



Intelligent Video Surveillance based on JPEG standards

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Presentation Topics

- Company
- Technology
- Compression
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- Core applications
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Company

- EMITALL Surveillance is a leading developer of **Intelligent Video Surveillance** software, providing advanced solutions in tracking, change & movement detection, remote surveillance systems and scrambling, a unique technology to protect people's privacy.
- EMITALL Surveillance delivers high-performance video surveillance solutions for **residential, retail and public markets**.
- With a team of worldwide experts in **encoding and compression technologies** as well as in **video and image analysis**, EMITALL Surveillance is developing **user-friendly** products and applications designed for security and people monitoring markets.



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Technology

- JPEG 2000 is used to compress image and video. If a system allows to detect events and regions of interest identification, they can be encoded with better quality.
- Compressed images and video streams are scrambled for the purpose of privacy and digitally signed for data integrity verification using JPSEC (JPEG 2000 part 8) compliant methods.
- JPEG 2000 intra-frame coding significantly outperforms previous intra-frame coding schemes such as JPEG.
- JPEG2000 supports scalability, as the resulting codestream is fully embedded, both in resolution and quality. This property is essential in video surveillance applications when clients with different performance and characteristics have to access the system.
- When surveillance cameras are connected through a wireless network, JPWL (JPEG 2000 part 11) can be used in order to make codestream more robust to transmission errors.



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Compression



JPEG 2000 at 192:1



JPEG at 192:1

Data stored 2 months 24 h / 24 h on 400 GB disk



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Compression



JPEG 2000

Better quality in region of interest



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Scrambling

- Heavy scrambling
 - *Foreground is replaced by noise*
- Medium scrambling
 - *Foreground is very blurred*
- Light scrambling
 - *Foreground is visible but people are too fuzzy to be recognizable*





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Core Applications

- RESIDENTIAL & RETAIL BUSINESS MARKET
 - Home & Shops Surveillance (*EasyEye Home Security*)
 - Baby & Elderly Surveillance (*EasyEye Baby Care /EasyEye Elderly Care*)

Automatic intrusion detection **with** alarm verification from remote devices **in mobile and Internet environment**.
Guarantee of secured transmission of the captured video and privacy protection thanks to a patented scrambling technology.

- PUBLIC MARKET
 - Privacy protection in public video surveillance systems (*Privacy Protect*)

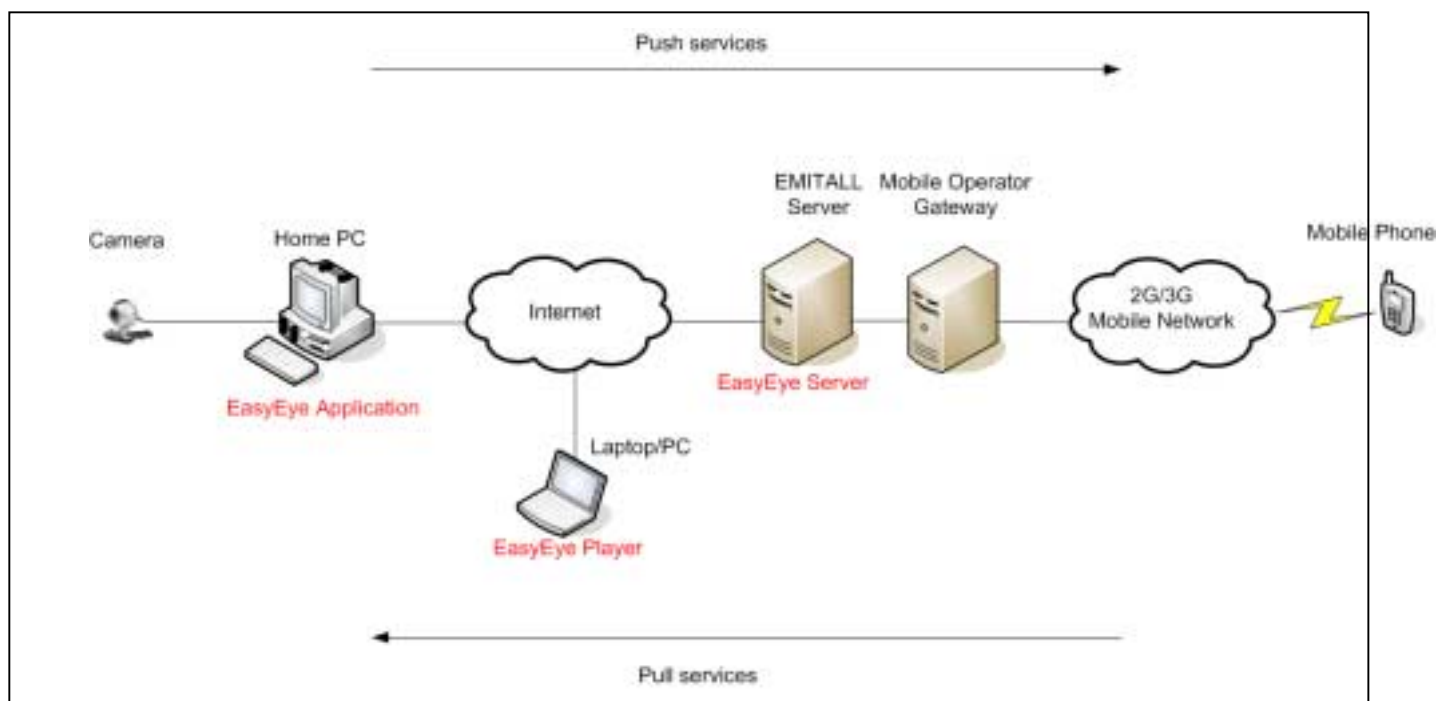
The system performs automatic event detection (moving persons, moving objects) and automatic scrambling of regions corresponding to people, and goods, allowing thus to preserve privacy.



