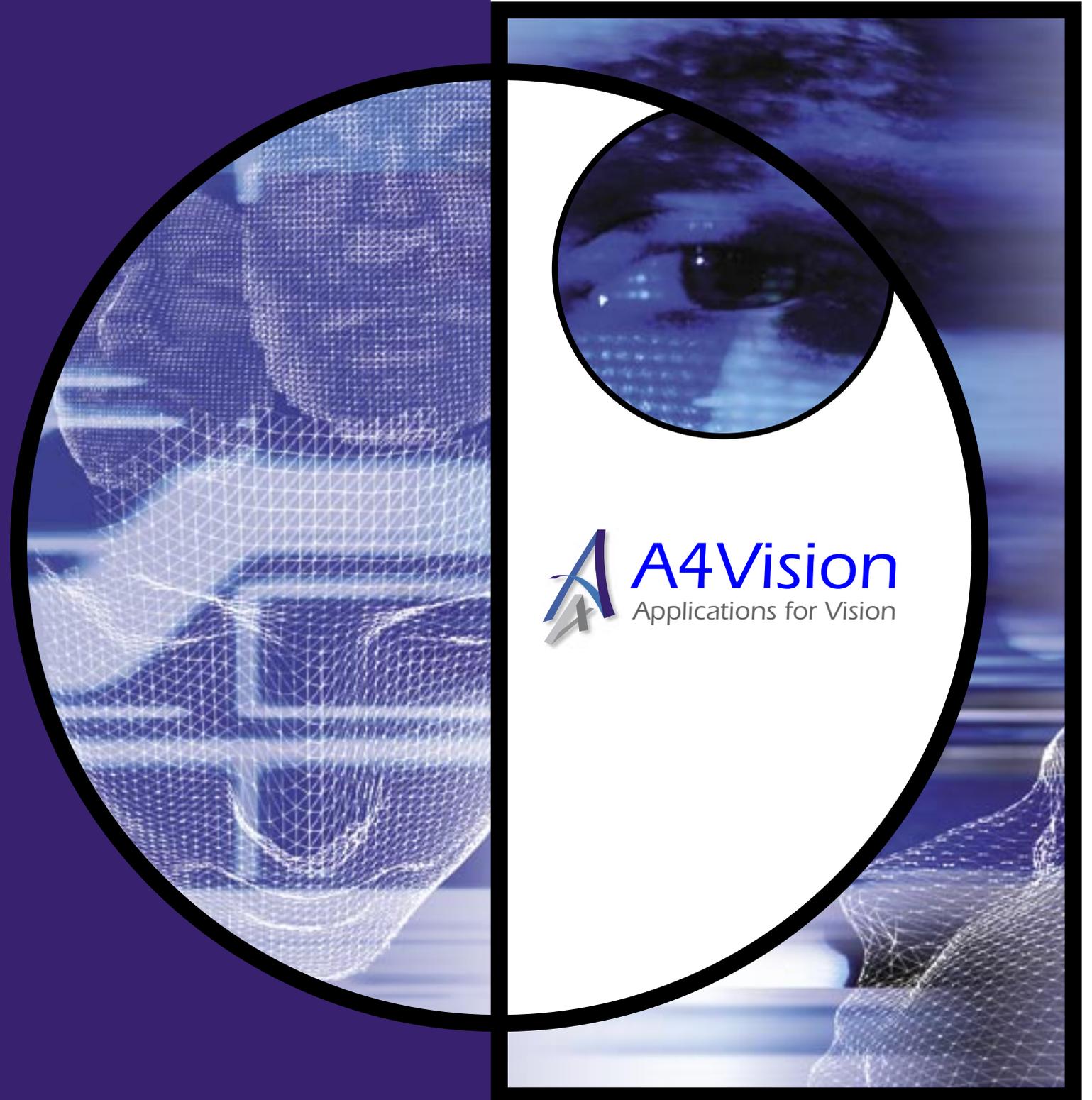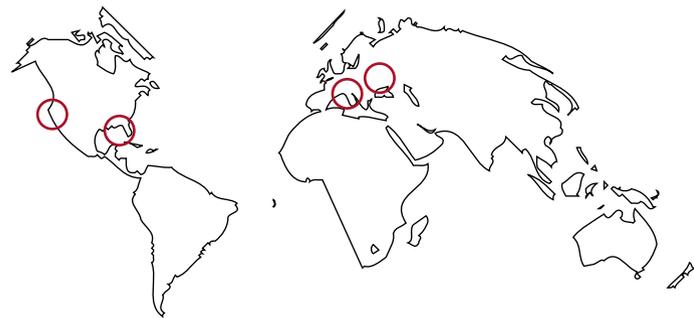# A4Vision Access Control Solution

Enrollment Station (ES): Using the Enrollment Station you can quickly and easily perform user enrollment and build a template database or transmit templates to a card/badging ID system. Fully compatible with ordinary digital equipment, this solution integrates into a wide range of existing security system hardware and software.

Face Reader (FR): Using A4 Vision's Access Control Face Reader, you can perform user access to buildings and entrances in a networked or stand-alone environment.

