LOGIPIX

LOGIPIX TRAFFIC SURVEILLANCE

CONTEMPORARY URBAN CHALLANGE

Violating traffic rules is increasingly becoming a crucial problem in modern urban environments. Logipix has the contemporary answer for how to maintain security in everyday traffic. Fast reaction to traffic violations and prevention of the offenses are the keys to ensuring the safety of the vehicles and even human life. The Logipix end-to-end traffic surveillance system has been designed specifically with this in mind.

ADVANCED VIDEO CONTENT ANALYSIS APPLICATIONS

The various video content analysis applications developed by Logipix engineers can easily and accurately detect and record traffic violations, resulting an undoubted evidence for the local authority. Wether it is a fully automatic VCA process or a human assisted one, the application greately facillitates the violation detection and decreases the workload in the monitoring room.

VCA APPLICATIONS

- Stop line violation detection
- Red light violation detection
- Bus lane violation detection
- Parking violation detection
- Traffic counting

1" SENSOR LEADING-EDGE CAMERA WITH IR FLASH

LOGIPIX ONE can cover large areas, therefore a single device can monitor multiple lanes. The camera provides a high frame rate video stream with enormous resolution and wide dynamic range, therefore object tracking and video content analysis can be more accurate. The camera increases the reliability level of Video Content Analysis, thus automated violation detection methods are able to work with higher reliability.

Capturing license plates at a busy junction or even on the highway is an easy task for Logipix ONE, no matter if it's day or night. With the specifically developed, integrated IR flash, the camera offers sharp and detailed images of license plates in extreme situations, even when blinding headlights hinder the visibility conditions. Among three built-in optical filters, the LOGIPIX ONE camera contains a movable IR pass filter that only lets through the valuable Infra Red lights to the sensor. The IR flash is synchronized with the camera and it flashes the monitored object at every recorded frame. Its light is focusable in order to illuminate only the necessary area.

SCALABLE SYSTEM STRUCTURE

The structure of LOGIPIX Traffic Surveillance System grows with the number of the monitored intersections, roads or parking lots. While a single site system consists of only a few devices, a citywide project in a metropolis needs a system that handles up to thousands of multi-megapixel cameras at once.

TRAFFIC VIDEO SURVEILLANCE SYSTEM

MISSION OF THE LOGIPIX TRAFFIC SURVEILLANCE SYSTEM

The aim of LOGIPIX Traffic Surveillance System is to maintain the security in everyday traffic by precisely detecting and recording traffic violations resulting irrefutable evidences for local authorities.

FEATURES AND FUNCTIONS

DEDICATED VIDEO CONTENT ANALYSIS APPLICATIONS

LOGIPIX engineers developed several hardware driven video content analysis applications that can accurately detect and record traffic violations moreover provide detailed information of the traffic flow. Whether it is a fully automatic VCA process or a human assisted one, the application greatly facilitates the violation detection and decreases the workload in the monitoring room.

USING HIGH-END MULTI-MEGAPIXEL CAMERAS AND IR FLASH

Using wide dynamic range multi-megapixel cameras of 14 MP and beyond with larger than average sensors means the video analysis is based on enormous image resolution and high frame rate. As the cameras can cover large areas, a single device can monitor multiple lanes. With the specifically developed, integrated LOGIPIX IR Flash the cameras offer sharp and detailed images of license plates in extreme situations, even when blinding headlights hinder the visibility conditions. They increase the reliability level of VCA applications, as close to zero errors appear during automated violation detection methods.

VISUALLY LOSSLESS JPEG2000 COMPRESSION STANDARD

JPEG2000 compression standard has been developed specially for high resolution images, where scalability is one of the key features. It provides high quality images whilst keeping the file size small. JPEG2000 is using wavelet based image compression and allows the system for flexible bandwidth management.

PRIVACY MASK

Using privacy masks, specified image areas can be blurred out, therefore monitoring is always complying with the local laws. CONNECTABLE TRAFFIC LIGHT SYSTEM

As the system of traffic lights can be connected to the LOGIPIX System, the state of the traffic lights can be displayed on the camera images, therefore there is no need for extra serious investment to monitor them.

STRONGER NVR

Increased performance, faster CPU, and more memory provide the accurate video content analysis that is being run by the dedicated Network Video Recorder in the LOGIPIX Traffic Surveillance System. By the built-in I/O panel external systems can be joined with ease.

ASSOCIATED ANPR AND MOI

The system automatically detects number plates in the images, crop them and sends them to the connected, third-party automatic number plate recognition software for identification. The LOGIPIX Traffic Surveillance System is in contact with the Ministry of Interiors as well that provides exact vehicle data based on the sent license plates.