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Product overview

EasyEye systems run on **basic home infrastructure** such as a PC and several webcams.





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Product Overview

Functionalities

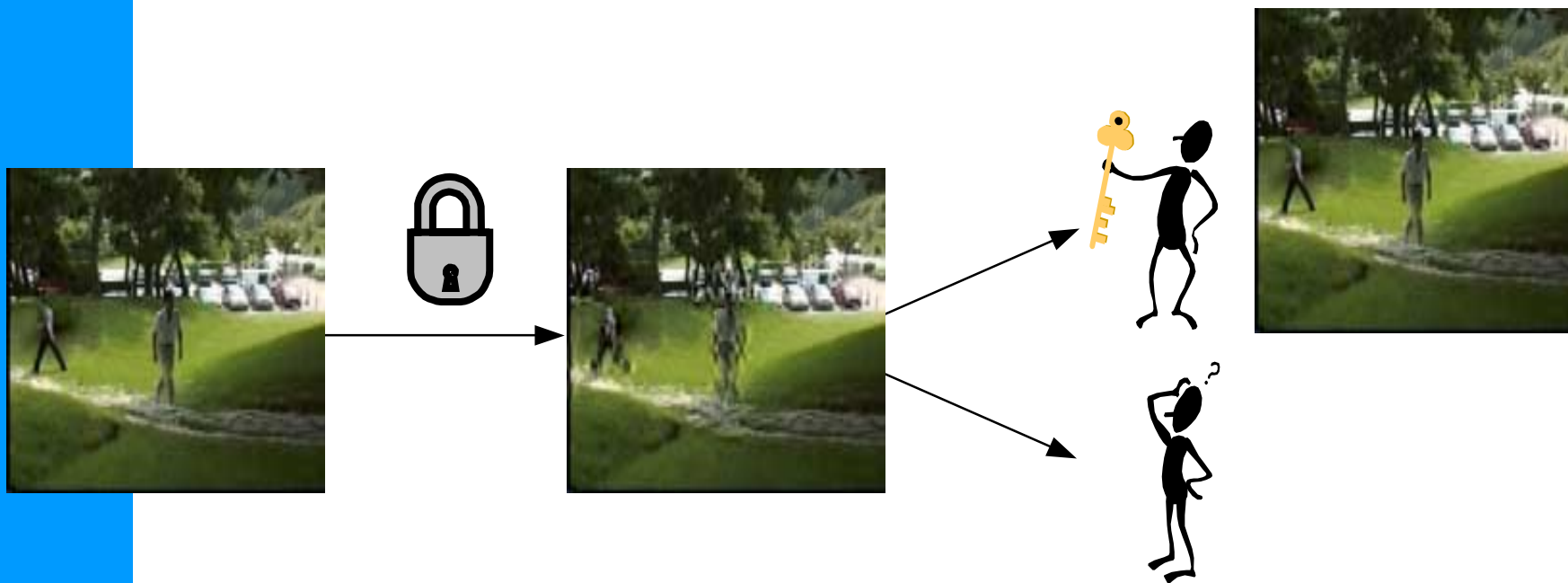
- The user can start or stop the system at any time, and from any place using a remote device (mobile or Internet environment).
- The user can request at any time and from anywhere an image of the scene under surveillance.
- The user can request at any time and from anywhere a live video to view of the scene under surveillance.
- The user can request at any time and from anywhere a view of recorded video.
- The user receives an automatic alert notification to remote devices simultaneously, or as requested, in mobile and/or Internet environment.
- The user can verify the nature of the alarm and detect false alarms.



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Product overview

Privacy Protect can be implemented on existing or new public video surveillance installations





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Product Overview

Functionalities

- Automatic persons, and moving objects detection.
- Scrambling of detected regions with possibility of applying **various degrees of scrambling intensity**. Hence, people and goods cannot be recognized and the remaining of the scene is clear to allow for monitoring.
- An encryption key protects scrambled objects and is kept by law-enforcement authorities, or any trusted third party.
- In case of criminal events the whole scene can become clear by descrambling using the key, without image quality loss, to allow for identification.