Vision[Ai]ry

Solution Brief

Facial & Body Tracking Detection System

Vision[Ai]ry Facial Tracking & Body Tracking is the first in a suite of products that use video analytics to automate the functions of a camera operator. Vision[Ai]ry uses AI-based facial & body detection to locate and track the position of faces & bodies within the video stream directly from the camera. It then uses these facial & body positions to drive the pan, tilt and zoom axes of the robotic camera system to maintain the desired framing of the face/faces or body/bodies in the image. This eliminates the need for a camera operator to manually adjust for the position of the subject in the image.

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Consistent Framing

Vision[Ai]ry reduces the burden on the camera operator by eliminating the need for manual corrections of the camera position to compensate for day-to-day variations in talent position, posture, height, and more.

Hands-Free Camera Workflow

Framing settings can be saved to templates that can be automatically recalled with robotic presets to provide a hands-free camera workflow when combined with automated production control software such as OverDrive.

High Quality Accurate Tracking

Improves quality and consistency by automatically tracking on-air movements of the studio talent, driving the robotic camera to provide smooth, consistently well-framed images at all times, eliminating the reliance on a skilled operator.

Robust Detection Algorithm

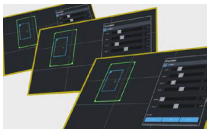
Vision[Ai]ry algorithm is trained against a diverse set of race, gender and age data, and can accurately identify and locate faces and bodies as long as at least 50% is visible in the image.

Adjustable Damping and Deadband

The damping and deadband settings allow the user to tailor the system behavior to the subject in order to maintain optimal framing and tracking while eliminating undesirable movement and overshoot.

Automatic Zoom Compensation

Vision[Ai]ry automatically calibrates the camera lens and adjusts tracking gain to avoid over-reacting at higher zooms, where small pan or tilt changes result in larger changes in framing.

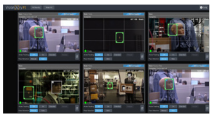


Automatically Apply Framing Templates

Framing templates allow all framing parameters to be stored and recalled, enabling the user to create an unlimited number of shot compositions that can be instantly applied to any camera. By linking a framing template to a robotic preset, the desired framing parameters are automatically recalled and applied to the camera, streamlining the process and enhancing efficiency in framing tasks.

Enhanced Resilience with Body Tracking

Body tracking enables Vision[Ai]ry to maintain tracking even when the subject's face or head is not clearly visible, projecting a "virtual head" within the body bounding box that enables tracking to continue.



