



Increase efficiency and security with ANPR (LPR)

Vehicle and access security starts by supervising the entrance. Most probably an intercom, remote control, access code dialling-in or entrance pass reader is used for this task. Neither of these options are efficient, user friendly and convenient. Automating the access of vehicles with the use of their number plate (ANPR / LPR), adds extra convenience, while enhancing the security of a premises at the same time.

The Gatekeeper, AVUTECH's intelligent ANPR camera, is the foundation of professional ANPR based access control solutions. It flawlessly reads number plates at a close range as well as at distances up to 25 meters during broad daylight, in low lighting conditions and in the dark. Combined with an electrically operated garage door, parking barrier, roller fence, speed gate or bollard, the Gatekeeper is suitable to enhance comfort and security.



The Gatekeeper is made to excel

The Gatekeeper can work as a distance card reader for number plates and is ideal for basic ANPR access applications with a focus on offering convenience to users, up to extremely stringent security situations. Using the I/O extender in the back of the Gatekeeper, this ANPR camera can autonomously open gates as soon as an authorized number plate is recognized.

The Gatekeeper integrates with all brands of access control systems, parking management systems or security systems. Connection through the Wiegand interface or IP based integration with all types of access or door controllers is easy and available.

Motorized zoomlenses

For access authorization as well as access control applications two Gatekeeper models are available: the GK410 and the GK1250. The GK410 is capable to read number plates covering a distance of 2 to 8 meters, while the GK1250 is suitable to read number plates within a 6 to 25 meters range, even at night. The advantage of the motorized, remotely-controlled zoom lens is camera projection flexibility. The Gatekeeper can not only be mounted right next to, just above or on a gate; it can also be placed on a more distant wall or pole.



The Cortex Wiegand Calculator



The Gatekeeper converts a number plate into a Wiegand output message, like a card reader or biometric reader. AVUTEC offers the Cortex Wiegand Calculator to convert number plates into a standard Wiegand card number which is needed to represent these number plates. The Cortex Wiegand Calculator can be found at AVUTEC.com/support and is available as a license-free Windows application at your AVUTEC dealer.

The IO extender

The IO extender is a level shifter and relay-board in one, that can be used as an extender of the IO pins in the back of the Gatekeeper to generate a Wiegand signal and operate a barrier. The IO pins as they come in the back of the Gatekeeper have an output voltage of 3V. The IO extender shifts the Wiegand signal generated by CortexFramework to 5V.

To open a barrier the IO extender has two electronic relays to switch a voltage high enough to open a gate.



AVUTEC's I/O extender to automatically operate a car wash

AVUTEC's versatile ANPR access control solutions

Every access control application is different. Therefore AVUTEC developed an adaptable computer vision platform, CortexFramework. Running on the Gatekeeper, CortexFramework turns it into a versatile ANPR IoT sensor to fit every application. Regardless the usage of an access control system, innumerable scenarios are possible.

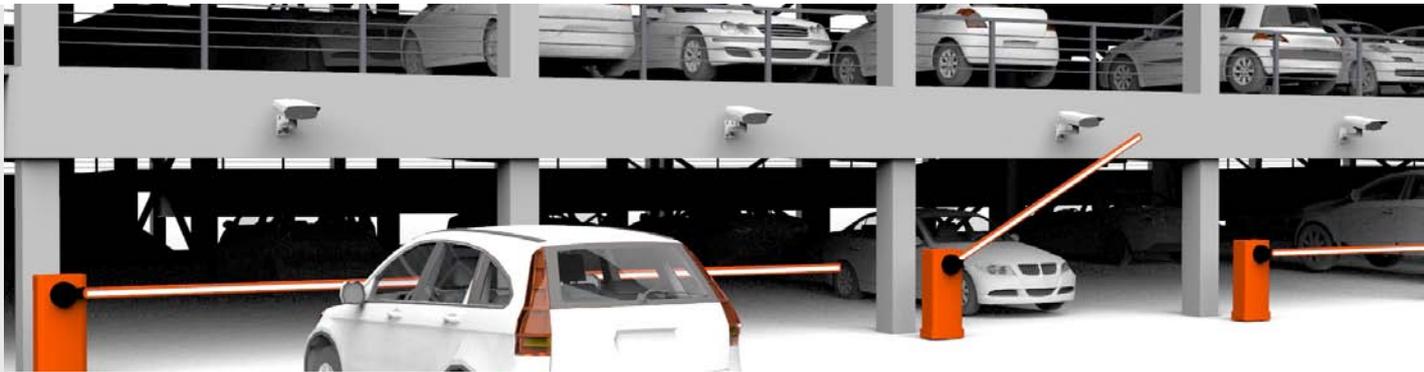
Scenario 1: Comprehensive access control and parking management support

