KiwiSecurity

AUTOMATING VIDEO SURVEILLANCE

INTERNATIONAL EDITION

Dear Reader,
As engineers we found ourselves in an age of countless technological breakthroughs. As part of an international research network we could see immense possibilites in the area of video processing and analysis. Fields of application for video analysis grow as fast as their user group and contain topics such as:

Public Safety & Security - Protection from Crime & Vandalism - Automation

The question is no longer „**analog or IP?**“, but rather „**how is it possible** to **efficiently analyze** the enormous **information flood?**“. The three major challenges, which arise regarding video surveillance systems can be summarized as follows:

1. **Information flood** - Events are recognized too late or not at all
2. **Complexity** - Systems are too complicated for the users
3. **Privacy** - Permanent intrusion into peoples‘ personal rights

As founders of KiwiSecurity we aim at developing world-leading technology, which revolutionizes video surveillance. After more than 70 man years of research and development, we are proud to present our product family KiwiVision®, which offers world-leading analysis algorithms that operate even in the most challenging conditions, and the most beautiful video management system in the world. Our Goals:

Maximizing Security

Optimizing Cost

Protecting Privacy

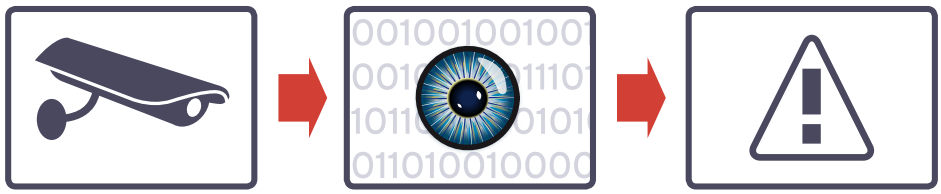
We sincerely invite you to become a part of our success.

Stephan Sutor Florian Matusek Klemens Kraus

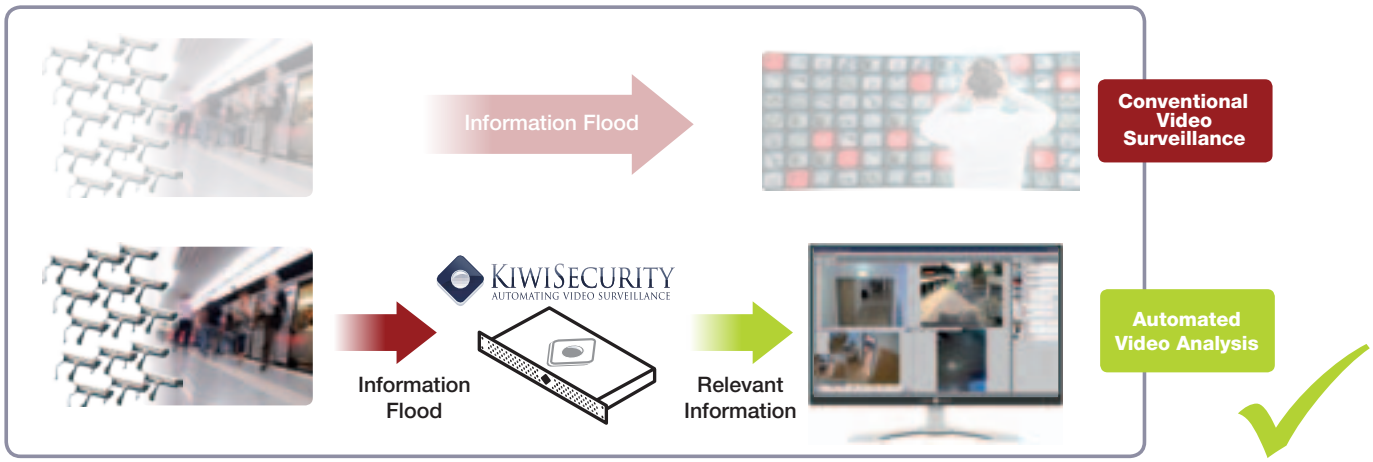
It is no longer necessary to let a human observer stare at thousands of screens, since camera images can be **analyzed** by **intelligent algorithms** in **real-time.** The attention is directed towards relevant events, thus achieving

Automated Video Surveillance.

The camera sees, the alogorithm analyzes, the human acts immediately and is able to prevent loss and damage before it happens.



Considerable investments have been made and thousands of cameras and systems are installed. In order to protect your investment, KiwiSecurity technology can be easily integrated into existing systems.



Intelligence for every existing or new video surveillance system

Video Surveillance Applications in

Traffic, Airports & Train Stations

Typical Applications

- Perimeter protection
- Analysis of queues and crowds
- Object detection in critical areas
- Runway security

Challenges

- Demanding international security standards
- Distributed system architectures
- Availability / redundant systems
- Integration into command and control centers
- Integration into external systems (boarding/security)

Public Safety, Emergency Services & Defense

Typical Applications

- Perimeter protection
- Surveillance of large, distributed areas
- License plate recognition
- Protection of crowds
- Operation management via video wall

Challenges

- Highest demands regarding data security
- Central consolidation of data
- Privacy concerns
- Mobile alarm and video access

Property & Building Security, Public Administration

Typical Applications

- Perimeter protection
- Access Control
- Privacy protection
- People counting and statistics

Challenges

- Privacy concerns
- Distributed system architectures
- Integration into different control centers
- Large number of analysis applications
- No false alerts

Different Markets

Banks, Financial Services & Casinos

Typical Applications

- Surveillance of bank lobbies
- Perimeter protection
- Analysis of people's behavior
- Gambling analysis (casino)
- Preservation of evidence

Challenges

- High camera density
- High demand for availability
- Distributed system architecture
- Reliable analysis of behavior

Retail & Logistics

Typical Applications

- Customer analysis (retail)
- People and vehicle counting
- Process surveillance and optimization
- Surveillance of vehicle fleets

Challenges

- Privacy protection and related concerns
- Environmental influences (animals, weather conditions)
- Distributed systems in many locations (retail)
- Integration into complex systems (logistics)
- Automated monitoring of processes

Manufacturing, Power Plants & Utilities

Typical Applications

- Perimeter protection
- Securing supply paths
- Process monitoring
- Quality assurance

Challenges

- Distributed system architectures
- Integration into control centers
- High demand for availability
- Reliable detection in outdoor areas
- Surveillance of large areas

Research and Innovation

KiwiSecurity products and technology evolve from 70 man-years of research and development. In the center of every innovative product lie research efforts, which make it possible to invent and develop technology, which exceeds the state-of-the-art, rethinking the possible. In order to extend their technology leadership KiwiSecurity is constantly participating in international collaborative research projects. KiwiSecurity's research and development focuses on four strategic core research areas. In this endeavor KiwiSecurity collaborates with leading universities and research facilities and is on the leading edge of international research.

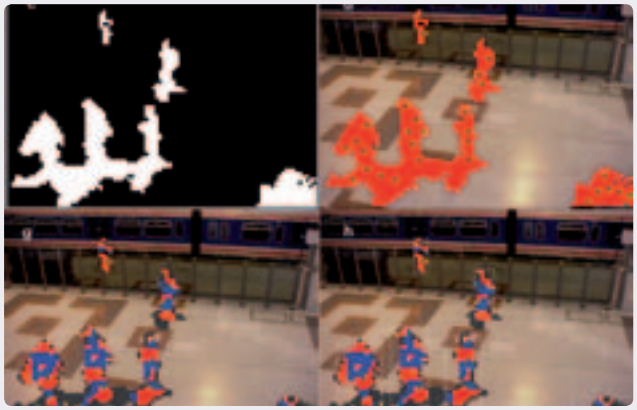
(out take)

Research Focus: 3D Vision

3D analysis is one of the major areas of computer vision research. Thereby a 3D reconstruction of a scene is automatically created in order to enhance the analysis of an observed scene. Data from multiple cameras is fused into a single coherent model. Hence, instead of analyzing every camera individually, the larger context can be taken into account. If a reference object (i.e. an object with a known size) is defined, the size of every other object in the scene can automatically be calculated.

3D scene calculations are already employed in KiwiSecurity products today (e.g. KiwiVision® Intrusion Detector). Regarding 3D vision, KiwiSecurity supports **Frequentis** in the **SESAR Joint Undertaking,** the largest European air traffic control research venture to develop a system for remote tower operation.

Research Focus: Privacy Protection



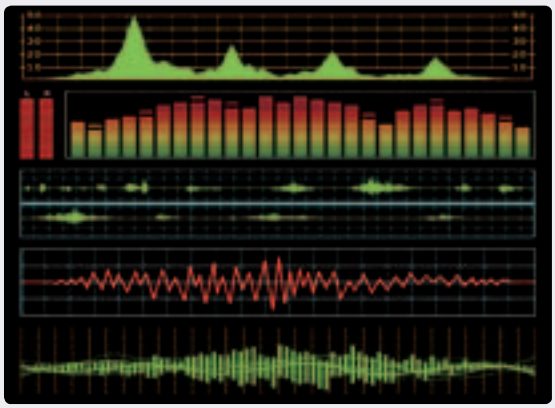
From the beginning, privacy protection has been one of the most important concerns of KiwiSecurity. The focus in this research area has led to the leading product KiwiVision® Privacy Protector®. KiwiSecurity doesn‘t stop here - we push research even further in this area in order to protect people‘s privacy more efficiently. Different methods of detecting, tracking and obscuring people or vehicles are investigated, as well as the entire process of privacy management in large-scale systems.

Ultimately, even in critical situations, it is not necessary to intrude into the privacy of uninvolved people in a video observation, without sacrificing the level of security.

Research Focus: Cloud & Virtualization

The future-oriented topic cloud computing and the associated virtualization are central topics for KiwiSecurity. In the future, we believe it will be possible to manage entire video surveillance systems in data centers. Technical and legal challenges will be solved and the first intelligent SaaS video analysis system in the cloud will be offered by KiwiSecurity. Through a hosted video analysis solution small installations can be implemented cost-effectively. Small facilities can use the benefits of high-end video analysis by paying a small monthly fee, without having to invest in expensive infrastructure.

Research Focus: Multi Sensor Analysis

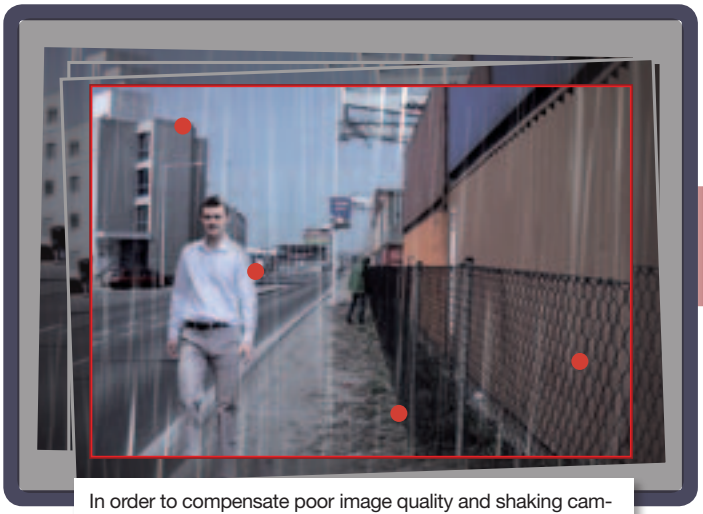


KiwiSecurity‘s technology is based on algorithms for the automated analysis of video data. However, there are also other sensors, which can provide valuable information about an observed scene.
Thus, simple sensors such as door contacts, step sensors and motion detectors are employed in projects. In more critical applications high-tech sensors such as ultrasonic, laser, microwave and radar are deployed.
In multi-sensor research, KiwiSecurity develops technology which gathers and analyzes all data and summarizes it into a coherent model of the scene, extending the 3D approach. On the basis of this model an overall picture is generated in which relevant events can be recognized across multiple modalities, creating a richer, more detailed model of the scene.

