ADVANCED PARKING TECHNOLOGIES

cross®

cross-traffic.com

CONVENIENT AND EFFECTIVE PARKING
PARKING SYSTEMS

PGS PARKING GUIDANCE SYSTEM

NAVIGATION AND
INFORMATION BOARD

UNIVERSAL TERMINAL
CROSS **LTi**

LPR CAMERA

ENTRY TERMINAL
CROSS **PTi**

EXIT TERMINAL
CROSS **VTi**

LPR CAMERA

INFORMATION
CROSS
TOTEM

PAYMENT TERMINALS
CROSS
APTM / APTML

DOOR OPENER
CROSS **LTid**

TRAFFIC LIGHT

PARKING

PARKING TERMINAL
CROSS **APTim**

crossPARK

MODULAR SYSTEM FOR

COMPREHENSIVE SOLUTIONS IN CITIES
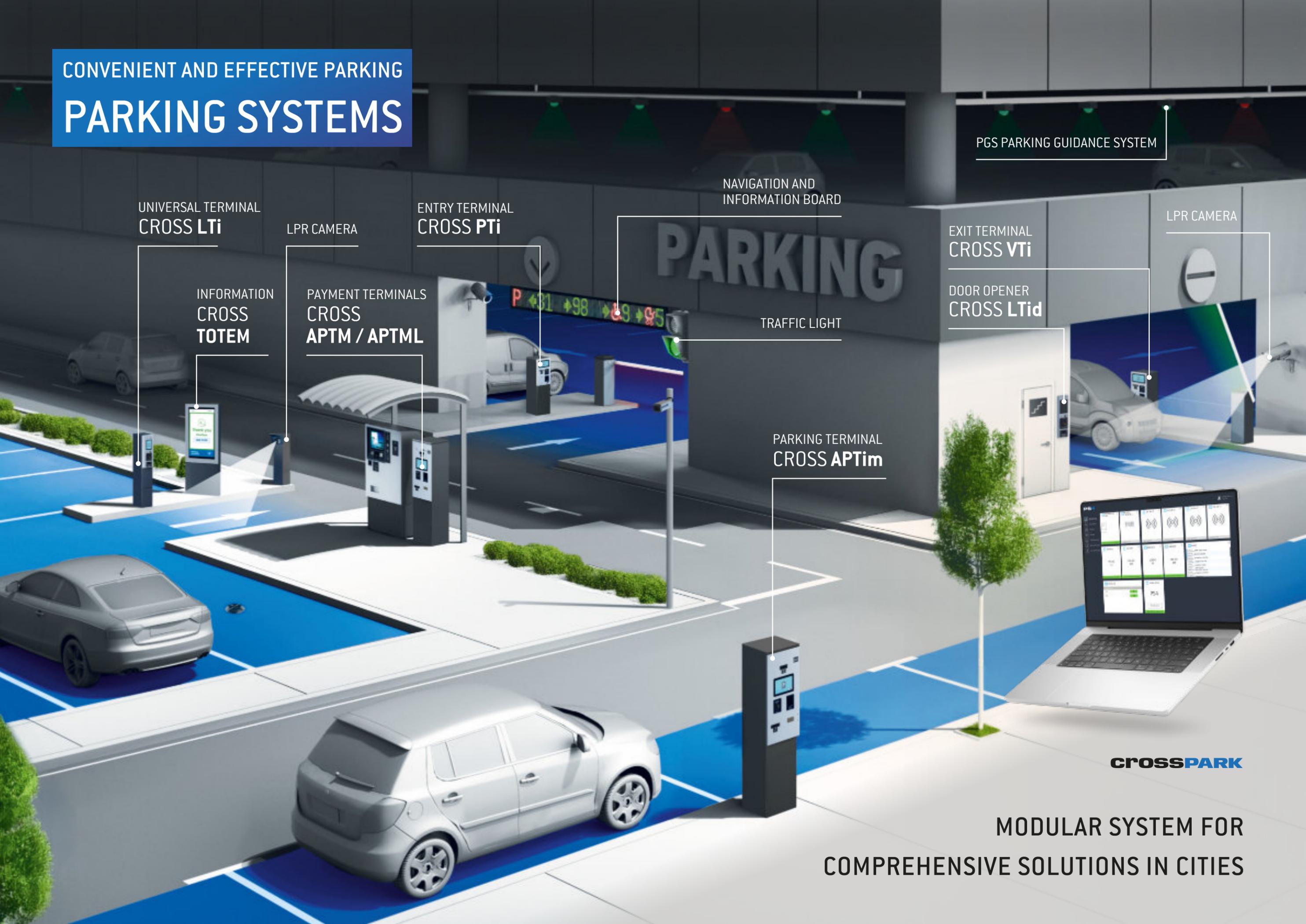
PROJECT DESIGN

PARKING PERFECTED

PARKING SYSTEMS

More and more cars are on the roads, putting ever greater pressure on parking facilities. This is particularly true of cramped city streets. Alongside building new car parks, a smart solution is to effectively administer parking spaces, allotting them for long-term or short-term use. Advanced technologies by CROSS monitor the state of car parks and provide effective tools for managing and regulating stationary vehicles.

CROSS Zlín, a.s. delivers comprehensive project design and engineering services for parking systems and parking technologies. Our project design services form a key part of the overall solution delivery – from the initial concept and feasibility assessment, through detailed project documentation, to professional support during implementation and the preparation of as-built documentation.
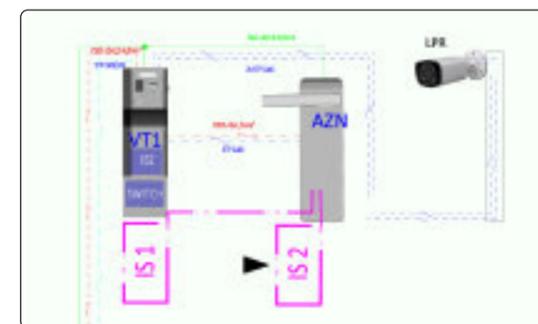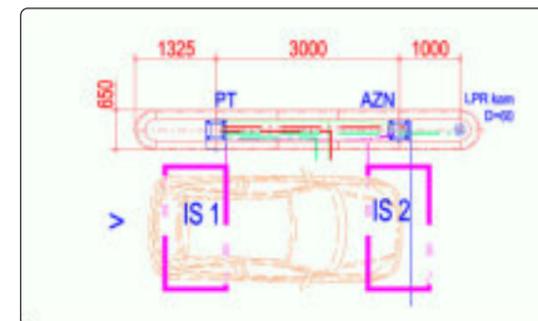
CROSSPARK

SMART PARKING FOR SMART CITIES

When designing a solution for crowded cities, it is necessary to make the best use of available parking capacity through efficient administration. CrossPark technology ensures that a car park operates optimally so that there is always a vacant space. Our systems fully monitor the parking facility and permit central management of it.

