Intelligent Video Management Server Software

Videonetics advanced video analytics enabled Intelligent Video Management Server Software is first of its kind in the industry. Multiple applications can run in parallel through this software to automatically detect different types of events for each video feed or camera view. Wide ranges of applications such as Intelligent Object/Vehicle/People Tracking & Monitoring, Automated Traffic Signal Control, Intelligent Traffic Management, Parking Management, Campus Monitoring, Home Monitoring, Perimeter Monitoring, Antique Monitoring, Critical Installation Monitoring, etc have been integrated in the system. The architecture is modular and each module can be upgraded, replaced without affecting operation of other modules. The VMS modules can be installed all in a single server or modules can be distributed in multiple connected machines geographically dispersed. The underlying architecture is based on principle of distributed collaborative computing for highest level of fail-safe operation.
Videonetics Video Analytics (V2A) Intelligent Video management Server (IVMS) is Intelligent Video Analytics embedded, highly scalable software solution offering a complete Video Surveillance functionalities.
Intelligent Video Management

Videonetics Intelligent Video Management Software is first of its kind in the industry. Multiple applications can run in parallel through this software to automatically detect different types of events for each video feed or camera view. Underlying working principles for this multithreaded multi-core friendly intelligent video management software architecture offers the capability to manage multiple cameras in parallel in computationally efficient manner and generate automated user-defined alerts upon detection of events in each camera view. Video clips for events are organized, archived, and managed efficiently to enable query-based search, access, and distribution over the communication network in real-time using simple mouse clicks through user-friendly GUI.

Advanced Video Analytics

The Intelligent Video Management Software is advanced video analytics enabled. Wide range of applications have been integrated in the system – Intelligent Object/Vehicle/People Tracking and Monitoring, Automated Traffic Signal Control, Intelligent Traffic Management, Automated Number Plate Recognition, Parking Management, Campus Monitoring, Home Monitoring, Intrusion Detection and Perimeter Monitoring, Antique Monitoring, Critical Installation Monitoring, Automatic Face Capture, Face Matching/Recognition, etc.

Operational Enhancement Tool

Visual Information processing based analytics data can be used to enhance operational excellence in Shopping Mall, Retail Stores, Hospital, Finance and Banking, Audit Firms, Railway, Ports, etc.

Customization

Indigenously developed and especially customized to meet challenging infrastructure & varying environmental conditions in India. Offers expertise to offer customized solutions in order to avoid compromising One-Size-Fit-All approach and achieve highest accuracy, customer satisfaction, and minimum maintenance.

Third Party Integration

A rich, yet simple set of APIs are available for seamless integration with other video processing systems, alert generators and access control modules from third parties.

No More Proprietary NVR/DVR is Required

Any networked Desktop, Laptop, Server, and Computing Hardware can be used as a NVR with Videonetics Intelligent Video Management Software.

Web-based Architecture

The Intelligent Video Management software can be managed and operated remotely anytime from anywhere through Web via wired or wireless communication network using any computing platform including mobile devices (iPad, iPhone, PDA, Cell Phone, Laptop, etc.)

Modular Design

The architecture is scalable to augment newer application modules within the exiting framework. An existing module can be easily replaced with a newer version.

Platform Independent

The Software is platform independent. It can run on any Operating System like Linux, MS Windows, Unix, Mac, etc and compatible to open source utilities & services (RDBMS, Messaging Services, etc.).

Camera & Sensor Agnostic

The software is not optimized for a particular brand of sensor or camera and operates with any brand of camera with open connectivity.

Distributed Client Server Architecture

The basic building blocks of Videonetics software are interconnected based on the client-server architecture principles. This allows different modules to run on independent computers connected in a LAN.

Camera Grouping & Site Map

Logical grouping of a set of cameras can be done by the user. Users can set the location of the created groups on the site map during configuration. When a user selects a group, all the cameras in the group will form a matrix view.

Fail-safe Architecture

Eliminates a single point of failure for adaptability to adverse conditions.
Recording / Archiving

Recorded video is stored on the Media Server. The Users can locate relevant recorded video over Web Interface and then either (i) Download and replay that video or (ii) receive a stream at the local machine.