The KiwiSecurity

PATENTED TECHNOLOGY

Stabilization and Optimization



In order to compensate poor image quality and shaking cameras, KiwiSecurity stabilizes and optimizes every single frame of the incoming video with intelligent algorithms.

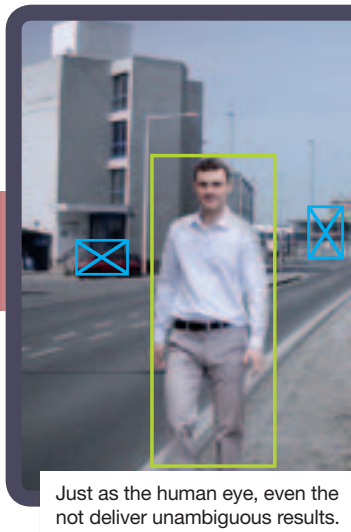
Environmental Filte

Rain, fog and snow are the
alerts in video analysis.
advanced filter methods to

Analyzing the Overall Picture

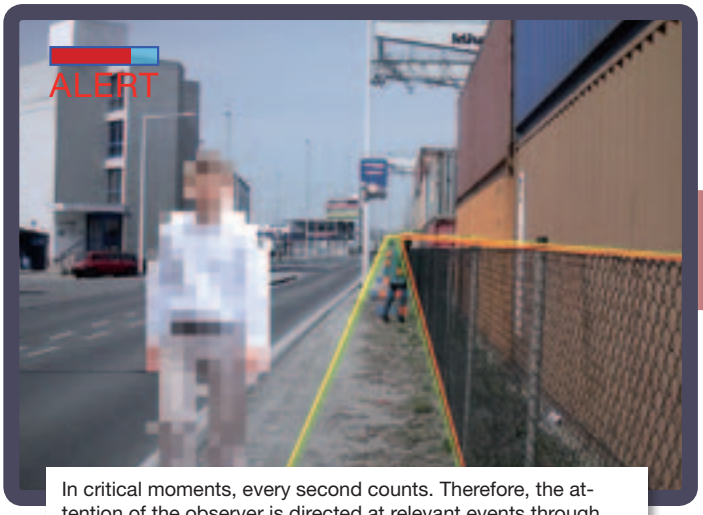
In addition to the image content, the overall image is analyzed in order to detect disturbances such as artifacts covering the camera, sudden changes of light or sabotage.

4D Logic Filter (Spa



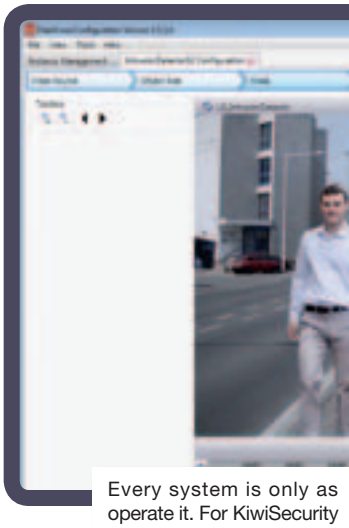
Just as the human eye, even the
not deliver unambiguous results.
filters and inferences, to achieve

Graphic Visualization & Privacy Protection



In critical moments, every second counts. Therefore, the attention of the observer is directed at relevant events through additional information in the image.

Simple User Config



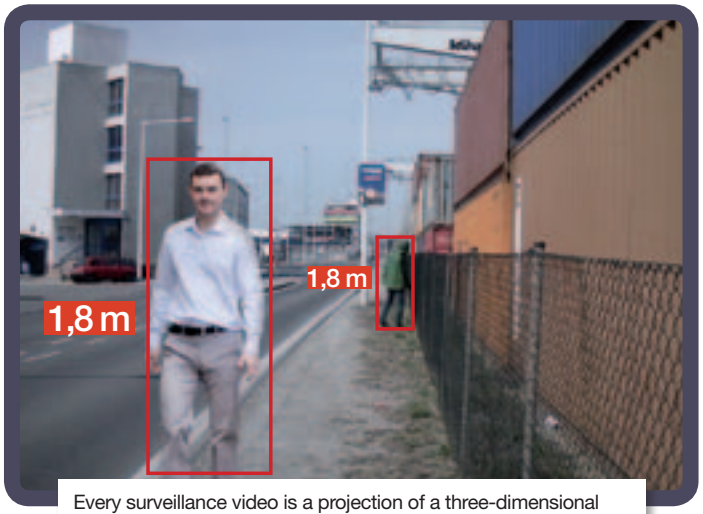
Every system is only as
operate it. For KiwiSecurity
ration and operation is of

Analysis Approach

rs

most frequent sources of false KiwiSecurity develops the most provide a clear image.

3D Reconstruction



Every surveillance video is a projection of a three-dimensional space onto a flat image. The KiwiSecurity algorithms can assign spatial information, just as humans do.

Why do most video analysis systems fail?

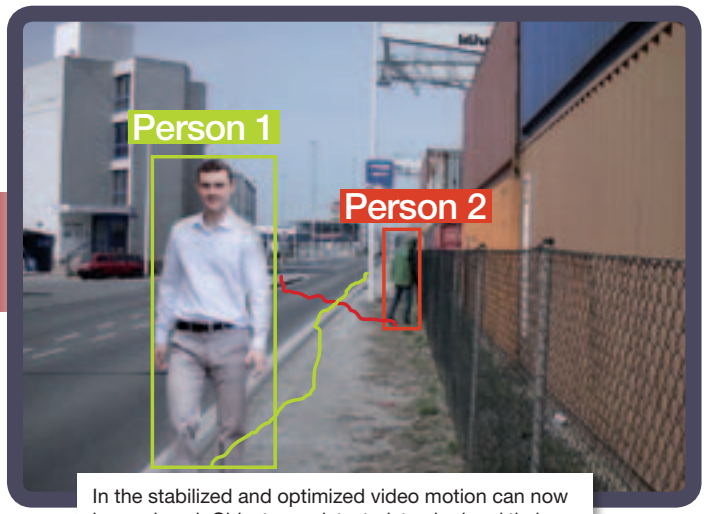
- Shaking cameras
- Poor image quality
- Disturbing weather conditions and animals
- The ‚simple tracking approach' does not work in real-life-scenarios
- Incompatibility with existing systems or infrastructure
- Installation effort is too high
- Systems are too complex

See how the KiwiSecurity analysis approach tackles these challenges!

ce & Time)

best detection algorithm does Hence, a logical reasoning engine optimal results.

Detection and Tracking of Objects



In the stabilized and optimized video motion can now be analyzed. Objects are detected, tracked and their motion activity is recorded.

uration

powerful as its users are able to the simplicity regarding configu- highest priority.

Flexible Output & Simple Integration

KiwiSecurity uses open standards and interfaces. This ensures that every KiwiSecurity product - from a single system to any integrated solution - can be used in any installation.

Video Management System

Patented Technology

KiwiSecurity aims to optimally protect their research efforts. This guarantees that further research and development can be conducted and also provides partner companies of KiwiSecurity with an added value. The analysis algorithms core as well as different details of all KiwiVision® products are patent protected. You can find an overview of KiwiSecurity patents and patent numbers following this link: **www.kiwi-security.com/patents**

KiwiSecurity Design Philosophy

Security

- Products, which perform in real-life in the most demanding situations
- Consistent technology for big and small installations, unlimited expandability of every system
- Unlimited scalability of systems through distributed system architecture and redundancy
- Constant maintenenance and improvement of the products through direct customers involvement

Compliance

- Use of standards (ONVIF, RTP, RTSP, XML, ...)
- Open interfaces
- Direct integration into leading video management and control center systems
- Development following strict design and implementation guidelines
- European Privacy Seal (Privacy Protector®)

ONVIF

European Privacy Seal
DE-090017 / Valid till 2013-09

https://www.european-privacy-seal.eu/awarded-seals/de-090017

Usability

- Simple and fast configuration for standard situations
- Advanced expert configuration
- Multi-language user interface

Kiwi Performance Units (KPU)

In order to considerably simplify the dimensioning of video analysis systems, KiwiSecurity defined the **K**iwi **P**erformance **U**nits (KPU). KPUs are estimated measurement units for standard situations (resolution, frame rate, analysis regions, ...), which are based on the experience of numerous reference installations.

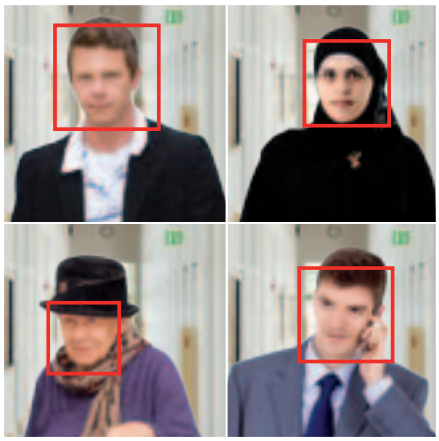
Every KiwiVision® Engine (server) provides a specific number of KPUs processing power and every analysis application requires a specific number of KPUs. Hence it is possible to quickly calculate the necessary dimensioning of a KiwiVision® system.

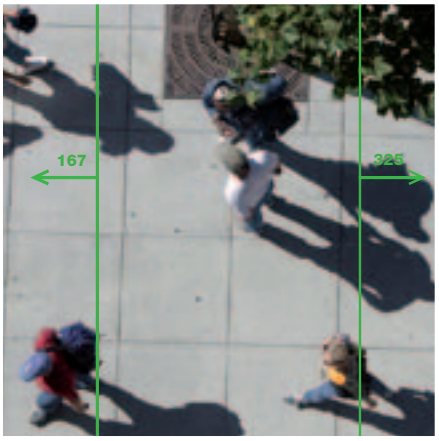
Advanced dimensioning and system design is an integral part of the KiwiSecurity training.