AVUTEC's ANPR sensor is particularly suitable for more stringent security and parking management applications. Features such as anti-pass back, double or triple verification access, lock control, instant pay-per-use parking payments and accurate capacity counting are fully supported. In such applications the Gatekeeper offers optional direction specific recognition as well. Any sophisticated access control or parking management system will benefit from such a reliable, distant and accurate number plate reader.

Scenario 2: Access control for hospitality

Hospitality is professionalized integrating ANPR with the reservation system of a hotel, holiday park or camping area. When a guest's number plate is registered during reservation on arrival the gate will open automatically, offering a warm welcome.

At the moment a number plate matched to a reservation is recognized, the Gatekeeper can either open the gate autonomously using its I/O extender switch, or have the reservation system send a message to an external access control unit to open the gate. Every thinkable system integration feature is supported!

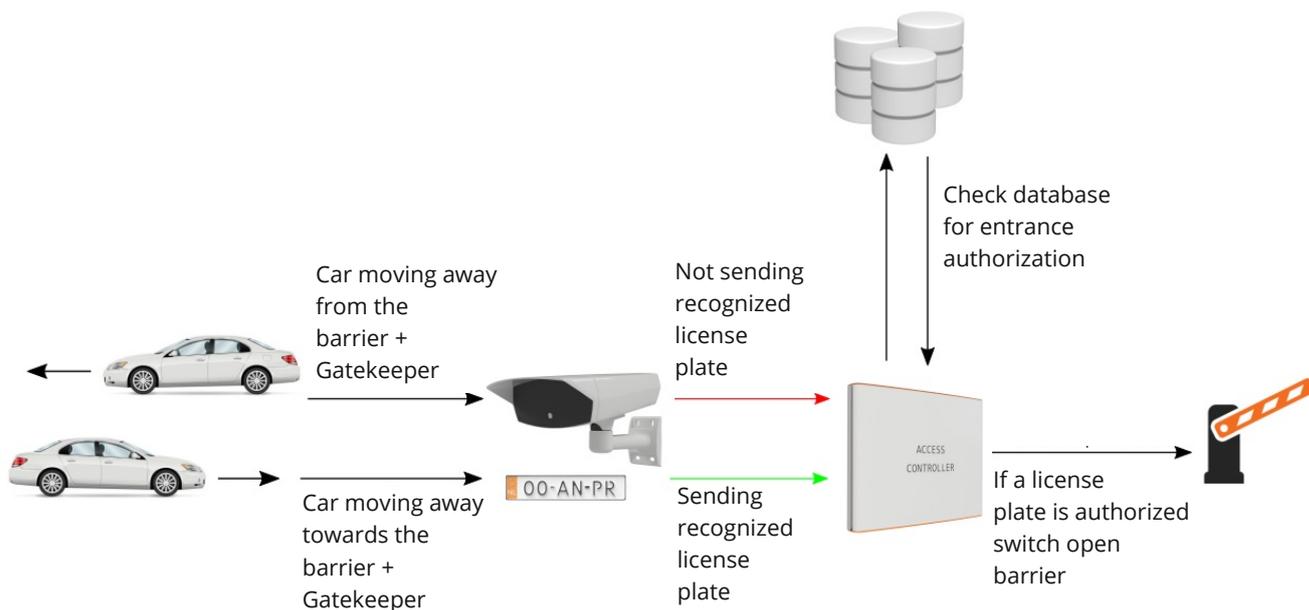


Scenario 3: Vehicle entrance combined with an access controller

Due to its built-in Wiegand interface, the Gatekeeper connects to any brand of access or door controller and functions as a distant card reader for number plates. IP based connections to access management systems or controllers are available. The Gatekeeper integrates with any access control or security system to enhance the supervision of incoming and outgoing vehicles.

It does not matter whether there are two lanes, or a single lane for incoming and outgoing vehicles, a flawless ANPR access solution is provided. In case there is a single lane for both incoming and outgoing vehicles, this solution offers an option for direction specific number plate recognition.