VIOLATION MANAGEMENT CLIENT

Here at LOGIPIX we designed a special, extremely user-friendly software for confirming the automatically detected violations. Intuitiveness interweaves the whole program therefore operators are able to learn the main usage within just minutes.

RED LIGHT VIOLATION

- Automatic VCA detection of red light violations
- Recognition of the plate numbers of the offending vehicles
- Interfacing to Government system's database to identify the offender
- Universal interface for connection to traffic light controllers for easy capturing of traffic light states
- 24/7 operation
- Providing irrefutable visual evidence

Logipix engineers have developed an automatic, Video Content Analysis based red light violation detection. With the application all red light violations are captured with ease and unmatched

accuracy. The Logipix system is able to connect to third-party license plate recognition software and external database to identify the offender.
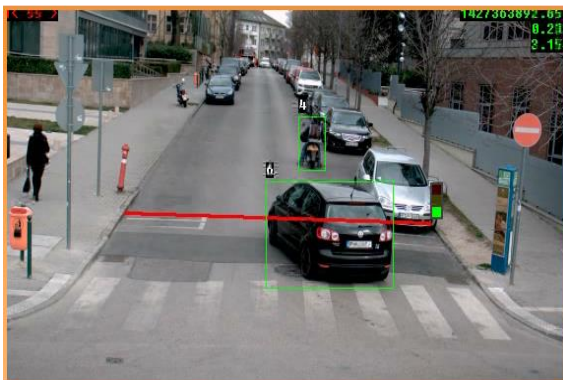
STOP LINE VIOLATION

- Automatic VCA detection of any vehicle that violates stop sign rule
- Machine recognition of plate numbers of the offending vehicles
- Automatic resolution reduction on the designated picture area in order to protect privacy rights
- Manual or event triggered download of the security footage
- 24/7 operation
- Create probative visual evidence

Video Content Analysis measures the presence and the speed of the vehicles within a designated area and detects stop sign violation automatically. Besides the security footage, the system saves the vehicle's minimum and maximum speeds in the zone and the time which the vehicle spent in the selected area. Leading edge security cameras within the system record exceptionally high quality images that provide an undoubted evidence for the local authority.

ONE-WAY TRAFFIC VIOLATION

- Automatic VCA detection of any vehicle that violates one-way traffic rule
- Machine recognition of plate numbers of the offending vehicles

- Automatic resolution reduction on the selected picture area in order to protect privacy rights
- Manual or event triggered download of the security footage
- 24/7 operation
- Create probative visual evidence

Logipix engineers have developed an automatic, Video Content Analysis based one-way traffic violation detection. With the application all one-way traffic violations are captured with ease and unmatched accuracy. The Logipix system is able to connect to third-party license plate recognition software and external database to identify the offender.

TRAFFIC COUNTING

- VCA based automatic vehicle counting
- Accurate, reliable operation
- The process of the maintenance is easier in contrast with the installed induction loop traffic counter
- Monitoring traffic load in each lane
- 24/7 operation
- Direct connection to traffic light system for dynamic traffic light control

The application precisely counts the crossing vehicles at every junction, however busy their traffic may be and analyzes the traffic load in the lanes. Based on the results, the operators are able to dynamically control the traffic light states and therefore efficiently manage the traffic flow.

BUS LANE VIOLATION

- Automatic VCA detection of any vehicle that violates bus lane traffic rule
- Machine recognition of plate numbers of the offending vehicles
- Automatic resolution reduction on the selected picture area in order to protect privacy rights
- Manual or event triggered download of the security footage
- 24/7 operation/ Create probative visual evidence

BUS LANE VIOLATION

Video Content Analysis measures the presence and the speed of the vehicles within a designated area and detects bus lane traffic violation automatically. Besides the security footage, the system saves the vehicle's minimum and maximum speeds in the zone and the time which the vehicle spent in the selected area. Leading edge security cameras within the system record exceptionally high quality images that provide an undoubted evidence for the local authority.

PARKING VIOLATION

- Automatic VCA detection of any vehicle that violates parking rule
- Machine recognition of plate numbers of the offending vehicles
- Manual or event triggered download of the security footage
- 24/7 operation
- Create probative visual evidence

Video Content Analysis measures the presence of the vehicles within a selected area and detects parking violation automatically. Besides the security footage, the system saves the vehicle's time which the vehicle spent in the selected area. Leading edge security cameras within the system record exceptionally high quality images that provide an undoubted evidence for the local authority.