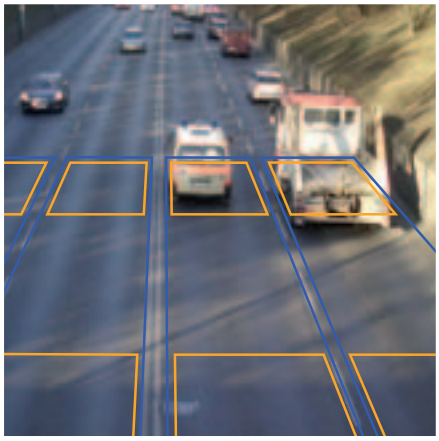
12 x Privacy Protector® = 60 KPU

1 x Engine 60 = 60 KPU

KiwiVision

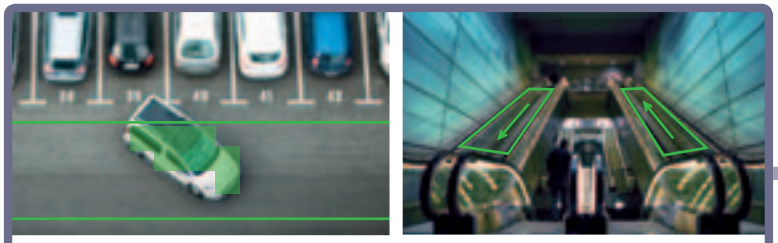






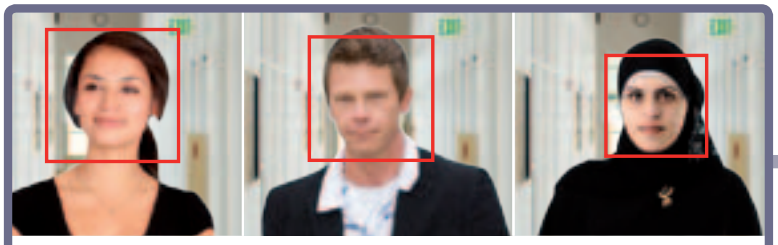
The Product Family

KiwiVision®: Key Inform



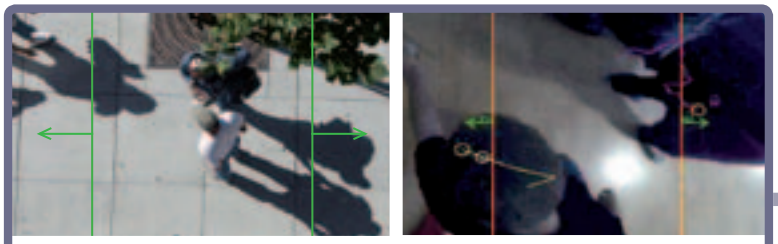
KiwiVision®
DIRECTION CONTROLLER

KiwiVision®
INTRUSION DETECTOR

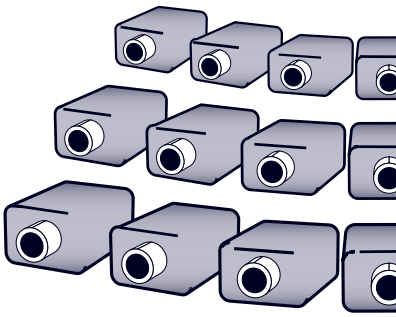


KiwiVision®
FACE COLLECTOR

KiwiVision®
OBJECT DETECTOR



KiwiVision®
PEOPLE COUNTER

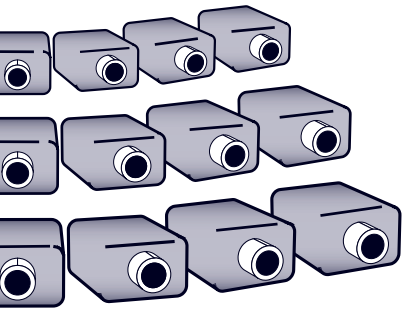


KiwiVision®
Server H

KiwiVision® Conn

KiwiVision®
VMS

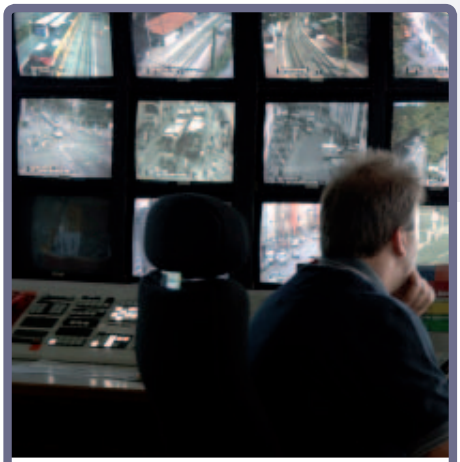
ation Wired Intelligence



Engines

ardware

ection Platform

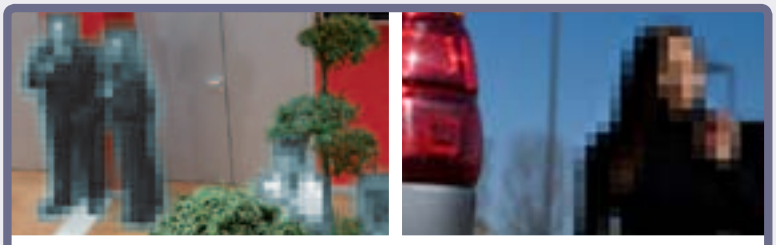


3rd Party Integration
VMS/Control Center

KiwiVision®
VEHICLE COUNTER

KiwiVision®
QUEUE DETECTOR

KiwiVision®
LICENCE PLATE RECOGNIZER



KiwiVision®
PRIVACY PROTECTOR®

KiwiVision®
CUSTOMIZED SOLUTIONS

KiwiVision® Connection Platform

The KiwiVision® Connection Platform is the basis of all KiwiVision® analysis applications.

It is the connecting link between camera, analysis and video management systems (e.g. Milestone XProtect®, Genetec Omnicast®, Cisco VSOM or KiwiVision® VMS).

The most important functions of the KiwiVision® Connection Platform include the connection with the camera, alarm- and meta data transfer to a video management system as well as unlimited multiplexing, which enables any number of analyses per camera.

Modular Scalability

From the mini-box to a data center - the KiwiVision® Connection Platform can connect any number of servers to a unified system and thus enables unlimited scalability. Therefore, there is no limit for the number of cameras, analyses and recordings.

The communication is encrypted via SSL, which makes tapping or any other kind of manipulation impossible.
The KiwiVision® Connection Platform meets all requirements to be employed virtually or as a cloud solution.

Standards & Integration

The KiwiVision® Connection Platform supports all important standards and popular camera models. As ONVIF member, KiwiSecurity employs open standards. This enables flexibility regarding the connection of cameras and integration into any video management system.Thus, even existing systems can be enhanced with KiwiVision® technology.

Input & Output

The following protocols are supported:
RTSP / ONVIF / RTP/ directly supported cameras (see KiwiSecurity partner area) / virtual IP Camera Protocol

KiwiVision® Integration

Video & Data Formats

The KiwiVision® Connection Platform supports all popular video formats in any resolution (from CIF to Full HD and more): H.264 / MPEG-4 / MxPEG / H.263+ / Motion JPEG

System Stability & Redundancy

The KiwiVision® Connection Platform offers redundancy on system level as protection against system failure and data loss. It is possible to replicate any component of the system any number of times in order to ensure system stability, which even meets the requirements of military applications.

Centralized System Configuration

The centralized system configuration allows an entire distributed KiwiVision® system to be configured by a single tool in a single location. This enables efficient working - even with large and complex systems.

Remote Installation & Configuration

Every KiwiVision® system can be installed, configured and launched via the Internet. This considerably contributes to the reduction of efforts regarding service and installation for KiwiSecurity partners and customers.

KiwiVision® integrated in Third Party Systems (outtake)

KiwiVision® Direction Controller in PKE AVASYS® (RTSP + TCP Trigger)

PKE

KiwiVision® Privacy Protector® in Genetec Omnicast® (SDK Integration)

Genetec

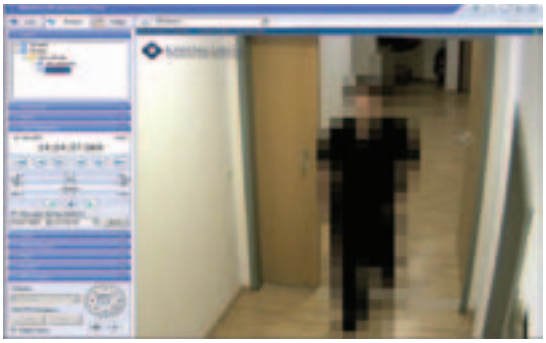
KiwiVision® Intrusion Detector in Cisco VSOM (IP Camera Protokol + HTTP Trigger)

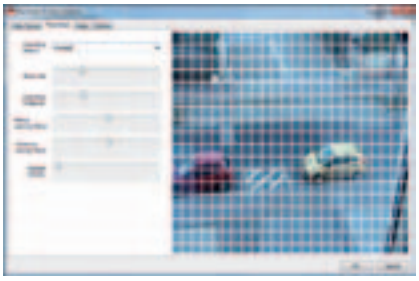
Cisco Ecosystem Provider

KiwiVision® in Frequentis ICCS/PC Dispatcher (Remote Control Integration)

FREQUENTIS

KiwiVision® Privacy Protector® in Milestone XProtect® (SDK Integration)





Configuration of Privacy Protector® directly through Milestone XProtect®

milestone

IP Video Software

further integrations upon request

KiwiVision® Direction Controller

The KiwiVision® Direction Controller detects objects which move in a restricted direction.

If an object moves in a given direction through a previously defined region, an alarm is triggered immediately. The region to be analyzed can be defined with only a few clicks. The motion tolerance of the object can also be adjusted individually. The size of the object to be detected can be chosen freely - even objects which are only 20 pixels high can be detected.

The KiwiVision® Direction Controller can detect even the slightest movement and cope with a dynamic, changing background. For instance, it is possible to analyze a person's movement on an escalator. It can be employed both in- and outdoors even in demanding situations, since it is resistant to changes of light and weather conditions.

Fields of Application

- Retail
  (shops, shopping malls and shopping streets)
- Exhibition centers, convention halls
- Airports, train stations
- Museums
- Public buildings

Features

- Fail-safe
- Reliable analysis
- Simple configuration

REQUIREMENTS

- KiwiVision® Connection Platform
- Minimum resolution: 640 x 480 px
- Minimum frame rate: 12 fps
- Minimum object size: 20 x 20 px

4 KPU

The KiwiVision® Direction Controller analyzing movement on an escalator and the simple configuration interface.

KiwiVision® Intrusion Detector

The KiwiVision® Intrusion Detector automatically detects the intrusion of persons or vehicles into critical areas.

The KiwiVision® Intrusion Detector generates an alarm as soon as an object moves into a defined area. The advanced analysis allows motion properties such as direction and movement angle in which an object passes an area to be adjusted.

Object paths can be defined in only a few steps, so that an alarm is only set when the object follows this path. The speed of motion of objects as well as the minimum object size which leads to an alarm can also be defined individually.

Employing the full KiwiSecurity Analysis Approach, the KiwiVision® Intrusion Detector is failsafe both in- and outdoors. Snow and rain filters as well as a perspective correction further eliminate false alarms.