DYNAMIC TARIFFS AND SIMPLE PAYMENT

Regulations for parking are made more efficient through having in place a flexible pricing policy in combination with easy and convenient options for payment. Whether in cash, by card, via mobile payment, on the spot or remotely, all forms of payment are covered. Moreover, thanks to the Software Development Kit, custom applications can be created for a payment terminal to facilitate the sale of tickets for public transport or other purposes, the payment of city fees and so on.

Feasibility studies

Processing of project documentation

Consultation

MAIN ACTIVITIES

- Sales support and order preparation
- Preliminary design of the parking system
- Basic technology drawings
- Project documentation for planning permission
- Construction documentation
- Support for the implementation of parking systems
- Compliance with legislation and technical standards
- Consulting and advisory services

VALUE-ADDED PARKING

Parking without a ticket purely on the basis of a vehicle registration number, reserving a space remotely, taking advantage of special functions for hotels, hospitals, shopping centres, airports, Park and Ride facilities and multistorey car parks, having assistance in finding a parking space and being navigated to it precisely – this is CrossPark.

PARKING THAT MEETS ONE'S NEEDS

A system that is modular in structure, which permits the benefits of modernisation over time, backwards compatibility, a robust yet functional design and versatility in payment terminals, all with an open software toolkit, allows for purchase of a complete solution – but one not under the control of a single supplier. Thanks to its open API, CrossPark can be integrated with other systems.