The following methods of recording live video is supported:
- Continuous
- Event activated
- Forced (by user)
- Scheduled
- Customized as per user requirement

User can configure the following parameters uniquely for each recording:

Continuous recording: The system supports continuous recording from any camera(s) managed by the system. The frame rate for recording can be set independently for each camera.

User can set maximum space dedicated for recording or archival in the storage. On 90% of the storage space utilized, old recordings are either deleted or sent to tertiary storage on FCFS basis.

Event Activated Recording: A video segment or a snapshot can be associated with the alarm or event. Number of priorities of events can be pre-configured (up to 256). Settings are individually configurable for each camera and application. For each individual clips (recording instance), the following parameters can be set:
- Prologue duration: Amount of video to be recorded prior to the event.
- After Event duration: Duration of Video to be recorded after the event has occurred.
- Life time: The default period that the Media Server shall store the recorded video.

Forced: User can activate a recording session anytime by pressing a RECORD button.
- Prologue duration: Amount of video to be included in the clip prior to the instance when the user has pressed the RECORD button.
- Upper limit: The recording will be stopped after reaching this time period.
- Frames per second: User can set the frame rate for recording to strike a trade of between video quality, bandwidth available and storage limits.
- Life time: The default period that the Media Server shall store the recorded video.

Scheduled: This allows video to be recorded between start and stop times on preset days. For each scheduled recording the user can set the following parameters:
- Start day and time
- Stop day and time
- Life time
- Description (255 characters, max)

Image Stitching

Stitches multiple video-streams into a single composite video stream, amenable to transmit video through low-bandwidth communication network. If cameras have different resolutions, proper scaling of images are done without distorting the aspect ratio.

Video Loss

Continuously monitors and detects any video loss. Generates alert when a camera is detached from the network.

Camera Tampering

Generate Alert when camera is tampered by blocking view area, spraying paint at the lens, turning camera to a different direction etc.

Adaptive

Archiving at different frame rate and resolution to potentially reduce cost of storage and network bandwidth.

PTZ Control

Selected PTZ cameras can be easily panned, tilted and zoomed by clicking mouse PTZ buttons. All PTZ control features such as preset, pattern, tour, event activated control.

Log Facility

Facility to log Events in database for report & analysis. The reports can be created and exported in different formats through a Query Processing GUI and Report Generator Module.

Access Control

Multi-level access control are there, including:

Superuser: Responsible to set parameters of the cameras, creating other user accounts, add new VAS to the system etc.

Administrator: Add or remove cameras, add or modify event receiver details (change their email-ID, Cell numbers etc), configure applications and events etc.

Normal: Normal users can only have read permission to the system, implying that they cannot change any configuration but can view the reports, logs, live video, archived video.
Event Handling and Alerts

IVMS is capable of receiving Event Information from more than one Video Analytics Servers (IVAS) and take actions against those events. The actions include:

- Storing Video Clips describing the event
- Distribute the Event information to designated nodes over network.
- The event information may be in the form of emails, SMS, Messages, POP-Ups etc.
- Event information is received from Analytics Servers using simple TCP/IP-based protocol.
- Alarm and other third party activated alerts

Event description includes:

a) The Timestamp; b) IVAS-ID; c) Camera-ID; d) Application-ID; e) Event-Type

Camera Sequencing

The IVM System supports camera sequencing. In this case a single window can show multiple camera views in a time-multiplexed manner. Each preset position of a PTZ camera

Virtual Matrix

Different Matrix views are supported for multi camera viewing.

a. There is a Media Server within the IVMS, which compose the matrix view as per the viewer’s requests.

b. Every viewer can specify a particular Matrix View of her choice. The camera views can have any particular application/event data embedded. The matrix view is also available through a Web Interface.

c. Consists of up to sixteen related cameras viewed simultaneously on a single display. Single Camera View can have a sequence of cameras attached to it. Mix of PTZ and Fixed cameras is supported

d. The layout for a view is configurable from a selection of different layouts templates. Both standard aspect ratio (4:3) monitors and wide aspect ratio (16:9) monitors are supported. The views (2 x 2, 3 x 3, 4 x 4, 1 + 5, 1 + 7, 2 + 4, 1 + 8, etc.) can be customized at build time.

e. Instant Replay

Video Format

MJPG, MPEG4, H.264, Raw RGB, YUV