Fields of Application

- Prisons, barracks
- Premises
- Power stations
- Private property
- All critical property

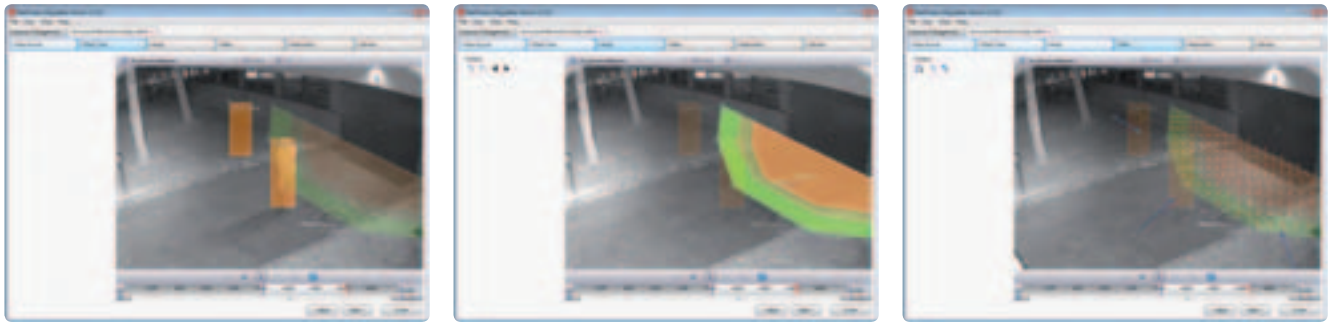
Features

- Automated perimeter protection
- Operable with thermal and infrared cameras
- Robust in all weather conditions (rain, snow, ...)
- Filtering of animals
- Freely definable areas

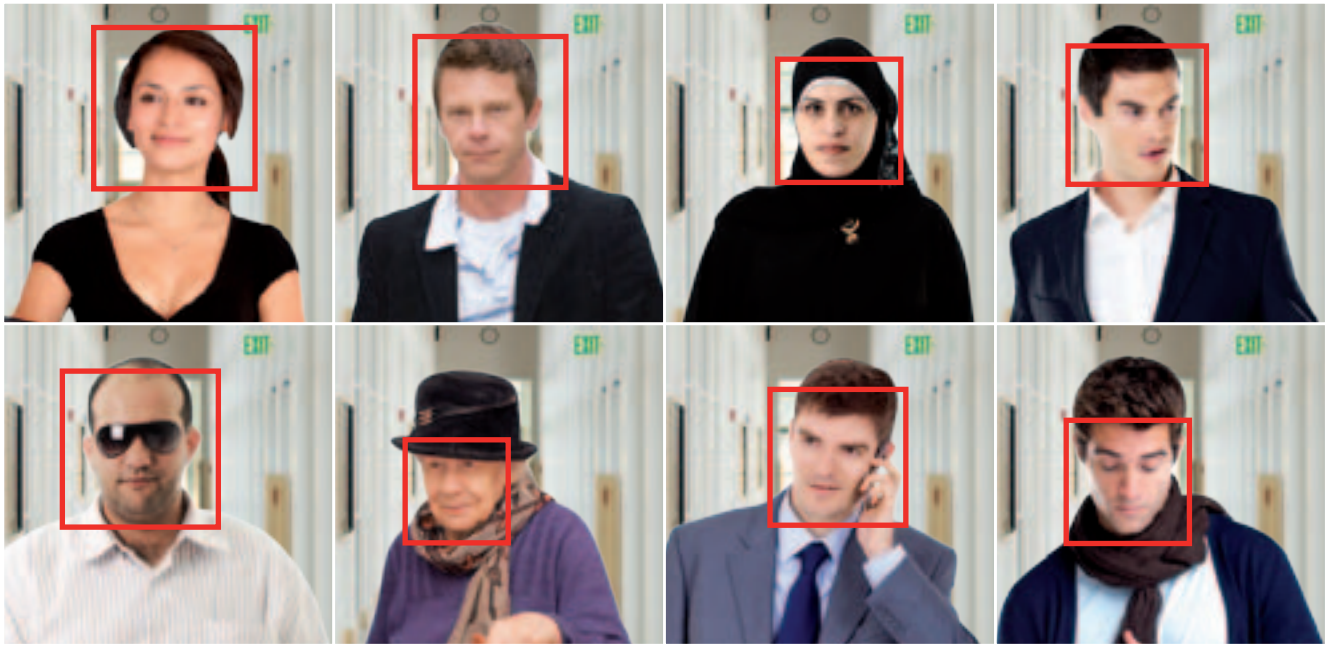
REQUIREMENTS

- KiwiVision® Connection Platform
- Minimum resolution: 640 x 480 px
- Minimum frame rate: 12 fps
- Minimum object size: 20 x 20 px
- Up to 120m recommended

5 KPU



The configuration of KiwiVision® Intrusion Detector in six steps. All regions are defined with just a few clicks.



KiwiVision® Face Collector

The KiwiVision® Face Collector automatically detects and files faces in a video stream.

All persons moving through a defined area are screened within a few seconds. Multiple faces can be detected and indexed simultaneously, while the images of the faces are saved with the date and time. In case of an incident all present persons can be listed. Fields of application range from high-security airports, banks, retail or office buildings, as well as assisting the doorman in securing the entrance.

In contrast to face recognition systems, the KiwiVision® Face Collector is, from a privacy protection point view, comparable to traditional video surveillance and operates on standard surveillance cameras.

Fields of Application

- Entrances
- Locks
- Turnstiles
- Security relevant areas (airports, banks, military facilities)

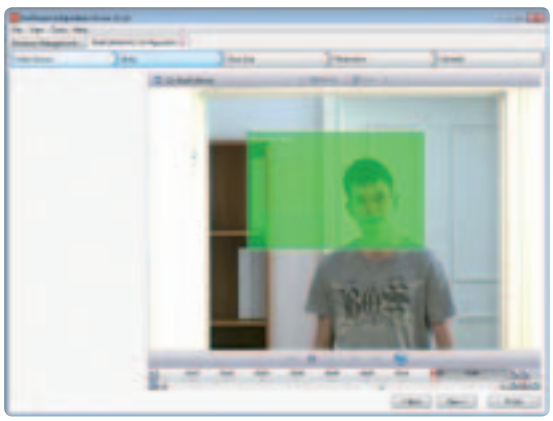
Features

- Automated collecting of faces
- Simultaneous detection of mutliple faces
- Detection of covered faces (sunglasses, beards ...)

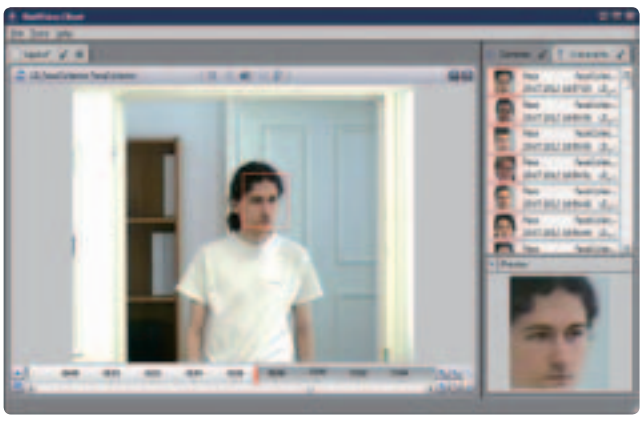
REQUIREMENTS

- KiwiVision® Connection Platform
- Minimum resolution: 640 x 480 px
- Minimum size of face: 20 x 20 px
- Minimum frame rate: 3 fps

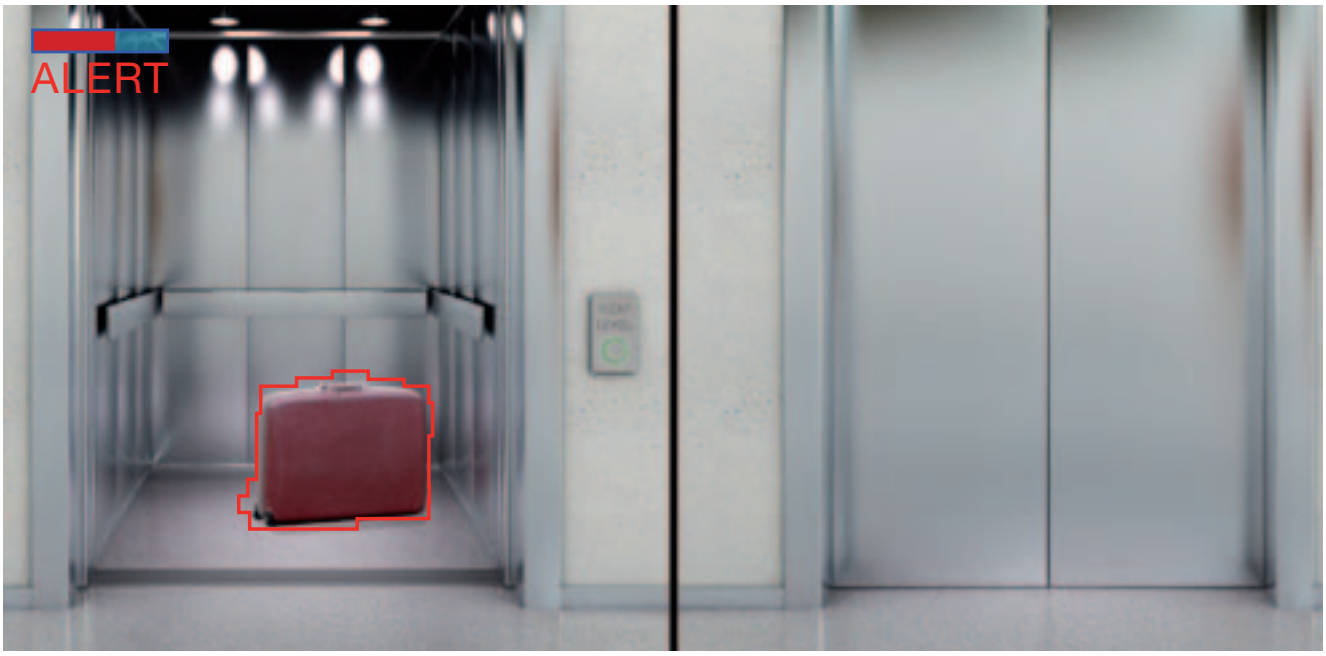
7 KPU



Configuration of KiwiVision® Face Collector



Indexed faces displayed in the KiwiVision® Client



KiwiVision® Object Detector

The KiwiVision® Object Detector detects unwanted objects in closed rooms.

This instantaneously allows potentially dangerous objects to be removed by security personnel. This product can be employed in security relevant areas in which it is imperative that no objects be removed or left behind. This is mostly the case at security gates, elevators, emergency exits or closed research laboratories.

The detection algorithm of the KiwiVision® Object Detector is highly sensitive an can even detect objects such as lighters or pocket knives. The configuration is conducted in six simple steps in which detection areas and the sensitivity are adjusted, thus the KiwiVision® Object Detector is operational within minutes.