BENEFITS

- Minimisation of risks and errors in implementation
- Precise, tailor-made parking solution design
- Clear financial predictability
- Complete support from design to final approval
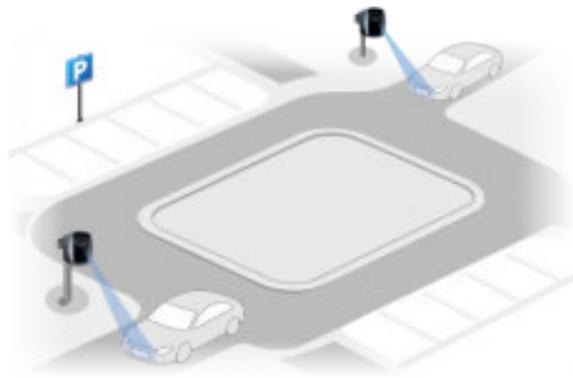
CROSSPARK PARKING SYSTEM

URBANPASS

The UrbanPass solution focuses on managing urban parking zones with high vehicle turnover, especially in historic centres, pedestrian zones, squares and marketplaces. At the same time, the system can be deployed in locations that, due to the nature of the traffic, also fall into zones where it is necessary to monitor parking permits, such as residential zones with assigned parking spaces.

AUTOMATED ENTRY AND EXIT CONTROL WITHOUT WORRIES

The system enables automatic creation of a parking session – when the vehicle enters the zone, the parking is recorded and the session is established completely without operator intervention. When leaving, the camera reliably identifies the end of the parking space and immediately allows for an accurate calculation of the price based on the parking time. In addition, all data is transmitted in real time to the central parking platform, which ensures fast and efficient operation.

Our comprehensive parking zone solution allows you to easily set rates, manage residents, employees and supplies, while offering flexible payment options for all users. Violations and their enforcement – if payment is not made within 48 hours, the system generates violation protocols.

We rely on cutting-edge camera technology that achieves up to 99.9% accuracy and works reliably day, night and in adverse weather.

Minimum operation costs	Simple and efficient management	Integration option	Scalability of the solution

CROSSPARK PARKING SYSTEM

SMARTPASS

Our SmartPass technology is designed for modern, seamless parking without the need to stop – so-called freeflow. However, thanks to the flexible system, you can easily use it in existing parking solutions with barriers.

The CROSS SmartPass parking system uses advanced technologies such as ANPR (license plate recognition), occupancy sensors, payment automation and software tools for traffic management and control. In this category you will find all the key components for barrier-free parking systems that enable efficient operation, maximum user comfort and a high degree of control over the parking lot – whether it is an urban area, shopping mall, airport or corporate premises.
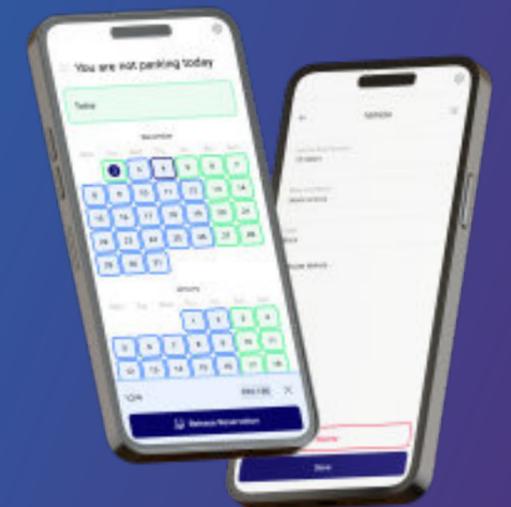
Smooth traffic	Contactless and cashless payments	One payment for multiple parking spaces	Connection to mobile applications and customer accounts

BENEFITS

Minimal operating costs	Simple and effective management
Integration option	Scalability of the solution

EASY PAYMENT VIA MOBILE, PARKING METER OR CITY PORTAL

Users can pay parking fees in several convenient ways. The fastest and most comfortable option is a mobile application, enabling immediate payment of a parking session via a responsive web or native mobile app. Traditional payment via parking meters located directly in the parking zone is also available, similar to barrier-controlled car parks, before the parking session ends. Another option is payment through the city portal, allowing users to pay parking fees up to 48 hours after leaving the zone. During this period, multiple parking sessions can be accumulated and settled together.

