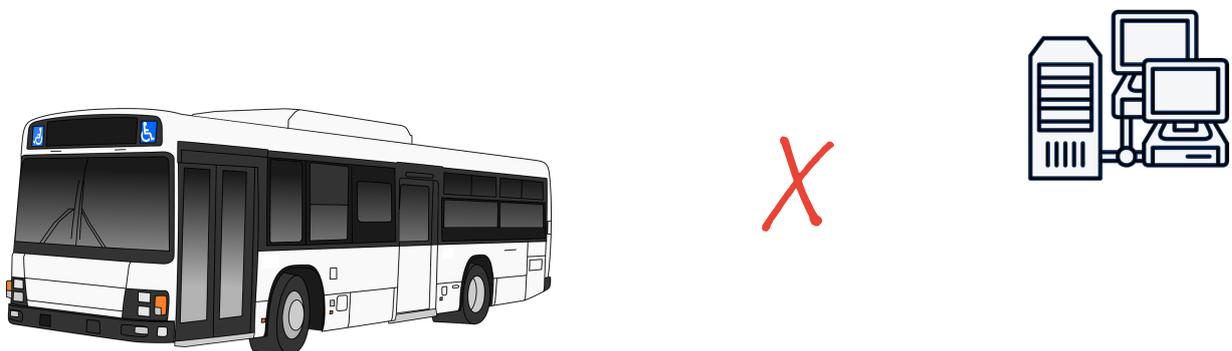
# VIDEO SURVEILLANCE ON BOARD A VEHICLE

## SYNCHRONIZATION OF RECORDINGS WITH A CENTRAL SERVER

WHEN A VEHICLE ARRIVES AT A DOCK, RECORDINGS  
FROM IT CAN BE IMPORTED INTO THE CENTRAL  
SERVER.



When vehicle is in range of the central server's network, **rsync**  
import of records from vehicle to central server is launched



When vehicle is **not** in range of the central server's network,  
recordings are saved on-site, on the vehicles NVR disks

# VIDEO SURVEILLANCE ON BOARD A VEHICLE

## MORE VIDEO ANALYTICS CAPABILITIES



### SMOKE AND FIRE DETECTION

Xeoma has almost 3 dozens of video analytics applicable in improvements of business operations and outcomes.

One of them is the **Fire Detection**, a neural-network-based feature in Xeoma that will help your video cameras system quickly detect a fire in the camera's view, and take action to deal with an emergency before it causes a tragedy that could result in casualties, property damages or other losses. It does not require special equipment or sensors, therefore it can be used even outdoors.

### FIGHT AGAINST EPIDEMIC

Xeoma has modules that can be used to comply with security measures in the fight against COVID-19:

- mask detector,
- social distance detector,
- high temperature detection,
- visitors counter,
- calculation of the stay time.



# VIDEO SURVEILLANCE ON BOARD A POLICE CAR

PROACTIVE LOOKOUT FOR MISSING PEOPLE OR  
VEHICLES, ABNORMAL EVENTS DETECTION



## HELP IN SAVING LIVES

Xeoma can be very useful for police cars and vans. Video can be sent to a centralized server to monitor police officer's work. Also, video from police vans can be checked in real time to monitor situation in the city (traffic jams, car accidents etc.) during patrol work.

CCTV cameras in vans that 'see' other cars can find stolen cars by means of Xeoma's **license plate recognition module**. As well as they can recognize license plate of the car that violate rules on the road that officer might not see.

Besides, **"Text Recognition"** module can be used for reading the surroundings, for example, for graffiti and ads that have prohibited words like 'drugs'.

**"Sound events detector"** can be useful for detecting shooting or screaming on the street and notify police department immediately.

# VIDEO SURVEILLANCE ON BOARD A POLICE CAR

PROACTIVE LOOKOUT FOR MISSING PEOPLE OR  
VEHICLES, ABNORMAL EVENTS DETECTION



## POWERFUL YET COMPACT

“**Face recognition**” module can be used for recognizing faces and finding missing people or catch criminals.

Intellectual module “**Emotion detector**” can be used to detect negative emotions in public places and notify police. It can be a great solution for the places that require increased security level, for example, airports.

“**Color recognition**” module can be used on the road to detect red light running and record the violator.

The “**Slip and Fall**” module can be used to detect if someone’s fallen in the camera view, and dispatch an ambulance or at least a nearby patrol to check on the fallen person.

Xeoma’s intellectual feature – “**Detection of Abandoned Objects**” – can be used as an effective counter terrorism measure that can automatically detect a suspicious unattended piece of luggage or bag despite a flow of people.

# VIDEO SURVEILLANCE ON BOARD A VEHICLE

## MORE VIDEO ANALYTICS CAPABILITIES

### SUPPORT FOR 99% OF CAMERAS

Xeoma is a comprehensive all-in-one solution that supports 99% of the world's cameras, where many cameras of different brands and models can be used simultaneously, without having to overpay for special models with built-in analytics.

If special cameras with their own video analytics are used, Xeoma's **“Camera Embedded Detector”** module will help receive triggers from the camera and use them in the program.

Overview PTZ cameras are often used on large sites to cover large areas with minimal cost.

By means of Xeoma's **automatic PTZ tours** (switching through virtual checkpoints), the camera can move to different areas of the territory so as not to miss anything interesting, even if it happens in an area where the camera is not constantly monitoring.



# VIDEO SURVEILLANCE ON BOARD A VEHICLE

## MORE VIDEO ANALYTICS CAPABILITIES



## TASKS THAT CAN BE SOLVED

With the help of Xeoma video surveillance a business can solve many problems:

- **Security** of the facility and adjacent territory: prevention of intrusion, theft, vandalism, emergency or accidents;
- Process **optimization** and quality control of production works, cost reduction, including for management and security;
- **Remote monitoring** of the work process at any time and anywhere in the world - including for **remote acceptance** and **virtual showroom**;
- Video and audio evidence footage from cameras for **investigations and presentations**;
- Aid in improving the business.