Fields of Application

- Airports
- Railway stations
- Museums
- Public buildings
  (governmental departments, embassies, courts)

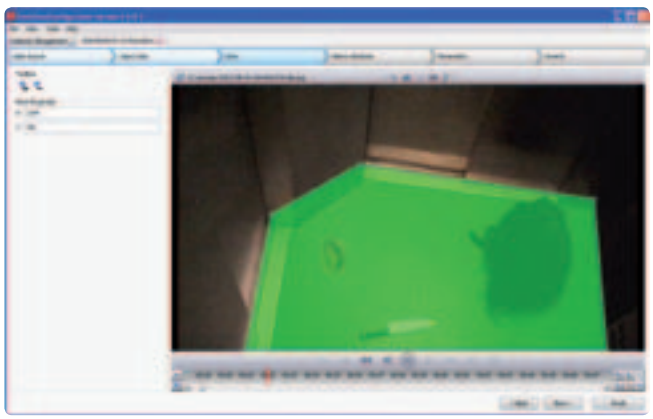
Features

- Detects objects in defined areas
- Detection of objects with the size of 1cm
- Simple configuration

REQUIREMENTS

- KiwiVision® Connection Platform
- Minimum resolution: 320 x 240 px
- Minimum frame rate: 1 fps
- Minimum object size: 5 x 5 px
- Constant illumination of room

3 KPU



The configuration of the KiwiVision® Object Detector as well as its use in an elevator

KiwiVision® People Counter

The KiwiVision® People Counter automatically counts people passing through a defined area in a video stream.

The counting is directional and works perfectly even when several people are simultaneously passing an area. With the KiwiVision® VMS the results of the counting can be graphically evaluated with detailed reports. Marketing departments of shops, supermarkets and shopping malls receive detailed information about the number of customers in specific areas as well as statistical evaluation for the optimization and comparability of stores. Public buildings, like railway stations and museums, obtain objective measurements, which assist and optimize the planning of humann resources.

Fields of Application

- Shops, supermarkets, shopping malls
- Railway stations, airports
- Museums

Features

- Automated counting of people in real-time
- Directional, up to two directions
- Counting of several people simultaneously
- Detailed evaluation through reports

REQUIREMENTS

- KiwiVision® Connection Platform
- Minimum resolution: 320 x 240 px
- Minimum frame rate: 8 fps
- Top-down camera view
- Minimum 2,5m camera height

5 KPU

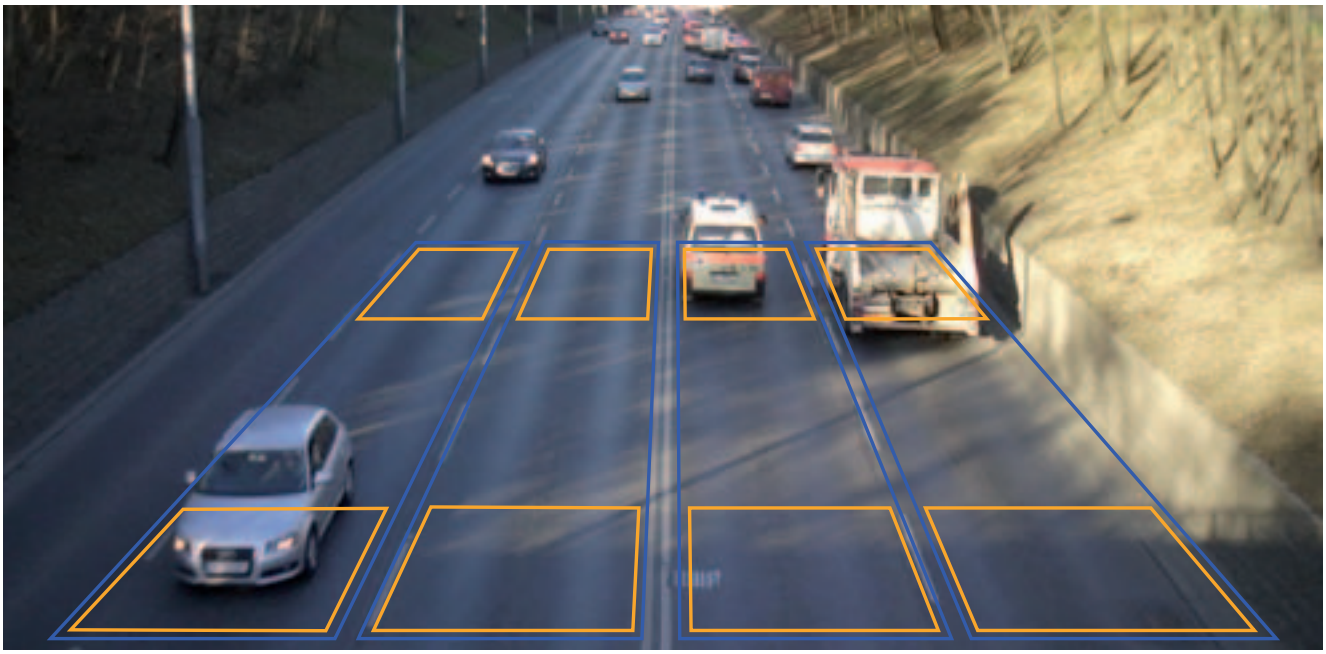
The configuration of KiwiVision® People Counter

Statistical Reports in the KiwiVision® VMS

The KiwiVision® People Counter and the KiwiVision® Vehicle Counter in combination with the reporting engine in the KiwiVision® VMS can generate interactive statistical reports, which can be sent automatically at any time.

These reports can further be sent at chosen days and times (for instance every day, only on Sunday, ...) via email. Through a well-arranged and interactive display, a detailed overview of several months can be quickly gained. Furthermore any time spans can be compared with each other.

In addition, the output can be exported as CSV file.



KiwiVision® Vehicle Counter

The KiwiVision® Vehicle Counter automatically counts vehicles on the road.

This can take place on up to four lanes per camera. The output of the counting result can be provided per minute, hour, day, week and month. The evaluation can be seen by the user through a display on the camera image or can be delivered as export in a CSV file or as regular reports via email through a reporting engine.

Fields of application are all sections of a road, no matter whether it is a freeway, highway, urban traffic or premises with car pools or parking garages. Through video based counting no expensive induction loops have to be integrated.

Fields of Application

- Freeways, highways, urban traffic
- Parking garages
- Commercial Premises

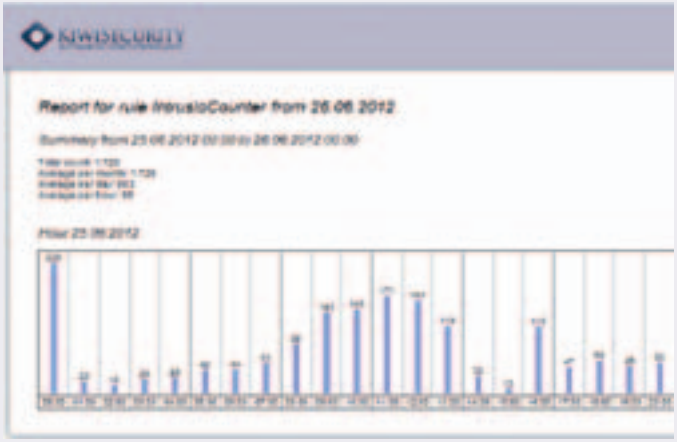
Features

- Automated vehicle counting (passenger cars, trucks, motorbikes)
- Up to four lanes
- Output in minutes, hours, days, weeks and months

REQUIREMENTS

- KiwiVision® Connection Platform
- Minimum resolution: 640 x 480 px
- Minimum frame rate: 12 fps
- Minimum object size: 20 x 20 px

5 KPU



The configuration of the KiwiVision® Vehicle Counter

KiwiVision® Queue Detector

The KiwiVision® Queue Detector automatically analyzes queues in order to detect overcrowding.

Not only the crowd is analyzed in a specified area, but also the flow of motion and its pace. The KiwiVision® Queue Detector can be employed in all places where queues can occur and the analysis results can be consulted to dissolve the queue. Thus, for instance, it is possible to find out that a new cash desk needs to be opened at a supermarket or to analyze the queue at a ticket office at a railway station. At the airport the check-in area can be analyzed in order to detect an approaching crowd and provide the passport control with a larger number of security personnel.

Field of Application

- Cash desks
- Security checks
- Emergency exits

Features

- Alarm, if a defined queue length is reached
- Crowd analysis & crowd density estimation
- Analyzing the speed of the flow
- Multiple analysis areas, freely definable

REQUIREMENTS

- KiwiVision® Connection Platform
- Minimum resolution: 640 x 480 px
- Minimum frame rate: 12 fps
- Minimum object size: 20 x 20 px

6 KPU

The configuration of the KiwiVision® Queue Detector, analysis areas can freely be drawn

KiwiVision® Licence Plate Recognizer

The KiwiVision® Licence Plate Recognizer automatically recognizes licence plates on vehicles and matches them with stored lists (blacklists / whitelists).

On the basis of this detection, a series of actions can be triggered. For instance, for access control, a gate can be opened if an authorized vehicle is recognized. The system can be employed in urban surveillance in order to find stolen cars and alarm the police if such a vehicle is detected. Of course, the KiwiVision® Licence Plate Recognizer is designed to grant maximum privacy protection.

Lists of vehicles which have been detected as well as the black- and whitelists can be conveniently managed by the user.

Fields of Application

- Access control
- Car parks & parking lots
- Urban surveillance
- Section Control

Features

- Reliable detection of licence plates
- Matching with blacklists/whitelists
- More than 60 countries supported, expandable
- Software solution (no hardware)

REQUIREMENTS

- KiwiVision® Connection Platform
- Minimum resolution: 640 x 480 px
- Minimum frame rate: 12 fps
- Minimum object size: 20 x 20 px
- LPR optimized cameras

10 KPU

Recognized licence plates displayed in the KiwiVision® VMS

Simple configuration of search areas, black- and whitelists

KiwiVision® Privacy Protector®

The KiwiVision® Privacy Protector® automatically obscures all persons in surveillance videos in real-time through pixelation.

Nevertheless, movement and actions remain recognizable. The unnecessary intrusion into personal privacy is prevented without compromizing the level of security.

The ideal pixelation type can be chosen for every situation. With only a few clicks, the block size can be selected in order to fit the size of people in the image. In addition there are several methods for the obscuring of the blocks ranging from average pixelation to total coloring in order to ensure that nobody becomes recognizable in any scene.

Fields of Application

- Public video surveillance (e.g. public places, schools)
- Businesses with semi-public areas (e.g. shopping malls)
- Companies and businesses

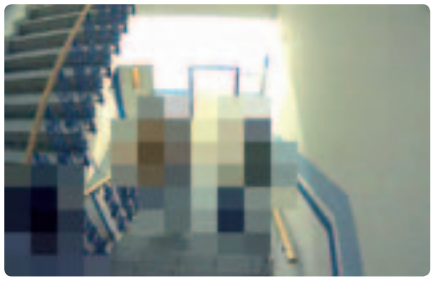
Features

- Privacy protection through pixelation
- Actions remain recognizable
- Different obscuration methods
- Operates in abruptly changing light conditions


Original image


Pixelation with block size 40


Pixelation with block size 90

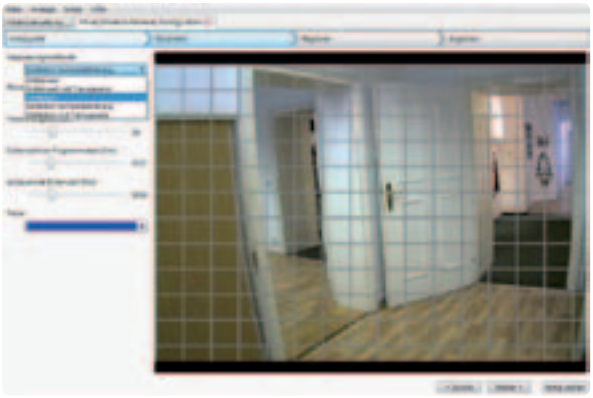

Average color blocks


Constant color


Contrast dependent color

In certain areas obscuration may be desired at all times, even if there is no movement present (e.g. desks, computer displays). These specific areas can freely be defined. Equally, areas which are excluded from the obscuration due to high security risk can be defined; for instance ATMs or areas above walls.