PAYMENT METHODS URBANPASS & SMARTPASS

The systems support cashless parking payments based on automatic vehicle identification via licence plates. Supported methods include contactless payments (cards, mobile payments, QR codes) and integration with parking payment terminals. Within the SmartPass (FreeFlow) system, parking fees can be paid before parking, immediately after parking, or retrospectively within a defined time window.

BARRIER-BASED PARKING SYSTEMS CROSSPARK

STREET PARKING SOLUTIONS

CrossPark is a modern barrier-based parking system designed for off-street parking facilities. The system can be easily managed via a web-based interface on both desktop and mobile devices. Operators can choose from a modular set of components that streamline vehicle entry and exit, improve on-site navigation, and enable convenient parking payment options. CrossPark supports cash payments, card payments, possibility to pay by credit with an RFID Card, and is designed to deliver smooth traffic flow, high user comfort, and efficient parking management.

Modern parking systems for off-street parking, i.e., parking away from main roads – most often in underground garages, parking buildings and enclosed areas. These systems ensure efficient management of entrances and exits, automated parking fee collection and a real-time overview of parking space occupancy.

The solution includes automatic license plate recognition (LPR), modern payment terminals, LED signalling and integrated surveillance cameras, which increase user safety and comfort.

Thanks to the modular system, the solution can be adapted to the specific requirements of the facility – from small garages to large multi-level parking buildings.

The result is a reliable and user-friendly parking system that ensures smooth operation, lower operating costs, and greater visitor satisfaction.

Shopping centres

Office buildings

Public parking lots

Universities and campuses

Airports

Hospitals

Private parking lots

Hotels

On-street parking, i.e. parking on the street, is a key part of urban infrastructure and significantly affects the traffic situation, accessibility and quality of life in cities. As part of urban policy, street parking is usually regulated by means of reserved zones, time limits or pricing policies.

Take advantage of modern technologies that monitor proper parking for you, find free parking spaces for drivers and allow them to easily pay for parking in cash, by card or via an app. Effective and easy street parking is ensured by parking meters, occupancy monitoring systems, camera systems and navigation to free parking spaces.

CROSS Zlín, a.s. implements advanced solutions for on-street parking, i.e., parking on public roads.

The systems are designed to streamline the management of parking zones, simplify payments, and provide real-time overviews of the occupancy of individual parking spaces.

The delivery includes smart parking meters, occupancy sensors, mobile payment applications and connections to municipal surveillance and control systems.

The solution supports various payment methods (coins, banknotes payment cards, mobile payments) and enables remote management and monitoring via central software.

The aim is to make parking easier for drivers, increase the efficiency of parking fee collection, and promote smooth traffic flow in cities through an intelligent, data-driven system.

Turnkey on-street parking solution

Navigation to zones with available parking capacity

Monitored access to regulated urban zones

DRIVABLE STREETS AND EASY PARKING

SOLUTIONS FOR OPENLY ACCESSIBLE AREAS

CROSSPARK COMPONENTS

ENTRY/EXIT TERMINAL
CROSS PTi / VTi

- 10" TFT colour touchscreen
- QR reader for processing tickets / vouchers with QR code / barcode
- Option to use a payment card as an identifier – Tap In / Tap Out
- RFID card reader
- Optional Audio-Video intercom
- PTi: capacity of 5,000 or 10,000 tickets
- VTi: Possibility to pay parking fees by card upon exit with receipts in the form of e-documents

UNIVERSAL TERMINAL
CROSS LTi

- 7" TFT colour touchscreen
- QR reader for processing tickets / vouchers with QR code / barcode
- Possibility to use a payment card as an identifier – Tap In / Tap Out
- RFID card reader
- Optional Audio-Video intercom
- Possibility to pay parking fees by card upon exit with receipts in the form of e-documents

BARRIER
CROSS AZN

- Up to 4.5 m barrier arm
- Frequency changer for speed and movement control
- Possibility to use straight or folded arm
- Two-channel loop detector
- Lifting time 0.9 – 6.0 s (depending on arm length)
- Compatible with inductive loops, infrared and ultrasonic sensors
- Arm positioned on the left or right side

PAYMENT TERMINAL
CROSS APTML / APTML CASHLESS

- 10" (APTML) / 17" (APTML CASHLESS) TFT colour touchscreen
- QR reader for processing tickets with QR code / barcode
- Payment by coins, banknotes, and payment cards (APTML) / only by payment cards (APTML CASHLESS)
- Returning overpayments using coins and banknotes (APTML)
- Receipt printer
- RFID card reader
- Optional Audio-Video intercom
- Possibility to collect additional fees