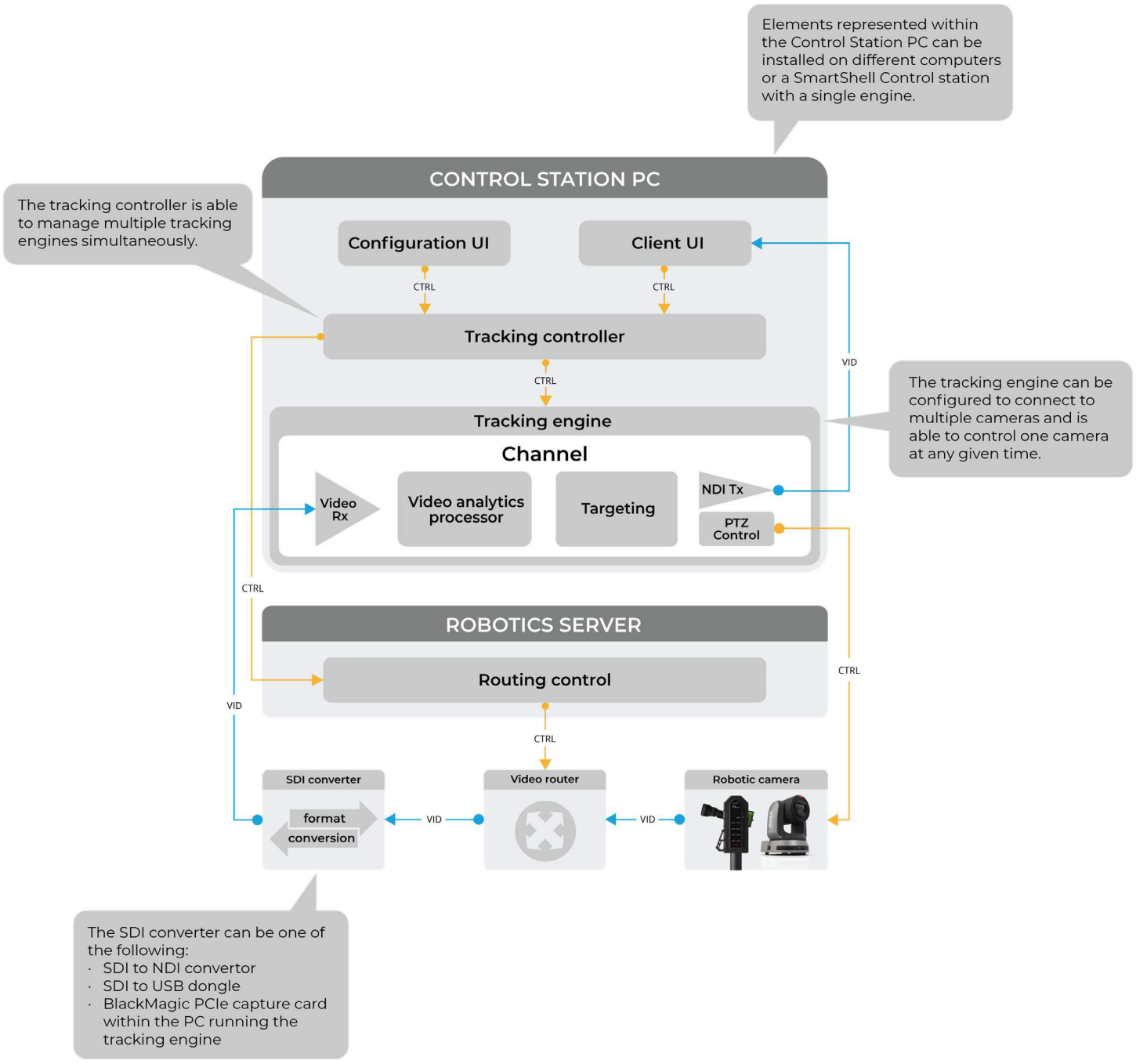
Multi-Channel User Interface

A unique multi-channel interface simultaneously presents a live video preview for up to 6 engines, each with its own essential controls, allowing the operator to adjust the framing target and turn tracking on or off. For extended control, the detailed single channel view for any of the cameras can be accessed directly from the interface, enabling the operator to switch quickly between multi-channel overview and complete single channel management.

Specifications

Specifications	Vision[Ai]ry
Number of robots controlled	No fixed limit
Minimum PC requirements	i7 (9th gen or later) -2.9 GHz, 8 cores, 8 GB RAM, Intel integrated graphics, Solid State drive Body Tracking channel requires a GPU, NVIDIA T1000 or equivalent (Note that at present, the GPU can only support one channel at a time)
Video sources	Local, eg: SDI capture card NDI (NDI|HX is not supported) BlackMagic Declink PCIe card
Number of faces that can be tracked simultaneously	Up to 30
Minimum size of face in video	9% of frame
Minimum size of body in video	20% of frame
Minimum visibility requirement	50% of face
Video formats	1080p/59.94 or 50 1080i/59.94 or 50 720p/59.94 or 50 720i/59.94 or 50
Tracking latency*	<0.2s

*Delay between when the tracked subject moves outside the deadband and the camera starts to move.


Elements represented within the Control Station PC can be installed on different computers or a SmartShell Control station with a single engine.
CONTROL STATION PC
The tracking controller is able to manage multiple tracking engines simultaneously.
Configuration UI
Client UI
CTRL
CTRL
Tracking controller
CTRL
VID
The tracking engine can be configured to connect to multiple cameras and is able to control one camera at any given time.
Tracking engine
Channel
Video Rx
Video analytics processor
Targeting
NDI Tx
PTZ Control
CTRL
ROBOTICS SERVER
CTRL
Routing control
VID
CTRL
SDI converter
Video router
Robotic camera
format conversion
VID
VID
The SDI converter can be one of the following:
· SDI to NDI convertor
· SDI to USB dongle
· BlackMagic PCIe capture card within the PC running the tracking engine