The innovative and continuously learning algorithm of KiwiVision® Privacy Protector® can learn multiple light conditions of the same area so that even when the light is switched on or off or other sudden illumination changes take place, no unnecessary pixelization occurs.



REQUIREMENTS

- KiwiVision® Connection Platform
- Minimum resolution: 320 x 240 px
- Minimum frame rate: 3 fps

3 KPU

Trust Through Independent Certification

The KiwiVision® Privacy Protector® is the only video surveillance product that has been awarded the European Privacy Seal by the "Independent Center for Data Protection" (Unabhängiges Landeszentrum für Datenschutz) in Schleswig-Holstein, Germany.

The European Privacy Seal awards IT based products that are compatible with the European privacy policy and excel in privacy protection.

European Privacy Seal
DE-090017 / Valid till 2013-09

https://www.european-privacy-seal.eu/awarded-seals/de-090017

In order to obtain the European Privacy Seal a profound investigation of a product is conducted, both in technical and legal terms. In technical terms even the source code is checked to ensure that there is no possibility to suspend the privacy protection (destructive anonymization). Legally, not only the product's but the entire company's conformity with the European privacy policy is verified. It is crucial that the examination is conducted by an independent and confidential institution and that all criteria are public. The seal is valid for two years and has to be re-awarded after its expiration. Thus, one can be sure that the product always complies with the latest privacy laws and policies.

Controlled access for plain video data (without obscuring) when an incident occured.

Encrypted with Chip Cards in the KiwiVision® VMS

If the KiwiVision® Privacy Protector® is operated within the KiwiVision® VMS, the original plain video can be cryptographically encrypted and recorded in the background, for instance with the certificates of two chip cards.

The operator only sees the pilxelated video image. In case of an incident, two authorized persons can together access the plain video by using chip cards and entering the corresponding PIN codes. Thus, the four-eye-principle is guarnteed and the video data is protected against abuse on a military grade.

Furthermore, it is possible to limit the access with transaction codes. Each member of the security personnel obtains a list of codes which enable the viewing of one time-span (i.e. 5 minutes). If all codes have been used, new ones have to be requested. Thus, excessive and unnecessary access of the video data is prevented.

KiwiVision® Video Management System

KiwiVision® VMS is a Video Management System for video recording, viewing and management of video surveillance systems.

KiwiVision® VMS supports access, storage and processing of video and is entirely based on a modular system architecture. This results in virtually unlimited scalability, making KiwiVision® VMS the ideal choice for installations with few cameras up to large-scale, distributed systems with thousands or more cameras.

Scalable Client/Server Architecture

KiwiVision® VMS is tightly integrated into the KiwiVision® Connection Platform, thus inheriting all its features in regards of integration, reliability and scalability and is most certainly the ideal base for KiwiVision® video analysis.

High Availablility & Redundancy

The modular system architecture was designed to meet the highest requirements in availability and reliability, allowing redundancy on system level of every component.

Designed for Video Analysis

KiwiVision® VMS was specifically designed for video analysis. This makes it the ideal platform for all systems which shall be equipped with video analysis, immediately or in the future, greatly enhancing scalability and usability.

Standards & Integration

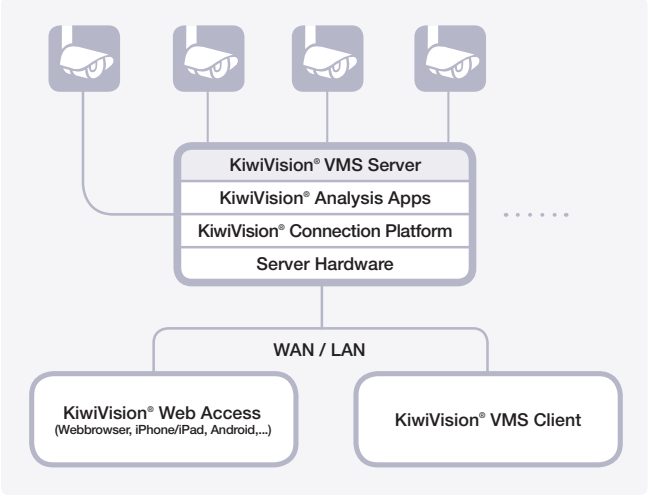
KiwiVision® VMS supports all established standards such as RTP/RTSP/ONVIF protocols (MPEG-4, MJPG, H.263 and H.264) and further supports all established IP cameras. Videos up to 16 megapixel resolution, IR and thermal cameras are further supported.

Fields of Application:

- All kinds of video recording and viewing

Features:

- Unlimited scalability and expandability
- Supports all popular camera models and manufacturers
- Ease of use
- User rights management (Active Directory support)
- Alert management
- Open standards (ONVIF, RTSP, RTP, XML, ...)
- Focus on data protection & privacy
- Management reports
- Central system management and federation



Functionality of the KiwiVision® VMS

REQUIREMENTS SERVER
- KiwiVision® Connection Platform

REQUIREMENTS CLIENT
- Microsoft® Windows XP/7/Server 2008 R2
- min. Intel Core 2 / Atom 500 CPU
- 4GB hard drive, 2GB RAM

KiwiVision® Server

Video Recording & Alert Management

KiwiVision® VMS supports unlimited video recording in a ring-buffer as well as activity-based recording and calendar scheduling. Furthermore, the alarm server allows modeling of any event utilizing video analysis or third party systems (I/O contacts, TCP triggers, e-mail notifications, ...).

Privacy & Data Protection

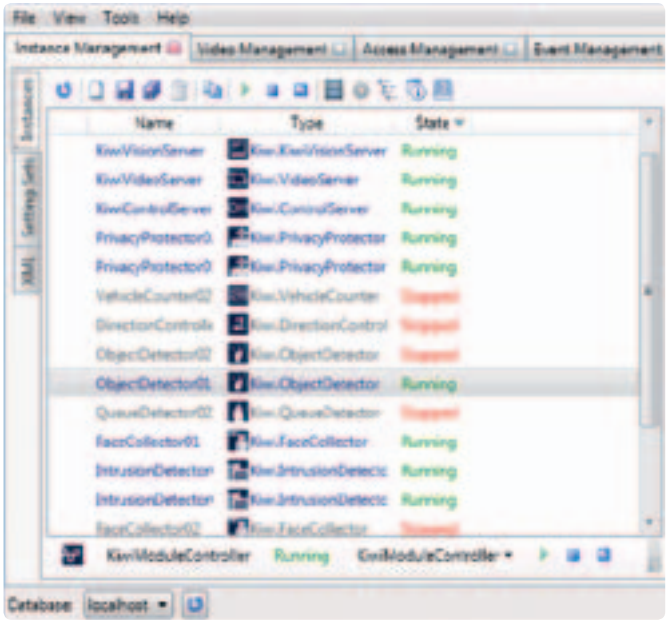
Protecting people's privacy is one of the greatest issues for KiwiSecurity. This has led to the development of the EuroPriSe certified Privacy Protector® for which the KiwiVision® VMS is the ideal platform. Featuring full encryption (up to 1024 bit, „military grade") it supports user access control via chip cards, maintaining the four-eye-principle.

Centralized System Management

KiwiVision® VMS features a centralized system configuration and management for all VMS functions (multi-server/multi-site) as well as video analysis applications (Intrusion Detector, Privacy Protector, etc.), complemented by a user-rights engine supporting Active Directory (Single Sign-On) as well as automated system health-checks and server reports.

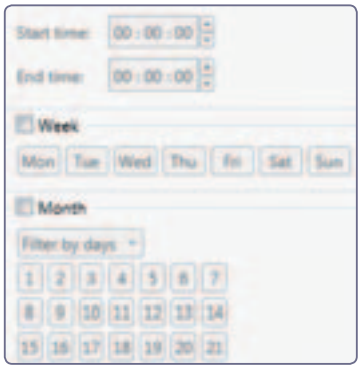
Easy-to-Use

The focus of all KiwiVision® VMS user interfaces is bringing the power of the KiwiVision® platform into extremely simple and intuitive front ends: The KiwiVision® VMS Client, a full-featured software application for accessing KiwiVision® systems and a bandwidth-optimized web access (web server) for iPhone/iPad/Android or webbrowser access.



System management in the KiwiVision® VMS

User Rights Management



Calendar Function

Management Reports

All servers and processes in the system can be permanently monitored (watchdog) across an entire distributed set-up. Reports inform about the status of the server, analysis applications, cameras and memory usage. These reports are sent via e-mail; either on a regular basis or only on occasion, if a component does not work as expected. At a single glance it is evident if errors occured in the system and on which server problems are persisting.

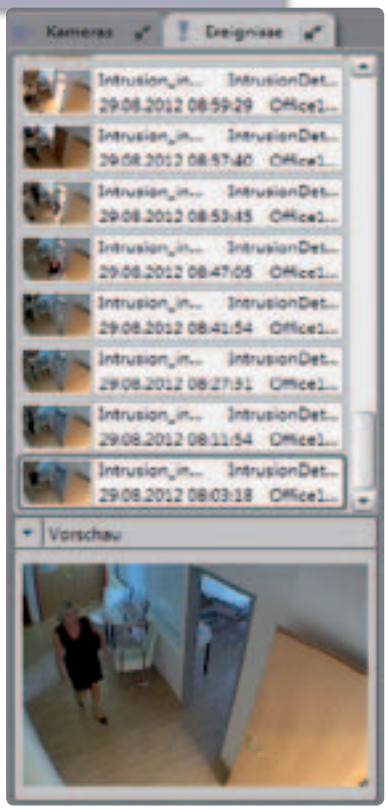
Thus, errors can be detected early and measures taken in order to fix the problem before affecting system performance.