PAYMENT TERMINAL
CROSS APTM

- 17" TFT colour touchscreen
- QR reader for processing tickets with QR code / barcode
- Payment by coins, banknotes, and payment cards
- Returning overpayments using coins and banknotes
- High-capacity coin dispenser
- Receipt printer
- RFID card reader
- Optional Audio-Video intercom
- Possibility to collect additional fees

PARKING TERMINAL
CROSS APTim

- 10" TFT colour touchscreen
- Payment by coins, banknotes, and payment cards
- Possibility to return overpayments using coins
- Receipt printer
- RFID card reader for resident and subscriber cards
- Optional Audio-Video intercom

INFORMATION
CROSS TOTEM

Standalone device with its own web application and remote configuration capabilities. Within a parking environment, it operates as an intelligent information unit displaying pricing, vehicle data, occupancy status, and, when parking has not been paid, a QR-based payment option. It also includes a night shift mode designed to reduce light pollution in cities.

SELF-SERVICE CHECKOUT
CROSS APTis

- 7" TFT colour touchscreen
- QR reader for processing tickets with QR code / barcode
- Payment only by payment cards
- Receipts only in the form of e-documents
- RFID card reader
- Optional Audio-Video intercom

SOFTWARE CROSSPARK PS4

PS4

Convenience is key for the 4th generation of the modular CrossPark system. Access is provided through a user-friendly web interface presented on mobile devices, and it can be run on existing IT infrastructure at the given location. Moreover, its API permits integration with equipment from other vendors.

WEB based solution

Turnkey solution

Mobile application

KEY FEATURES

- Efficiently laid out control panel for the car park
- Management of tariffs and discounts
- Management of subscribers and vehicles
- Notification of current events by SMS and email
- Real-time statistics and reports
- Web API for data integration

EXTENDING MODULES

- Booking facility
- Manual register
- Tariff terminal
- Circulating tickets
- Vouchers

E-RECEIPT PLATFORM
RECEO

Receo is a web service that allows users to download electronic tax receipts for parking payments made by payment (credit/debit) cards.

ON-STREET PARKING APPLICATION

INVIPO PARK

CROSS Invipo Park is a web platform that presents specific views of several car parks at once, permitting simple and clear management of multiple car parks. This solution can be installed to a local server or function as a cloud service on CROSS infrastructure.

Convenient parking systems

Turnkey solution

Navigation systems

- Efficiently laid out control panel for parking facilities
- Management of subscribers and vehicles
- Notification of events by SMS and email
- Detailed data on parking terminals
- Real-time statistics and reports

SOFTWARE
# ADDITIONAL SOFTWARE SERVICES

PAYMENT SYSTEM
PARKUM

On-line payment application – this application does not require installation on the user's mobile device and is accessible via a web browser.

INCINITY
BOOKING SYSTEM

Incinity Booking System is a software application for the efficient reservation and management of parking spaces without the need to purchase hardware equipment, typically barriers or cameras.

Web-based, modular reservation system for private and public parking. Works as a standalone app or as an extension of an existing parking system and is fully compatible with CrossPark, but not limited to it. Supports cloud deployment, whitelabelling, and extensive customisation. Offers open API integration (incl. parking devices, attendance systems, third-party apps), user/vehicle assignment, time-window and multi-site bookings, waitlists, payments, discounts, and reporting.
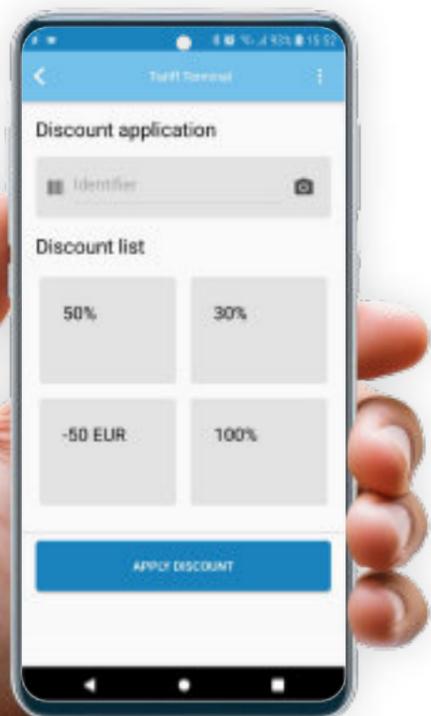
CAMERA SYSTEMS