A parking capacity counting system requires two Gatekeepers, each looking at the opposite direction. One Gatekeeper will be connected as an 'entrance door' and can open the gate for incoming vehicles, while the other Gatekeeper is connected as an exit door to recognize outgoing vehicles. When a vehicle leaves the premises, each Gatekeeper can also distinguish driving-in from driving-out number plates and thus prevent a double opening of the gate, while checking it properly out from the counted amount of parked vehicles.



Access control: Gatekeeper with directional speed recognition



The Gatekeeper's technical heart

The basis of AVUTECH's intelligent ANPR camera is CortexFramework, a powerful computer vision platform. It allows users to build, manage and configure personalized computer vision applications from a single modular development and operational environment. Basic to enhanced access control applications can be built with a wide variety of available building blocks (Axons) to develop customized ANPR configurations (Cortexes).

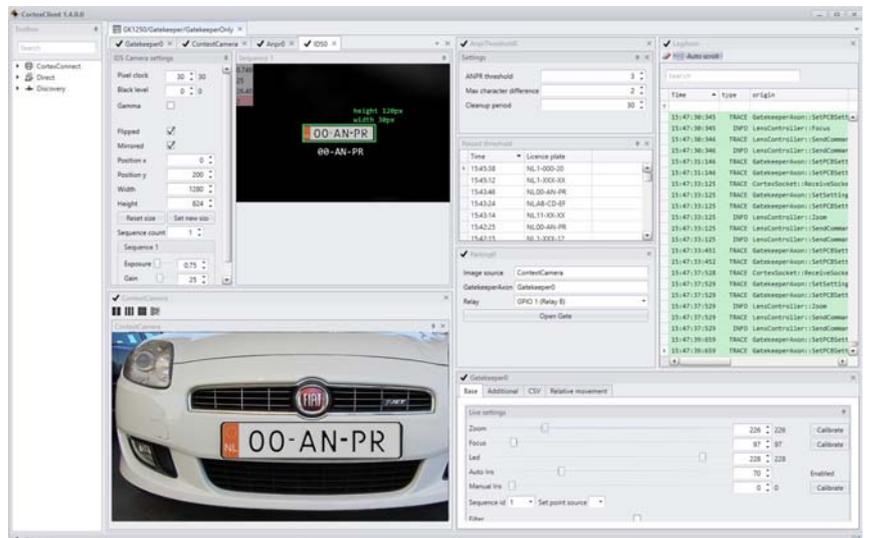
Examples of Axon functionality are:

- Produce camera video streams for video recordings and video bookmarking;
- Real-time video cropping, cutting and compression;
- Direction and vehicle speed estimation;
- Trajectory vehicle speed control and speed measurement;
- Performing deep learning video content analysis;
- Interfaces to tablets, POS terminals, PMS, cloud-based dashboards, etc.;
- Database native integration, synchronizing or external queries;
- Master-slave Gatekeeper configurations;
- Pay By Plate direct debit payments or loyalty interfaces;
- FTP and web service communications.

CortexClient

CortexClient is AVUTECH's graphical interface to remotely configure CortexFramework and adjust Gatekeeper settings. It allows for visually building and configuring Cortexes. CortexClient is client software to connect to and manage all CortexFramework devices, local and remote.

Remotely configurable, CortexFramework ensures cost-effectiveness. CortexClient's extensive set of tools to configure, monitor and manage eliminates on-site maintenance, keeping operational costs low.

