6 Steps to Implement Automated Gates at your Distribution Center

How to successfully implement Automated Vehicle Access System in your facility

C3 Solutions

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Imagine a world where vehicle access is swift, secure, and utterly seamless. Where manual errors and security breaches become things of the past, and efficiency is not just a goal but a daily reality. As the industry evolves, automated gates have become an attractive option for many businesses seeking to improve gate operations, reduce wait times, and enhance security.

This blueprint aims to guide you through the process of choosing and implementing an automated vehicle access system (AVAS), highlighting key considerations, challenges, and success stories.

1

What is an Automated Vehicle Access System?

Automated gates leverage cutting-edge technologies like RFID (Radio Frequency Identification), LPR (License Plate Recognition), and biometric sensors to ensure that only authorized vehicles breeze through, while all transactions and traffic flows are meticulously recorded and managed.

This integration not only boosts security but also operational throughput, propelling your facility into a new era of productivity.
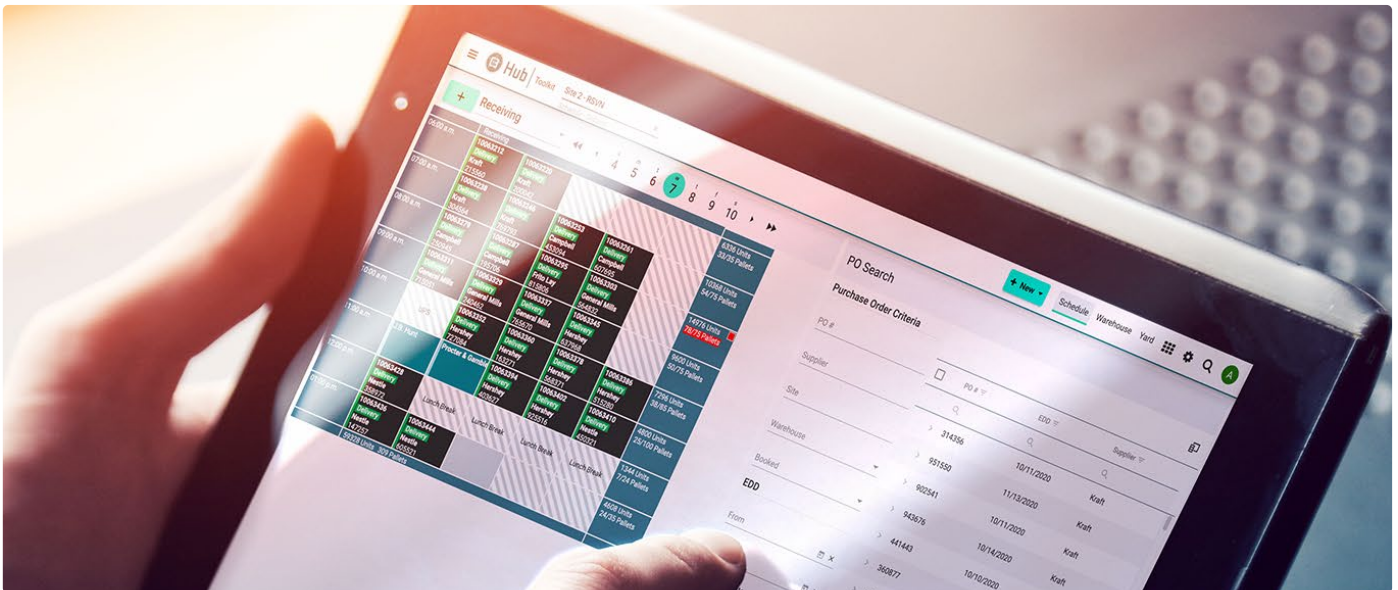
It all starts with an appointment

Appointment scheduling is essential for streamlining gate operations, especially when integrated with Automated Vehicle Access Systems. By coordinating vehicle arrivals with specific time slots, it helps manage traffic flow, reduce congestion, and optimize resource use. This leads to faster processing times and a more efficient vehicle flow through the gate.

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Scheduled appointments enhance predictability, allowing gate personnel and automated systems to prepare for arrivals, resulting in smoother operations and better resource allocation. Efficiency is also improved as the coordination between gate operations and yard management ensures quick processing, reducing idle times. Drivers benefit from reduced wait times and clear expectations, leading to higher satisfaction and cooperation.