LIGHTING AND SIGNALLING

KEY ACCESSORIES FOR PARKING SYSTEMS

- A key element for effective management, increased security, and customer comfort.
- Camera systems use modern TCP/IP data transfer and PoE power supply standards, which simplifies installation and management.
- In addition to classic image recording, they enable integration with database and payment systems.
- An integral part of smart parking solutions that save time, increase efficiency, and improve user satisfaction.

PIN HOLE CAMERA

A miniature camera integrated directly into the front panel of the device (payment terminals, parking meters).

- Supports live streaming of images to the surveillance centre for real-time monitoring of the situation.
- In conjunction with an intercom, it enables remote assistance to customers experiencing difficulties with payment or operation.
- Ideal for locations where a high level of control, immediate assistance, and visual discreetness of the solution are required.

LED ILLUMINATED BARRIER ARM

The ideal accessory for locations with reduced visibility (underground garages, multi-story parking lots, complex systems).

- Increases the visibility of the barrier and thus the safety of operation.
- LED warning lights prevent unwanted collisions.
- Two colour modes available:
  Red – stays on or when the barrier is closed
  Green – lights up when the barrier is opened, signalling that passage is possible.

LED SIGNALLING ON THE BARRIER

Integrated LED signalling located on the upper part of the barrier (so-called LED cap) increases operational safety and improves driver orientation.

- Colour modes:
  green = free passage/available parking spaces,
  red = closed entrance/full capacity.
- Ideal especially for indoor areas (underground garages, enclosed parking lots) with limited daylight; outdoor use is also possible.
- Reduces the risk of collisions and ensures smooth movement of vehicles thanks to clear visual communication.

SURVEILLANCE CAMERAS

Essential accessories for modern parking systems for effective surveillance and increased security.

- TCP/IP connection and PoE (Power over Ethernet) power supply enable quick installation without separate power cables.
- Cameras certified for continuous operation in parking lots and public spaces are recommended.
- Can be connected to a central VMS system for advanced management and analytics

ANPR (LPR) CAMERAS

Cameras designed for accurate capture of vehicle registration plates.

- They increase the efficiency of parking systems and enable fully automated operation without the need for human control.
- They are used at the entrance and exit of parking lots to automatically open barriers according to the recognised license plate.
- Connection to payment and registration systems ensures smooth management of access and payment for parking.

LIGHT SIGNALS FOR OCCUPANCY

The light signal (traffic light) provides clear, reliable, and visible signalling of parking lot occupancy from a distance.

- 100 mm version: compact solution suitable for installation directly on the barrier.
- 200 mm version: highly visible indicator designed for mounting on a separate pole.
- Two colour modes available:
  Red: STOP (parking lot occupied)
  Green: FREE (entry permitted)

ADVANTAGES OF LIGHTING FOR PARKING SYSTEMS

- Ensuring clear traffic signals in parking lots.
- Increased traffic safety and elimination of collisions.
- Easy integration into existing barrier systems.
- Variable solutions for outdoor and indoor spaces.
- Long service life and low operating costs thanks to LED technology.

OTHER COMPONENTS

NAVIGATION SYSTEMS

A powerful system that uses cameras to monitor parking spaces. The cameras are capable of detecting the occupancy of 6 spaces, identifying license plates or monitoring a given parking space.

- Occupancy information
- License plate identification
- Signals for driver navigation
- Detection of illegal parking
- Safety monitoring
- Fully integrated with CrossPark parking systems

OCCUPANCY SENSORS

- Parking space occupancy detection using a sensor in the road surface
- Vehicle identification using an electronic license
- Fully integrated with the Invipo app
- Parking time violation detection

NAVIGATION DISPLAYS

- Parking space availability display
- Navigation to available parking spaces

TARIFF TERMINAL

The tariff terminal is used to apply discounts on parking fees – most often in shopping centres or other commercial areas where customers are motivated to make purchases by discounted parking. It allows you to enter discounts based on a purchase receipt or other customer activity.