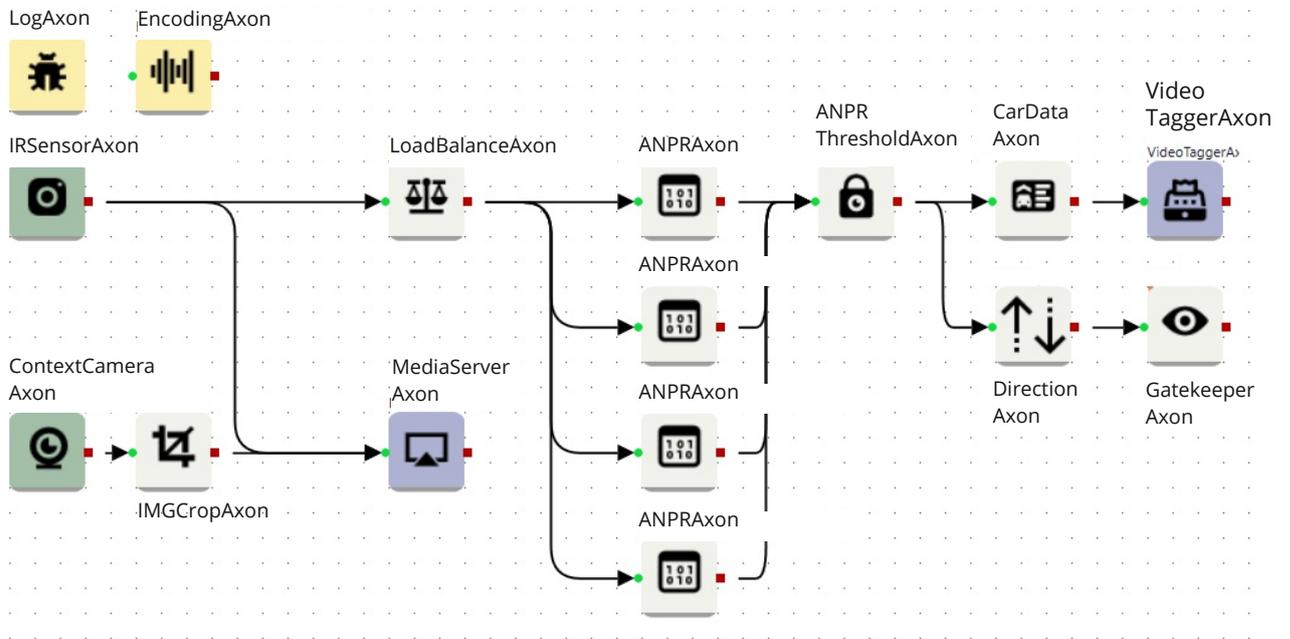


Example view of CortexClient, AVUTECH's graphical interface to remotely design, monitor and configure a custom Cortex or adjust hardware settings of the Gatekeeper.



A customized cortex built with CortexClient

The flow chart shows a customized solution, a Cortex, in which images from both the infrared sensitive sensor and context camera are sent to a MediaServerAxon that turns both these cameras into ONVIF camera sources. It delivers two separate RTSP video streams that video management systems can easily connect to in order to record the video. A video cropping Axon first cuts out the region of interest that needs to be recorded, e.g. to narrow the network bandwidth required.



An example Cortex existing of Axons interconnected by video and messaging paths running a customized access control solution.

As soon as a recognized number plate passes the Threshold, ANPR data is sent to the Axon that handles direction specific recognition and to the CarDataAxon. The CarDataAxon adds vehicle information to the number plate, such as the brand, model and color of the vehicle from an external public database. The VideoTagAxon bookmarks an event into a video management system. Car data is added to this bookmark.



Integration with third-party systems

Next to integration with security systems, parking management systems, access control units and video management systems, it is possible to connect the Gatekeeper to point of sale payment systems or let it control or switch an external system to start e.g. a carwash installation.

A feature rich developer SDK is available for integrators to build server or client side applications. The CortexFramework SDK, Cortex.NET, provides all the necessary resources for a seamless integration. Due to the extensive library with countless available functions in Cortex.NET, even basic programming skills will be sufficient to integrate the Gatekeeper with every external system, while a lot of middleware Axons are also available.

PayByPlate

The Gatekeeper triggers actions based on the recognition of number plates. Mostly these actions involve opening a gate, starting an automated car wash or sending a message to a connected system. However, recent development also enables the Gatekeeper to initiate financial direct debit payment transactions. By interfacing with secure payment platforms the Gatekeeper is now able to make automated payments on behalf of the driver or owner of the car. PayByPlate technology is useful for pay-per-minute parking areas, subscription parking, truck parking, drive thru collections and service areas.

AVUTEC

As a Dutch developer and manufacturer of ANPR sensors and system solutions, AVUTEC's expertise and knowledge have set a benchmark for quality, speed, accuracy, flexibility and ruggedness. The in-house developed AI computer vision hardware and software cooperate seamlessly to provide the best possible accuracy and speed in ANPR or other VCA processing. From embedded ANPR IoT sensors to a comprehensive computer vision system, AVUTEC provides nothing but the best.

For more information on AVUTEC's Gatekeeper or a separate brochure on CortexParking, please visit our [website](#) or contact our sales department at +31 88 2444 000.