Security is bolstered by appointment scheduling, as knowing expected vehicles in advance allows for stringent security measures, reducing the risk of unauthorized access. Conversely, the absence of appointment scheduling can lead to congestion, long wait times, and operational inefficiencies. Unpredictable workloads can overwhelm gate personnel and systems, while drivers experience frustration and dissatisfaction, impacting their willingness to cooperate.

# 2 Manned or Unmanned Gate: What is the difference?

In the bustling world of industrial operations, the entrance gate is more than just a physical barrier; it's the first line of defense and efficiency.
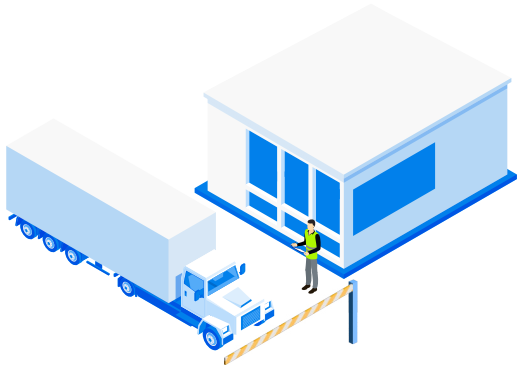
Manned Gate (Supervised)

Manned gates are operated by personnel who manually verify and authorize vehicle entry and exit. One of the main advantages of manned gates is the human judgment they bring to complex situations, allowing for direct interaction with drivers to resolve any issues that may arise.

However, there are significant downsides to this approach. Manned gates incur higher labor costs and are prone to human error, which can ompromise security and efficiency. Additionally, the processing times at manned gates are generally slower compared to automated systems.
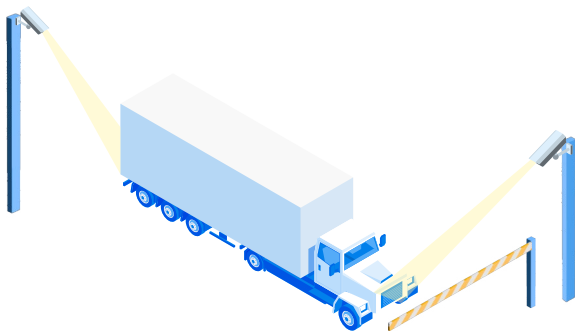
Unmanned Gate (Unsupervised)

Unmanned gates utilize automated systems, such as vision AI, to control vehicle access without human intervention. These gates offer several benefits, including faster processing and reduced wait times, which enhance overall operational efficiency.

The long-term operational costs are lower as there is no need for manual labor, and the enhanced security features significantly reduce the risk of human error. However, unmanned gates come with higher initial setup costs and a dependency on the reliability of the technology.

Implementing these systems may also require comprehensive training for stakeholders to ensure smooth operation.

3

Challenges at the Gate

Gate operations are critical to the efficiency and security of a facility, yet they are often fraught with challenges that can hinder smooth operations. Understanding these challenges is essential for identifying the benefits of implementing automated vehicle access systems (AVAS).

Long Wait Times

One of the most significant challenges at the gate is the long wait times caused by manual verification processes. Each vehicle must be checked and authorized by gate personnel, which can be a time-consuming process, especially during peak hours.

This can lead to significant delays and bottlenecks, affecting the overall flow of operations and reducing the facility's efficiency. Long wait times can also disrupt scheduling and lead to increased operational costs.

Driver Frustration

Drivers often experience frustration due to delays and complicated access procedures at manually operated gates. Long wait times and the need to interact with gate personnel can lead to dissatisfaction, especially for drivers on tight schedules. This frustration can decrease efficiency as drivers may become less cooperative or more prone to errors themselves.

Additionally, a negative experience at the gate can impact a company's reputation and relationship with its transportation partners.

Human Error

Manual checks at the gate are prone to human error, which can lead to various issues. Mistakes in verifying vehicle credentials, incorrect data entry, and lapses in judgment can all compromise the accuracy and reliability of gate operations.

These errors can result in security breaches, allowing unauthorized vehicles to gain access to the facility, which poses a significant risk to both personnel and assets.

Additionally, human error can cause operational inefficiencies, such as misplaced or lost records, further complicating the management of vehicle access.

Security Risks

Inefficient gate management increases the risk of unauthorized access and cargo theft. Manual processes are not only slower but also more susceptible to manipulation and breaches.

Without stringent and accurate verification procedures, it becomes easier for unauthorized individuals or vehicles to enter the facility, posing a threat to the security of goods and personnel.

Cargo theft can result in significant financial losses, while unauthorized access can lead to other security incidents, making effective gate management a critical concern.