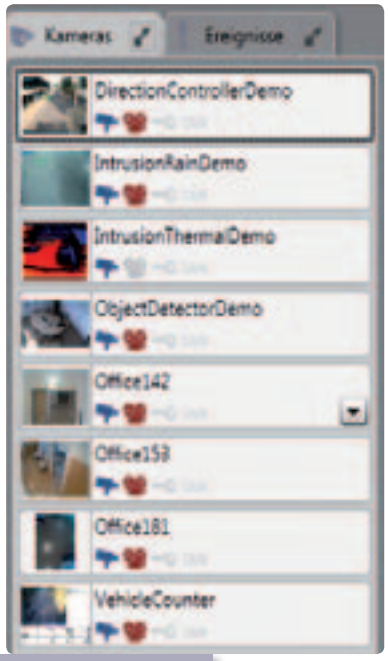
KiwiVision®

The Simple User Interface

- Viewing of live and recorded video
- Freely configurable layouts (all windows can be undocked)
- Unlimited views
- User-specific layouts (different layouts for each user)
- Multi-monitor, tabs and full screen support
- Drag & drop support

- Quick viewing of alerts
- Alert thumb nail with time stamp
- Alert preview window
- Alert replay by click
- Alert notifications (pop-ups)
- Sound notification





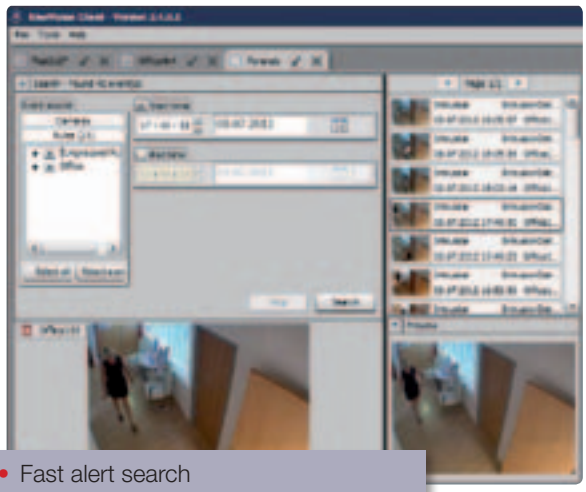
- Camera management
- Preview Images
- Display of access rights

Client

e for the KiwiVision® VMS

- Optimized camara display (zoom, rotation, crop, stretch)
- Overlays (activity, camera names, time, FPS)
- „is alive“ indicator for each camera
- Synchronous replay of live and recorded video
- Direct 3D hardware acceleration
- Multi-language support

- Timeline and calendar navigation
- Replay and export of recorded video
- Alert preview and export
- Activity indicator
- Display of available recordings



- Fast alert search
- Filter by time, cameras, groups and analysis applications

KiwiVision® Web Access

KiwiVision® Web Access is a web server, which enables the access of a KiwiVision® system via the Internet. Depending on availability, Java™ or JavaScript is utilized for the following features:

- Accessing videos (live & recorded)
- Accessing and exporting of alarms
- Transfer optimized for bandwidth
- Encrypted connections

- Smartphone/tablet optimized display
- Platform independent (iOS, Android, Linux, ...)

Data Security in the KiwiVision® VMS

Data protection and data security were of utmost importance in the design phase of KiwiVision® VMS. Thus, KiwiVision® VMS offers a variety of encryptions, protocols and access rights management in order to grant the protection of security relevant and personal data. The following military grade features distinguish the KiwiVision® VMS:

Encryption

- Encrypted storage of recorded video
- Use of a 3DES session key with optional RSA keys (server can only write data and not decrypt). RSA key length is unlimited (1024bit recommended)
- Secure transfer via SSL & computer certificates between server and client
- Highest security for user passwords (hash with salt or Active Directory™)
- Detailed management of user rights per video stream in the system
- Restricted access of video segments with maximum length (TAN)

Logging

- Accessing video (live / replay) including time/date and users which accessed the video
- Decryption of encrypted videos (including authentication, card with pin code, key file ...)
- Export (video & snapshot)

Thus, high security end-to-end encrypted systems can be implemented.

KiwiVision® Engines

KiwiVision® Engines are high-performance hardware platforms with the KiwiVision® Connection Platform pre-installed. Only special components from notable manufacturers are evaluated in long-term tests and employed in order to grant the best performing system in every situation. There are two models of KiwiVision® Engines with different performance and expandability.

KiwiVision® Engine 10

The KiwiVision® Engine 10 is the ideal starter model for small solutions with a small number of cameras or analysis applications. It can also be employed as enhancement for distributed systems to replicate security critical components.

- Up to 2 TB disk space
- 10 KPU analysis performance
- Small, fits into every network rack
- Silent, no active cooling system

KiwiVision® Engine 60

The KiwiVision® Engine 60 is the power house - it is ideal for all KiwiVision® systems for recording, management and analysis.

- Up to 6 TB disk space
- Raid array
- 60 KPU analysis performance
- Short form factor, fits into most network racks
- 16-channel analog expansion (optional)

Demo Intallations & Competitions

Requirements Analysis & Design

Individual Solutions

System Configuration

Training & Certifications

KiwiVision® Customized Solutions

Leading Know-How as Service

Through many years of experience in the fields of video surveillance, computer vision and distributed and fail-safe systems, KiwiSecurity has expert know-how which is offered as service to support clients in any project.

Individual Solutions

Specific challenges, which cannot be solved by standard products, can be tackled by individual solutions which address specific demands or requirements. Through new analysis applications, entire systems or virtualizations, all customer needs can be met by an experienced team of researchers and developers, utilizing a large pool of existing algorithms and know-how, complemented by a professional project management and quality control.

Requirements Analysis, Feasibility Study, Prototypes

In order to offer ideal customized solutions for the challenges clients are confronted with in video surveillance, the requirements analysis presents a detailed specification for particular problems. By conducting feasibility studies, it becomes evident in the first step which applications are practical. With the development of prototypes, desired functionality can be realized step by step in order to present the customer results early and adapt further development.

Test Versions & Competitions

In order to evaluate KiwiSecurity's technology, test versions can be obtained for which the customer is granted remote support. If required, KiwiSecurity participates in competitions. In recent years KiwiSecurity won a considerable number of competitions resulting in contracts for their partners.

System Configuration

If desired, KiwiSecurity supports the customer with the configuration on-site or remotely via the Internet. Advanced adjustments can also be made in the lab and implemented by a partner on-site.

Training & Certification

KiwiSecurity offers basic and advanced training, which is completed by a test and a training certificate. After basic training the sales partner is authorized to present and distribute the KiwiVision® product series. After completing advanced training, the partner can install and configure KiwiVision® systems. This training consists of (among others):

- System architecture
- Configuration of applications
- User rights & alarm management
- Extensive hands-on training
- The basic training, together with a demo system, is included in every KiwiSecurity partner package

Industry Solutions

Urban Surveillance

Video surveillance in urban areas is mostly employed for three fields of application: traffic surveillance and security, prevention and clarification of criminal cases and public safety or anti-terror measures. These requirements call for a technically excelling video surveillance system which supports camera networks of thousands of cameras and which simultaneously can be centrally and mobile operated. With this enormous number of cameras, an automated analysis which detects relevant situations and subsequently creates alarms is crucial. The KiwiVision® VMS supports the total virtualization of the system and can be employed in large video surveillance networks. Applications such as the KiwiVision® Licence Plate Recognizer support traffic surveillance while the KiwiVision® Intrusion Detector and Queue Detector are employed for the automated analysis of situations in underground stations, squares and streets.

Public Facilities

Public facilities, especially national defense, police (barracks, drill grounds) and judiciary buildings (prisons) have the highest demands regarding security. Video surveillance with automated analysis is employed to protect buildings against intruders or, in the case of prisons, the prevention of jailbreaks and smuggling. In order to grant optimal performance even under extreme weather conditions (e.g. rain, fog or snow) the KiwiVision® Intrusion Detector operates on either thermal or IR cameras, to detect intruders in real-time or to prevent smuggling into the facilities. As central platform for video surveillance, the KiwiVision® VMS is constructed for viewing and recording of videos from any camera, delivering the required measures of availability.

Gas Stations

Due to strong competition and high costs, gas stations are continuously striving towards more efficient operations. Therefore, theft protection is crucial. More and more operating companies of gas stations connect video surveillance cameras with central control rooms for the immediate detection of theft and vandalism.

In order to manage the large number of cameras with which control rooms are confronted, automated methods are absolutely necessary. With the automated detection of refuelling which has not been paid or which is connected with vandalism, KiwiVision® directs the attention of security personnel to affected locations in order to react to relevant incidents immediately. The KiwiVision® VMS can be operated as video control center in which alarms of different systems are integrated.

Bank Surveillance

The banking sector is one of the most demanding in regards of availability, data security and storage in video surveillance. Furthermore, the distributed character of banks with many locations poses further network security as well as bandwidth challenges. Recorded video must quickly and efficiently be accessible and threats must be detected immediately in real-time to be able to prevent damage or loss.

The KiwiVision® Face Collector automatically generates an index of all persons at entrances, drastically accellerating the browsing of recorded video.

Further, unwanted actions, such as loitering or unusual behaviour can automatically trigger an alert to the control room, directing the operator's attention.

Education & Healthcare

In the education and health sector video surveillance is constantly gaining importance caused by a rising frequency of theft and vandalism, which is accompanied by immense financial damage. Especially in these facilites it is crucial to protect the privacy of surveyed people (students, teachers, nurses, doctors, patients) and to access recorded data only in case of an incident. The KiwiVision® Privacy Protector® is - together with the KiwiVision® VMS - the ideal solution for these challenges. Due to the pixelation, identification of people is prevented without compromising on security. Only in case of an incident, the encrypted original video can be accessed according to the 4-eyes-principle. The European Privacy Seal creates additional confidence due to its independent tests, guaranteeing that no abuse of the video surveillance system will occur.

Critical Infrastructure

Infrastructure which has great value for a country, such as airports, railway stations and suppliers of energy and water, requires exceptional protection, especially from sabotage, terrorism and espionage. Consequently, video surveillance networks, which are automatically analyzed, are necessary. In order to protect the perimeter of a pipeline or a building, the KiwiVision® Intrusion Detector is employed for automated detection and alarm in cases of trespassing. For the protection of security critical areas, the KiwiVision® Direction Controller and Queue Detector automatically detect forbidden actions. The KiwiVision® Licence Plate Recognizer manages the access to certain areas and prevents the admission of unauthorized vehicles.

