



Press Release

Bosch launches new phase in Intelligent Video Analysis development

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- ▶ Two-minute calibration enhances setup time for installers
- ▶ Improved performance in crowded scenes
- ▶ Built-in head detection focuses on people, reducing false alarms

Bosch Security Systems continues to be at the forefront of video content analysis research and development with the launch of new software (Intelligent Video Analysis - IVA 4.0) with easier scene calibration and even more powerful forensic search capabilities.

Bosch has more than 100 technicians working on the IVA project throughout Europe with ambitions of designing systems that can entirely replicate human responses by 2025. The new IVA launch is seen as the next stage in this development according to Paul Wong, Bosch Security Systems UK Managing Director: "We need to be realistic about what IVA can do today, and our hopes of what it might do in the future," he says.

"The considerable investment we are making now will see the role of IVA extend far beyond security in the future, assisting with driver safety in vehicles as well as detecting and preventing fires. This is the next step on what will be a long journey for our industry, but a journey that we continue to lead."

This latest version software focuses strongly on ease of setup, and reducing false alarms. An interactive setup tool with 'accuracy feedback' feature enables installers to calibrate a camera quickly and accurately within two minutes. In addition, a new head detection filter detects human head and shoulder contours to reliably classify people in a scene and further reduce false alarms. IVA 4.0 also comes bundled with a new vector-based direction-detection motion algorithm: IVA 4.0 Flow, providing in effect two powerful algorithms for intelligent video analysis.

With the IVA 4.0 new camera calibration tool, users simply draw measured straight lines and right angles on the scene, and the tool automatically calculates the perspective. The function enables accurate estimates of the distance and speed of moving objects, even allowing for perspective in the scene. Moreover, the tool provides direct feedback on the accuracy of the calibration, indicated by an on-screen calibration-quality traffic light showing the calibration quality by colour. Accurately calibrated cameras are more likely to be able to predict size and speed of any object, which is important for filtering out unwanted events and minimising false alarms.

The new head detection filter greatly facilitates IVA's forensic search function by allowing an operator to limit the search to only show results of scenes containing human objects. This

significantly reduces the number of 'false hits' from spurious signals such as reflections, making it feasible to quickly search for important events.

The IVA algorithm already includes a filter for detecting direction which relies on segmenting the moving objects in a scene over a static background. However, to tackle fully covered backgrounds, for example in a crowded or complex scene, Bosch has introduced a new motion vector algorithm, IVA 4.0 Flow, which detects direction of movement of an object by the absolute movement of pixels in the scene. IVA 4.0 Flow provides effective detection of counter-flow, especially where there are objects occupying a relatively large area in the scene, e.g. crowded scenes. Examples include people trying to move the wrong way in turnstiles or airport baggage claim areas, and vehicles travelling in the wrong direction.

IVA 4.0 and IVA 4.0 Flow are included in Bosch's latest firmware 4.0 release, and can be licensed for Bosch's IP fixed and AutoDome cameras and video encoders. In line with Bosch's policy of providing ongoing upgrade support for its customers, licensed users of earlier versions of the company's Intelligent Video Analysis software will automatically be upgraded free of charge to IVA 4.0/IVA 4.0 Flow on upgrading their firmware to the latest 4.0 version.

The new firmware 4.0 also features an advanced profile scheduler that can switch the encoders and IP cameras between several independent profiles – two in the case of the encoders and fixed IP cameras. For AutoDome IP cameras up to 10 scenes can be associated with independent IVA profiles. With this function it is possible to configure several instances of IVA 4.0 to cover, for example, day-time and night-time viewing or to run a preset scene tour in the case of AutoDome IP cameras, or even to run versions of IVA 4.0 and IVA 4.0 Flow in the same camera or encoder under different profiles.

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The company was set up in Stuttgart in 1886 by Robert Bosch (1861-1942) as "Workshop for Precision Mechanics and Electrical Engineering." The special ownership structure of Robert Bosch GmbH guarantees the entrepreneurial freedom of the Bosch Group, making it possible for the company to plan over the long term and to undertake significant up-front investments in the safeguarding of its future. Ninety-two percent of the share capital of Robert Bosch GmbH is held by Robert Bosch Stiftung GmbH, a charitable foundation. The majority of voting rights are held by Robert Bosch Industrietreuhand KG, an industrial trust. The entrepreneurial ownership functions are carried out by the trust. The remaining shares are held by the Bosch family and by Robert Bosch GmbH.

Additional information can be accessed at www.bosch.com.