The Need For Automated Vehicle Access System

The traditional method of manual vehicle checks at facility gates is not only time-consuming but also prone to errors and security lapses. This manual process often leads to long queues, delayed deliveries, and increased labor costs. In contrast, automated vehicle access systems leverage advanced technologies such as vision AI, sensors, and machine learning to streamline the process, ensuring that only authorized vehicles gain access while minimizing human intervention.

4

The Compelling Case for Automated Vehicle Access System

Automated vehicle access systems offer numerous benefits, from reducing human error to cutting operational costs, making them an indispensable solution for modern facilities. Here's why integrating automated gates can be transformative for your site:

Minimize Human Error

Traditional manual verification is fraught with potential errors—from misread vehicle details to overlooked security protocols—each posing a significant risk to your facility's integrity.

Enhance Safety

Reduce the need for face-to-face interactions which can lead to safety hazards, thus creating a safer working environment for everyone involved.

Eradicate Slow Processing Times

Say goodbye to the long queues during peak hours. Automated vehicle access systems promise swift processing, keeping traffic flowing smoothly and efficiently.

Cut Down on Staffing Costs

Constantly staffing gatehouses not only inflates operational expenses but also entails managing shifts, training, and handling personnel wages. Automated gates operate around the clock, without fatigue or the need for coffee breaks.

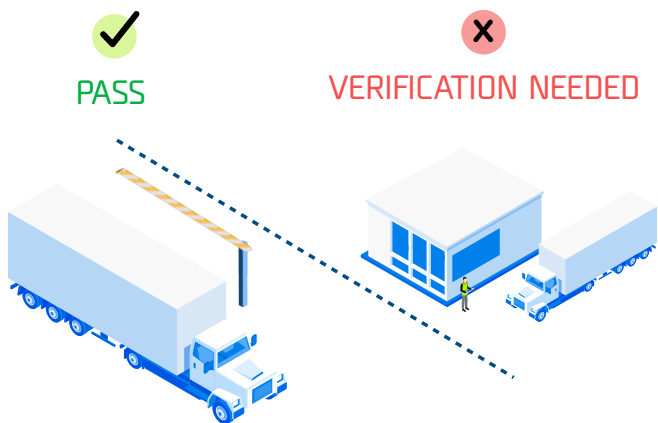## How the Automated Vehicle Access System Works:
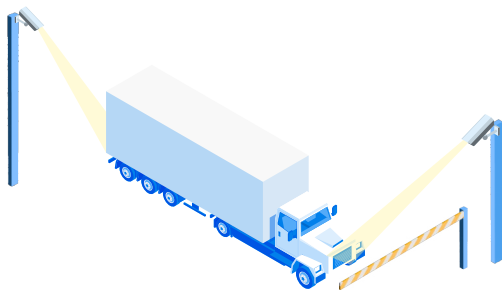
1 The automated vehicle access system employs advanced Vision AI to ensure seamless and secure vehicle access. When a vehicle approaches, strategically placed security cameras with advanced vision capabilities spring into action, capturing essential visual data.

This data includes images of the vehicle and its license plate, as well as driver identification.

2 The captured images are swiftly processed by the system, which uses sophisticated algorithms to identify critical data points such as license plates and driver IDs.

This information is then robustly verified by cross-referencing it against a pre-registered database to ensure that only authorized vehicles and personnel gain access.

PASS

VERIFICATION NEEDED

ACTIVITY LOG

● Driver
Arrival Time   Exit Time

● Driver
Arrival Time   Exit Time

● Driver
Arrival Time   Exit Time

4 Upon successful verification, the system makes automated access decisions. Gates open automatically for authorized vehicles, while access is denied for those that do not meet the criteria. Vehicles denied access are directed to a holding area for further verification, ensuring that no unauthorized entries occur.

5 All entry and exit data are meticulously logged by the system, providing comprehensive records that aid in traffic management and security assessments. This thorough record-keeping is essential for maintaining an organized and secure facility.