## XEOMA'S ADVANTAGES:

- High accuracy level and fast response
- Doesn't require any special equipment. Just your regular camera
- Affordable prices
- Ease of use. Very flexible and simple settings
- Everything is done on your computer, there is no need to connect to cloud servers.

# Also available in Xeoma

## EMOTIONS DETECTOR, REMOTE ACCESS, REACTIONS AND NOTIFICATIONS

### EMOTIONS DETECTOR

The mood of employees in production and in company offices is often ignored, despite the fact that this is the basis of effective work.

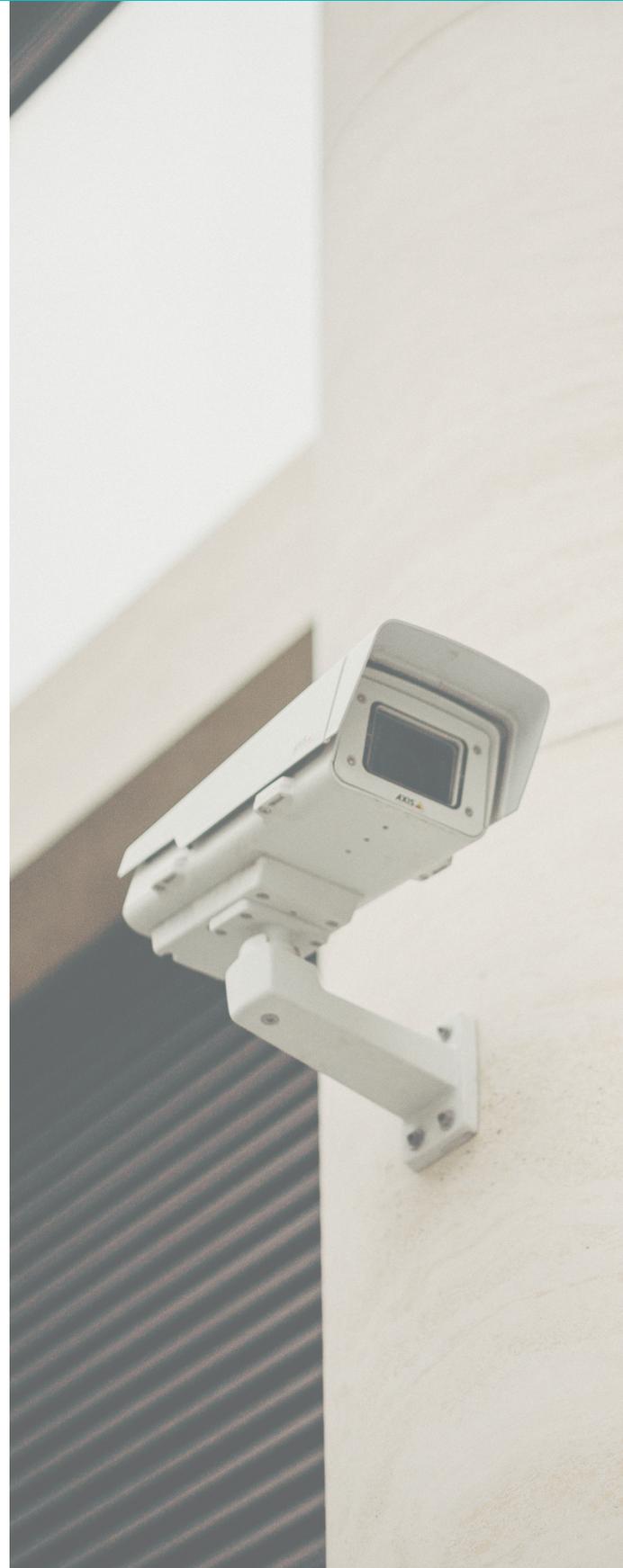
With the help of the "Face Detector (Emotions)" module, CCTV cameras can automatically keep statistics of the emotional mood in the team.

### REMOTE ACCESS

The capabilities of remote access and access rights division with multi-level privileges will allow the system work autonomously, without supervision or the need to spend time on periodic checks.

### VARIETY OF REACTIONS AND NOTIFICATIONS

Various reactions (sending an email, sound alarm (siren), push notifications to mobile devices, sending a command or a script, custom reactions) to detected events or alarms (including when sabotage is detected) will quickly notify the responsible persons.



# And other AI-based functions in Xeoma

EYE TRACKING, SPOT STATUS, SLIP AND FALL DETECTOR,  
SOUND TYPES RECOGNITION

## EYE TRACKING

Revolutionary tracking of people's gaze direction with nothing else but a regular camera. Can be used for scientific researches or for neural marketing to estimate how well customers interact with ads or promo stands.

## PARKING SPOTS

Xeoma's new feature will let you know when a spot's status changes from 'empty' to 'occupied' and in reverse. It can be used in parkings, in cinemas, for illegal parking tracking, etc.

## SLIP AND FALL DETECTOR

Allows you to automatically detect falling in the selected area and is able to recognize even 'incomplete falls' when someone falls off a chair or a bed.

## SOUND EVENTS DETECTOR

Defines the type of sound (shot, scream, car alarm, glass break) and triggers a reaction when the selected sound is detected.





**See more at [www.xeoma.com](http://www.xeoma.com)**

Do you need something else? Possibilities can be added upon request:

**[SUPPORT@FELENASOFT.COM](mailto:SUPPORT@FELENASOFT.COM)**