VA SDK: The Vision Access™ (VA) SDK provides the means through which to add facial biometrics and secure connection into back end-applications and deployment of the overall system. Through integration into existing third-party applications, such as time and attendance and physical access site security solutions, the VA SDK furthers security performance, monitoring and processing. Using the VA SDK you can develop applications to manage your FR stations, perform user enrollment, auditing, system analysis and monitoring locally for standalone solutions and centrally for network-configured physical access solutions. This solution uses industry-standard Wiegand interface protocol to communicate with external readers and door controllers and integrates into multiple external readers, including smart card, LaserCard™, proximity readers, and other biometric readers.

A4Vision
Applications for Vision

Technology & Security

A4Vision's solutions, Vision Access™ (VA), is the first 3D imaging technology to meet the stringent accuracy and processing requirements necessary for high-security Physical Access Control (PAC) through real-time face capture and processing. Thanks to its VA solutions performing feature extraction and 3D face recognition at rates exceeding 25 frames per second, and matching at rates of 4-8 identifications per second, A4Vision leads the biometric industry in technology and security.

Features inherent to A4Vision's solutions enable our partners to meet the ever-increasing demands for non-invasive, highly reliable and scalable security and monitoring applications. Vision Access™ (VA) is easy to use, capable of real-time matching with card ID systems. VA allows enrollment, verification, identification and monitoring of multiple building and entrances, making it the ideal solution for companies requiring fail-proof physical access control within highly distributed environments.

A4Vision
Applications for Vision

Advantages

Usability: A4Vision's PAC security solutions are designed for ease of use on both the part of the administrator, and the subject to be identified. Our 3D imaging solutions are invariant to ambient light conditions and view angle. The use of real-time video feed to exploit the richness of 3D parameter makes our solutions the first within the biometric security sector capable of subject recognition and identification *when the subject is in motion*.

Scalability: From a single building to a campus with multiple buildings and entrances, our solutions provide a highly flexible and scalable solution for networked and distributed environments. Distributed architecture enables administrators to quickly and easily add Face Readers and Enrollment Stations into their existing security infrastructure, add subjects to the PAC network, distribute enrollments on Face Readers, and perform monitoring and auditing of multiple Face Readers *from a single workstation*.

Integration: Vision Access™ solutions allow for quick and seamless integration into existing industry infrastructure, including a wide range of third-party hardware and software products, such as physical access control applications, external card readers, and card-based protocols.

Accuracy: A single false acceptance of an unwanted intruder can jeopardize the safety and integrity of an *entire organization*. From enrollment through identification and verification, security demands accuracy, both in ideal, and non-ideal scenarios. With customizable security thresholds, our Vision Access system provides levels of confidence and accuracy required to monitor and protect high-risk and high security environments.

Technology Elements

A4Vision's Access Control Solutions are comprised of three elements:

Enrollment Station that performs the face biometric data acquisition processing of enrollees for user credential management and matching and/or to card identity badging systems.

Face Reader comprised of a camera and near infrared structured light unit jointly built into the wall directly adjacent to the controlled door. The Face Reader controls door access in both verification and identification modes.

VA SDK for development, deployment, and integration of the Vision Access solution into enterprise access control applications or Time and Attendance PAC enterprise applications.

Solution Features

Application Development: VA SDK allows you to build custom access control system management software and integrate it further into third-party security solutions to be compatible with the A4Vision Access solutions.

Security: From hospital pharmacies and airports to corporate buildings and computer labs, our VA solutions are designed for fast and easy deployment to secure premises. Adjustable security thresholds allow you to meet the security demands specific to your organization.

Enhance Site Security: From card-based systems to password-only solutions, our VA solutions can be integrated into a wide-range of legacy access control systems to enhance site security.

System Testing: Our VA solutions provide capabilities to perform evaluation and performance testing of all Face Readers deployed in the network, adjust the security thresholds, and determine real-life False Acceptance and False Rejection rates.

Core Technology: How it Works

A4Vision 3D imaging technology enables the real-time capture of three-dimensional images of a subject's face for both enrollment and identification/ verification purposes.
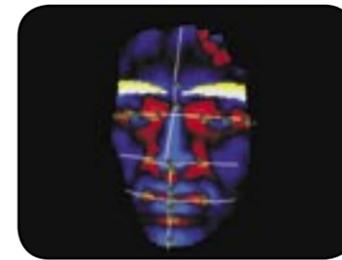
Step One: 3D Image Face Capture
Using invisible structured light in near-infrared range, the A4Vision 3D video unit projects an invisible structured light pattern onto the subjects face:
• The special pattern is distorted by the face's surface geometry
• The video camera precisely records the pattern distortion

Step Two: Real-Time Image Reconstruction
The distorted pattern of the captured 3D facial image in real-time, is acquired by the 3D reconstruction algorithm
• A 3D mesh of the face is created by means of triangulation
• The resulting face geometry is measurable in millimeters

Step Three: Feature Extraction and Matching
After the 3D mesh of the subject is created a biometric template is extracted from the 3D facial geometry (skull curvature, etc).
• This template is based on the unique rigid tissues of the skull, features which remains unchangeable over time but unique to each individual
• The resulting numeric template is stored in an ordinary database
• Identification is performed by matching the biometric template against the enrollment database
• Verification is performed by matching the biometric template against a template stored or associated with a card

A4Vision Access Control Solution