Dock & Yard Management

SFL 506

ID not Matching

SFL 506
QUEBEC

DRIVER LICENCE
JOHN DOE
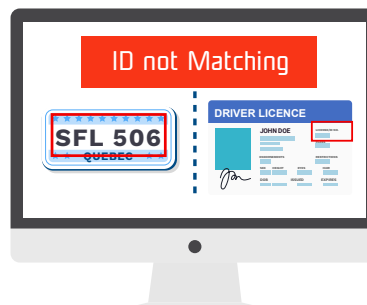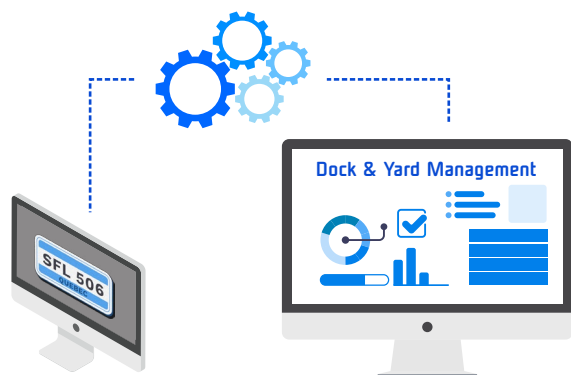
6 The automated vehicle access system seamlessly integrates with existing yard management and scheduling systems, enhancing coordination and operational efficiency. This integration ensures that the flow of vehicles is managed smoothly and that all operations are synchronized.

3 In cases where discrepancies are detected, the system triggers an instant alert, allowing facility staff to react promptly and decisively. This real-time exception handling ensures that potential security threats are addressed immediately, maintaining the integrity of the facility's security.

5

How to Implement Your Automated Vehicle Access System

By following these steps, you can successfully implement an automated vehicle access system that enhances security, improves operational efficiency, and adapts to the evolving needs of your facility.

1 Needs Assessment

The first step in implementing an automated vehicle access system is conducting a thorough needs assessment.

This involves determining your facility's traffic volume, identifying peak hours, and understanding the integration requirements with existing systems. By gaining a clear picture of your operational needs, you can tailor the Automated vehicle access system to effectively manage vehicle access and improve overall efficiency.

2 Technology Selection

Once you have assessed your needs, the next step is technology selection. Choose the technologies that best meet your facility's requirements.

Options include Vision AI, which uses advanced image processing for vehicle identification, or RFID, which employs radio frequency identification for tracking. The choice of technology should be based on factors such as the specific demands of your facility, the level of security needed, the existing infrastructure.

3 Partner Selection

Selecting the right partners is crucial for a successful implementation.

Collaborate with experienced providers and integrators who can offer the most suitable solutions for your facility. These partners will bring expertise in both the technology and the implementation process, ensuring that your automated vehicle access system is set up correctly and efficiently.

4 System Installation

The installation phase involves the precise setup of all hardware and software components.

This includes installing cameras, sensors, and gate control mechanisms, as well as integrating the automated vehicle access system with your existing yard management and scheduling systems. Accurate installation is critical to ensure the system functions correctly and provides the desired security and efficiency benefits.

5 Training and Testing

Before fully deploying the automated vehicle access system, it is essential to train your staff and conduct rigorous testing.

Training equips your personnel with the knowledge needed to operate and manage the system effectively. Testing ensures that all components work together seamlessly and that any issues are identified and resolved before the system goes live.

6 Ongoing Monitoring and Optimization

Once the automated vehicle access system is operational, continuous monitoring and optimization are necessary to maintain its performance.

Regularly monitor the system to ensure it operates efficiently and securely. Adapt and optimize the system as needed, making adjustments in response to changing traffic patterns, security threats, and technological advancements.
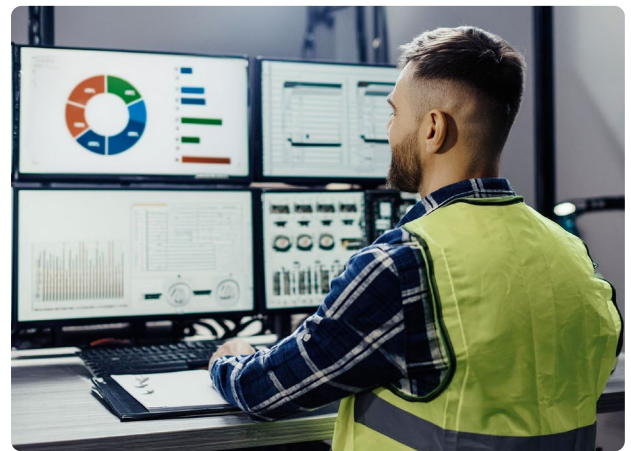
6 Integration with Yard Management Systems

Integrating automated vehicle access system (AVAS) with **yard management system** (YMS) can bring about significant operational benefits, transforming how facilities manage their gate and yard operations. This integration facilitates real-time data exchange, improved scheduling, enhanced security, and overall operational efficiency.

