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SERIES F: NON-TELEPHONE TELECOMMUNICATION
SERVICES

Audiovisual services

Requirements for intelligent visual surveillance

Recommendation ITU-T F.743.1

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Recommendation ITU-T F.743.1

Requirements for intelligent visual surveillance

Summary

Recommendation ITU-T F.743.1 defines requirements for intelligent visual surveillance (IVS). The requirements are based on identifying specific objects, behaviours or attributes in video signals. The IVS system transforms the video signals into structured data, which can be transmitted or archived so that the video surveillance system can act accordingly.

This Recommendation defines the scenarios, the reference architecture and the requirements for IVS.

History

Edition	Recommendation	Approval	Study Group	Unique ID*
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Intelligent visual surveillance, IVS requirement, IVS scenarios.

* To access the Recommendation, type the URL <http://handle.itu.int/> in the address field of your web browser, followed by the Recommendation's unique ID. For example, <http://handle.itu.int/11.1002/1000/11830-en>.

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Recommendation ITU-T F.743.1

Requirements for intelligent visual surveillance

1 Scope

This Recommendation defines requirements for intelligent visual surveillance (IVS), which are based on identifying specific objects, behaviours or attribute in video signals.

The visual surveillance service (see [b-ITU-T F.743]) is a telecommunication service focusing on audiovisual application technology that is used to capture remote multimedia information (such as audio signals, video signals, images and various alarm signals) and to present it to end users in friendly manner, based on managed broadband networks with ensured quality, security and reliability.

IVS systems can automatically identify specific objects, behaviours or attributes in video signals. They extract data from the video signals, which are then transmitted or archived so that the visual surveillance system can act accordingly.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

[ITU-T H.626] Recommendation ITU-T H.626 (2011), *Architectural requirements for visual surveillance*.

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following term defined elsewhere:

3.1.1 visual surveillance [ITU-T H.626]: A telecommunication service focusing on video (but including audio) application technology, which is used to remotely capture multimedia (such as audio, video, image, alarm signal, etc.) and present them to the end user in a user-friendly manner, based on a managed broadband network with ensured quality, security and reliability.

3.2 Terms defined in this Recommendation

This Recommendation defines the following terms:

3.2.1 boundary detection: see *perimeter prevention*.

3.2.2 directed tripwire intrusion: Alarm output that is based on a polygonal region defined by the user. An alarm can be triggered when an object enters or leaves the polygon.

3.2.3 event recognition: Method that recognizes and analyses the events in the scene, and describes them using natural language.

3.2.4 facial recognition: Detection of the human face in video and extraction of its characteristics. The extracted information and/or image are compared with other images or a database of individuals' images, generating comparison results. Facial recognition can be used in airports, ports, railway stations, coach stations and other public places.

3.2.5 intelligent video diagnosis: Automatic recognition of video images failures, such as snowflakes, scrolling or fuzzy video, partial colour, picture freeze, gain imbalance, pan/tilt/zoom (PTZ) control problems and video signal loss.

3.2.6 intelligent video retrieval: Identification of useful or required information from videos. The search criteria can include target category, colour and velocity.

3.2.7 intelligent video synopsis: A simple summary of video content that can be generated in an automatic or semi-automatic way. First, the target motion is analysed and moving targets are extracted. Then, the different targets are spliced to the same background scenes, and combined in some way.

3.2.8 perimeter prevention; boundary detection: An intelligent surveillance scenario where target objects, such as persons or transportation, can be identified in key areas. Through a virtual cordon or virtual warning region, it can also identify the direction of a target.

3.2.9 region detection: Alarm output that is based on the polygonal regions defined by the user and that is triggered when an object enters or leaves the region.

3.2.10 region stranded: Alarm output that is based on the polygonal regions defined by the user and that is triggered when the retention time of an object exceeds a prescribed threshold.

3.2.11 target recognition: A method that separates an image region from the image background and uses some image feature value to classify the target types.

3.2.12 traffic/pedestrian flow analysis: Motion analysis and feature classification of the video of moving target(s) within the specified single or multiple video monitoring area. The pedestrian flow data can be detected accurately.

3.2.13 tripwire intrusion: The setting off of an alarm when an object crosses a line drawn within the surveillance area.

4 Abbreviations

This Recommendation uses the following abbreviations and acronyms:

APP	Application
CIV	Client Intelligent Video
CMS	Centre Management System
CMU	Centre Management Unit
CU	Client Unit
ICU	Intelligent Customer Unit
IPU	Intelligent Premises Unit
IVM	Intelligent Video Management
IVS	Intelligent Visual Surveillance
IVU	Intelligent Video Unit
MDU	Media Distribution Unit
MSU	Media Storage Unit
NTP	Network Time Protocol
PIV	Premises Intelligent Video
PTZ	Pan/Tilt/Zoom