References (outtake)

International Airport (confidential)

Securing of the Schengen borders

Challenge

- Detection of people moving backwards on border separating escalators
- Detection if border separating elevators are empty before returning

Solution

- KiwiVision® Direction Controller
- KiwiVision® Object Detector

© Manuela Kuzel

Justizanstalt Sonnberg (Prison)

Securing of the Perimeter

Challenge

- Prevention of smuggling and prison breaks
- Securing of the protective wall on the outskirts of a forest
- Analysis of 24 thermal cameras

Solution

- KiwiVision® Intrusion Detector
- Integration into third party control center

Military Client (confidential)

Video Control Center

Challenge

- Display and recording of HD images
- Central control center in high security application

Solution

- KiwiVision® VMS
- KiwiVision® Customized Solution

Syrdal Schwemm (Swimming Pool)

Safety of Customers

Challenge

- Protection of customers with video surveillance
- Avoiding intrusion into privacy

Solution

- KiwiVision® VMS with high-resolution cameras
- KiwiVision® Privacy Protector®

MCI Management Center Innsbruck (University)

Prevention of Theft and Vandalism

Challenge

- Video surveillance in 5 locations
- Protection of students', lectors' and staff's privacy
- Hybrid system (analog + IP cameras)

Solution

- KiwiVision® VMS & Privacy Protector®
- Access with chip cards according to the 4-eyes principle

BG & BRG Billrothstraße (School)

Prevention of Vandalism and Burglary

Challenge

- Protection with video surveillance
- Automatic alarm in case of a break-in

Solution

- KiwiVision® VMS
- KiwiVision® Intrusion Detector
- KiwiVision® Privacy Protector®

Museum of Modern Art

Protection from Theft and Vandalism

Challenge

- Management of 100 cameras
- Basis for video analysis

Solution

- KiwiVision® VMS
- KiwiVision® Customized Solution

Wein & Co Shops

Minimizing of Shrinkage

Challenge

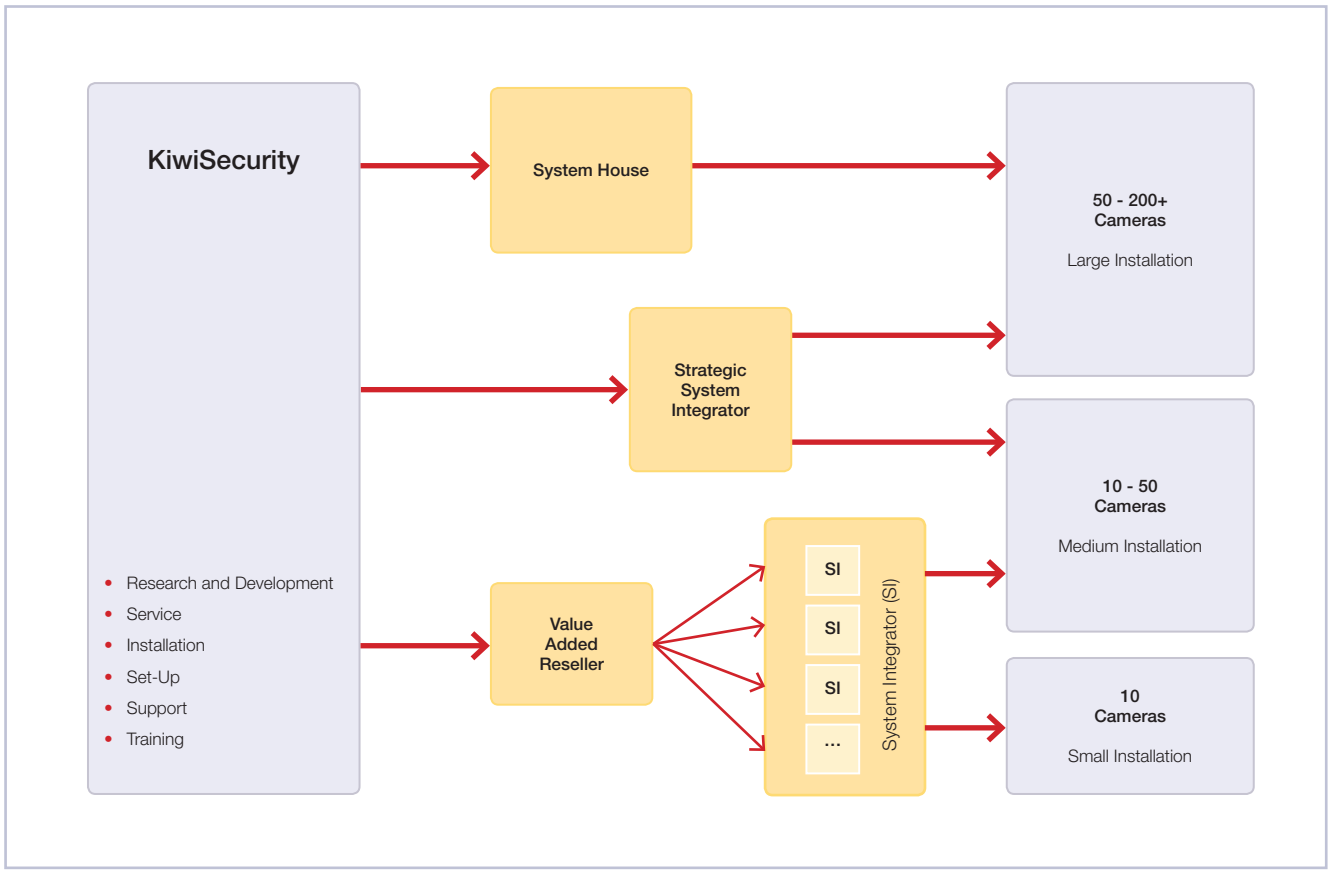
- Minimizing shrinkage in 4 main shops and central warehouse
- Alarm in case of access outside of opening hours

Solution

- KiwiVision® VMS
- KiwiVision® Intrusion Detector

The Sales Model

KiwiSecurity is a specialized developing company and creates applications as well as complete solutions on the basis of patented algorithms. All solutions are sold under the name KiwiVision® as self-configurable products by certified sales partners to customers who seek to enhance existing video surveillance systems or build new state-of-the-art systems utilizing automated analysis. KiwiSecurity regards long-term collaboration with sales and cooperation partners as crucial basis for the marketing of KiwiVision® and realization of individual projects.



Sales Channels and Cooperation Partners

Companies which already sell complementary products or services, for instance video cameras or video recorders directly or through specialized retailers, are regarded as ideal cooperation partners in the role of value added resellers. Companies which are concerned with the development or creation of solutions for specific areas and/or specific requirements in the field of automated video analysis are regarded by KiwiSecurity as qualified cooperation partners in the role of a system house. If individual solutions or additional applications are sought, KiwiSecurity provides such services under an individual project title. In this case, typical cooperation partners are system integrators.

Contact us...

- if you are interested in utilizing KiwiSecurity technology. Let us find the ideal KiwiSecurity partner for you
- if you are interested in developing customized solutions specific to your needs
- if you want to become a KiwiSecurity partner

KiwiSecurity in the Public

International Maritime User Group Conference, Vienna, AT

Awarding the EuroPriSe Re-Certification at the Privacy Forum, Frankfurt am Main, DE

KiwiVision® Technology in the Frequentis Control Center, PMR Expo, Köln, DE

ARS Roadshow, Mayerling, AT

First Info Day „Automated Video Analysis“, Securitas Vienna, AT

KiwiVision® in Cisco‘s VSOM, Cisco Expo, Berlin, DE

Solutions for the City of Vienna at the Vienna Urban Discussion Organized by WienWin, AT

KiwiVision® displayed at the „Long Night of Research“, University of Applied Sciences St. Pölten, AT

1st Austrian Privacy Day, Cisco, Vienna, AT

About KiwiSecurity

KiwiSecurity is an Austrian software development company, specializing in the development of software for intelligent video and image analysis. Various analysis applications as well as a video management system are combined in the product family KiwiVision® and can be used modularly with unlimited scalability.

KiwiSecurity has representations in Austria, Switzerland and Germany and sells its products solely via certified partners.

KiwiSecurity was supported with subsidies from AWS, FFG, ZIT, INiTS and the European Union.

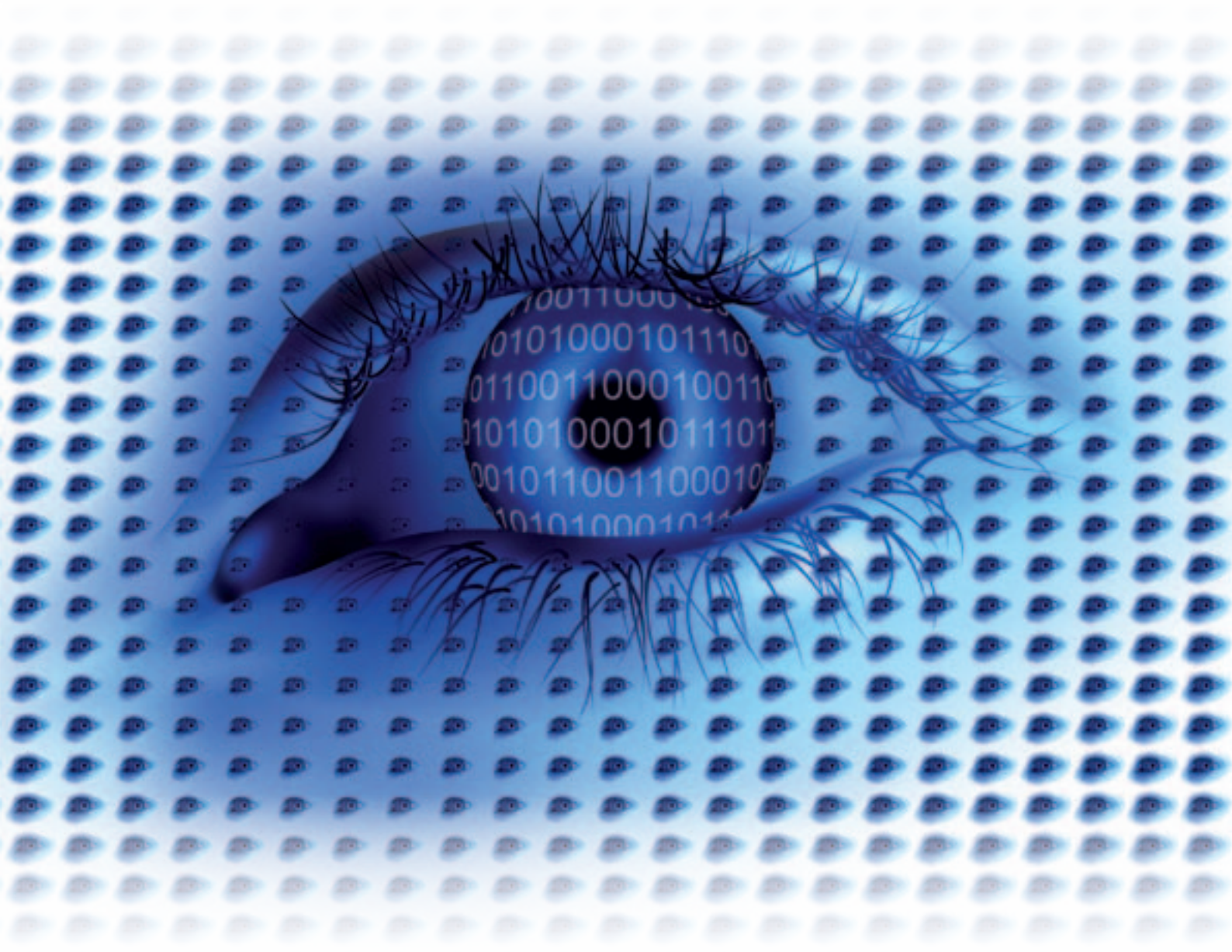
Follow Us:

www.facebook.com/kiwisecurity
www.twitter.com/kiwisecurity
www.youtube.com/kiwisecurity

For Further Information (Sales or Technology):
Visit www.kiwi-security.com • E-Mail office@kiwi-security.com

Contact our business development team:
office@kiwi-security.com or call: +43 1 997 1039.

Automating Video Surveillance



The power of a million eyes!

KiwiSecurity Software GmbH: T: +4319971039, office@kiwi-security.com, www.kiwi-security.com

High-Tech Made in Austria

www.kiwi-security.com

KiwiSecurity
AUTOMATING VIDEO SURVEILLANCE