There are three options available:

- A stand-alone fare terminal, where the customer applies the discount themselves – typically by scanning their parking ticket.
- A customer PC, which is operated by store staff – they scan the ticket and enter the discount manually.
- Discount App, a mobile application with a tariff terminal function – staff use a smartphone to scan the ticket and then select the type of discount (percentage, fixed amount, or time).

The tariff terminal is a key element of the parking system where it is necessary to respond flexibly to customer programs, marketing campaigns, or loyalty rewards.

LTID DOOR OPENER

It allows controlled access through closed doors – for example, to public toilets, employee or technical areas. It is a variant of the LTi terminal, usually located on the wall at the entrance.

The door can be opened in several ways:

- Direct payment – typically for toilets, where a fixed amount is required before entry.
- Based on a token or card – for example customer, resident, employee, or single-use voucher cards.
- Tap-in/Tap-out system – for tracking movement, visits, or combination with other services.

MANUAL CASH REGISTER

A reliable solution for parking lots with attendants or variable traffic. It can be used as a backup or supplementary system to automated payment technologies.

- Standard cash register with cash drawer, familiar from retail operations.
- Cash and card payments at the cashier.
- Suitable where self-service terminals cannot be used or personal contact is preferred.

CHARGER – EV CHARGER

A powerful, modern charger for electric cars from a Czech manufacturer, which allows you to charge up to two cars simultaneously with a power output of up to 22 kW. There are two versions to choose from – a floor-mounted column design and a wall-mounted hanging design.

It has an RGB LED indicator that shows the charging status. The charger can also be connected to the internet via Ethernet or Wi-Fi. Thanks to the app, you always have control over the charging and status of the device.
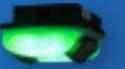
LED DISPLAY

LED displays are a modern and reliable solution for providing drivers with fast, clear, and up-to-date information.

They are designed for continuous operation in demanding outdoor conditions and meet the requirements of cities, municipalities, and transport infrastructure managers. They contribute to smooth traffic flow, reduce the time spent searching for parking spaces, and increase the comfort of parking lot users.

ANTIVANDAL CAMERA STAND (MKS)

A smart solution for automatic license plate recognition in parking lots.

The antivandal camera stand allows for secure installation of the camera directly on the ground, and its robust design protects it from damage and vandalism. Suitable for both ticket and ticketless systems.

EXAMPLE INSTALLATIONS

REFERENCES

More references

Multiple options are available to enhance parking systems, including components for entry and exit, internal and external navigation and monitoring empty spaces. Additionally, expanding ticketing to incorporate special modes for residents and hotel guests is possible.

Our technologies are in place in private and public car parks, as well as shopping centres, office buildings, hotels and airports. Also, it is designed for on-street parking in city centres and similar public parking lots.

Baku, Azerbaijan
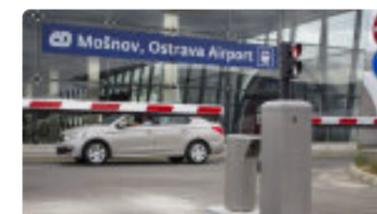Heydar Aliyev Cultural Center

Makerere, Uganda
CrossPark system on the African continent

Podgorica, Montenegro
The CrossPark system for the Voli hypermarket chain

Karlovy Vary, Czech Republic
P + R parking – barrier parking system

Mošnov, Czech Republic
Airport parking

Červenohorské sedlo, Czech Republic
Solutions for parking at ski slopes

P DEPARTMENT MILESTONES

1994
CROSS Zlín company founded

2000
Development of an automatic **barrier** as the first part of an automatic parking system

2003
Production of the **CrossPark system** equipped with an entry and exit terminal

2004
Development of a fully automatic payment terminal for parking systems

2012
Development of CrossPark PS4 (parking system management application)

2014
First 100 payment terminals

2017
Implementation of your own, centralised card payment management, PaymentGateway

2020
CrossPark is used at **more than 250 parking lots**

2021
Modification within the development of the 3rd generation of the CPI-based parking system

2024
New cost-effective **CrossPark solution – Urban Pass and Smart Pass**

2025
900 payment terminals already manufactured

2026
Cross Totem stand-alone device