



CASE STUDY

Kids' Park Wristband Access Control System

A purpose-built QR wristband and turnstile access-control solution developed to manage time-defined visitor access in real time.

Location: Mostar, Bosnia and Herzegovina

Sector: Leisure & Recreation

Project Type: Kids' Park Wristband Access Control System

Status: Implemented

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Background

Time-Controlled Access for a Ticketed Children's Play Area

The project required a dedicated access-control solution for a ticketed children's play area in Mostar, Bosnia and Herzegovina.

The operating concept was based on pre-printed QR code wristbands, with each wristband associated with a specific color group and corresponding play-time package.

Rather than using a conventional access credential with simple entry authorization, the facility required a system capable of activating each QR wristband at the cashier, calculating its permitted access period, controlling entry and exit in real time, and identifying visitors who exceeded their purchased time. This required the physical turnstiles, QR readers, cashier operation and access-control software to work together as one integrated solution.

Challenge

A Completely Customized Operating Scenario Under a Tight Deadline

The main challenge was that the required workflow could not be achieved using a standard off-the-shelf access-control configuration.

The software had to be developed from scratch according to the required Kids Park operating scenario, including QR wristband activation, color-based time packages, validity management, real-time entry and exit decisions, scan records and specific overtime rules.

The project also had an exceptionally tight three-week target timeframe, requiring software development, hardware preparation, integration and testing to progress in parallel.

A further challenge appeared during implementation: the installation area had insufficient lighting, making the QR codes printed on the wristbands more difficult for the readers to detect consistently. The solution therefore had to succeed not only at software level, but also under the actual environmental conditions encountered on site.

Solution

A Purpose Built QR Wristband Access Control System

Polimek supplied an integrated solution combining physical access-control equipment, QR readers and customized Kids Park software. The solution was designed around the facility's actual ticketing workflow rather than forcing the operation into a generic access-control structure.

System Scope

Equipment / Software	Function
P 1350 Semi-Full Height Turnstile	Physical entry / exit control
Q8 QR Code Attendance & Access Control Reader with mounting stand	QR wristband validation at access points
QR Code Reader for Cashier	Wristband scanning and activation at the cashier
Polimek Access Control Software for Kids Park	Custom QR group, time validity and access-rule management

QR Code Group Management

A dedicated module manages ticket groups by name, color, minute-based validity period and active/passive status. It also tracks the total, used and remaining QR codes assigned to each group.

Pre-printed Wristband Integration

QR numbers are imported from an Excel database and linked to their relevant group. A wristband becomes active when scanned at the cashier, starting the assigned validity period.

Online, Real-Time Access

During the valid period, the system evaluates the wristband status in real time, authorizes entry or exit according to the configured scenario and records every scan.

Overtime Management

If time expires while a visitor is outside, re-entry is denied. If time expires while the visitor is inside, normal exit can be restricted so staff can identify and manage the overtime condition.

System Operating Flow

QR wristband assignment	Cashier activation	Time package starts	QR validation at turnstile	Real-time entry / exit control	Validity monitoring	Overtime intervention
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From Operating Concept to a Fully Functional System in Five Weeks

Because the required Kids Park workflow was highly specific, the project began with an analysis of the requested operating scenario and the access rules that needed to be reproduced by the software.

■ Custom Software Development

Polimek developed the required functionality specifically for the project, covering QR group management, time-defined ticket activation, QR database management, real-time access decisions, overtime rules and administrative intervention functions.

■ Hardware and Software Integration

The customized platform was integrated with the cashier QR reader, Q8 access-control readers and P 1350 semi-full-height turnstiles to create a complete end-to-end solution.

■ Compressed Implementation Schedule

The original target was three weeks. Due primarily to transportation delays, the complete system reached fully operational status within five weeks.

■ Adapting to Unexpected Site Conditions

Insufficient lighting around the access points initially affected wristband QR detection. The Q8 readers' integrated LED illumination was activated and reader sensitivity was increased and optimized for the wristbands in use.

■ Final Commissioning

Following reader optimization and final software configuration, the complete QR wristband, turnstile and time-control workflow was successfully brought into operation.

From a customer-specific operating concept to custom software, integrated access-control hardware and on-site optimization, the project demonstrates Polimek's ability to develop tailored access solutions around real operational requirements rather than limiting customers to standard system configurations.

A Fully Customized and Operational Kids Park Access Control Solution

The project was successfully implemented as a complete QR code-based, time-defined access-control system for the children's play area.

The final solution provides centralized management of pre-printed QR wristbands, configurable time packages, cashier-based activation, real-time entry and exit validation and specific controls for expired sessions.

The customized software works together with the P 1350 turnstiles and Q8 QR readers as a single operational system, allowing the facility to control visitor access according to the purchased play period.

The on-site low-light challenge was resolved by using the integrated reader illumination and optimizing QR reading sensitivity, demonstrating the system's ability to be adjusted to actual operating conditions.

Despite transportation delays extending the original three-week target, the complete customized system was fully functional within five weeks.

Custom-developed Kids Park access-control software from scratch	QR wristbands linked to configurable color and time packages	Real-time QR activation, validation and scan recording	Dedicated overtime-management and staff-intervention workflow
2 P 1350 semi-full-height turnstiles integrated with 4 Q8 QR readers	Cashier-based QR wristband activation	Integrated reader LED and sensitivity optimization used to overcome low-light site conditions	From initial operating requirements to a fully functional customized system in five weeks

Custom Software Integrated Hardware Real World Adaptability

The Mostar Kids Park project demonstrates how Polimek combines access-control hardware and software engineering to transform a unique operating requirement into a complete, practical and fully functional solution.