Real-time Data Exchange

One of the most substantial benefits of integrating automated vehicle access system with yard management system is the ability to exchange data in real-time.

Automated systems continuously monitor and record vehicle movements, providing up-to-the-minute information on the status of each vehicle. This real-time data exchange enhances the accuracy of yard operations by ensuring that all stakeholders have immediate access to the most current information. For instance, yard managers can quickly identify which vehicles are in the yard, their exact locations, and their current status.

This level of visibility allows for more informed decision-making and more effective management of yard resources.

Improved Scheduling

The integration of the automated vehicle access system with yard management system significantly improves scheduling capabilities.

Streamlined gate operations mean that vehicles can be processed more quickly and predictably, reducing waiting times and allowing for more precise scheduling. With automated systems handling the verification and entry processes, yard managers can better coordinate the timing of vehicle arrivals and departures.

This improved scheduling ensures that loading and unloading activities are carried out efficiently, reducing idle times and increasing overall productivity.

By optimizing the flow of vehicles, facilities can handle higher volumes of traffic without compromising efficiency.

Enhanced Security

Security is a critical concern in yard management, and the integration of automated vehicle access system with yard management system can greatly enhance security measures.

Automated verification processes ensure that only authorized vehicles gain access to the yard, reducing the risk of unauthorized entry and potential security breaches. AVAS can utilize technologies such as RFID, ANPR (Automatic Number Plate Recognition), and **vision AI to accurately verify** vehicle identities.

This automated approach minimizes human error and provides a consistent, reliable method for controlling access. Enhanced security measures protect valuable assets, reduce the risk of theft, and ensure the safety of personnel and cargo.
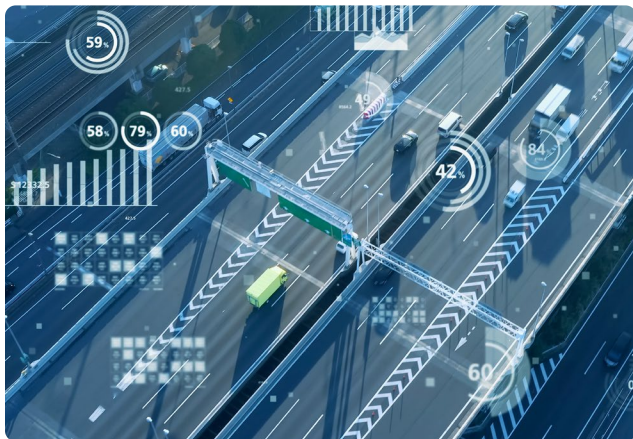
Advanced Decision-Making

AI propelled yard management systems provide advanced decision-making capabilities by leveraging machine learning algorithms and data analytics. These systems can analyze vast amounts of data from various sources, such as vehicle movement patterns, traffic flow, and historical data, to make real-time decisions that optimize yard operations.

For example, AI can predict peak traffic times and suggest optimal scheduling adjustments to avoid congestion and ensure smooth operations.

Handling Complexity

Yard management often involves handling complex scenarios, such as coordinating multiple vehicle movements, managing diverse cargo types, and dealing with unexpected disruptions. **AI-powered YMS** capabilities excel in managing these complexities by providing real-time solutions and automated responses.

For instance, if a vehicle is delayed, the AI system can automatically adjust the schedules of other vehicles to maintain smooth operations.

This dynamic handling of complexity ensures that yard operations remain efficient and effective, even in challenging situations.
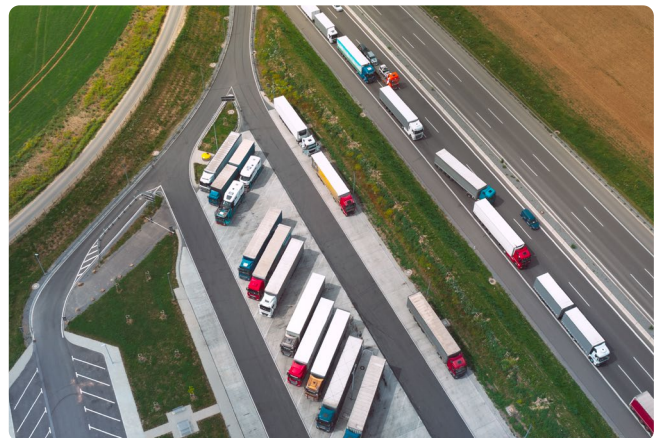
7 Financial Considerations: Investing in Security and Efficiency

The upfront cost of implementing an automated vehicle access system varies based on the scale and specifications required but consider it an investment in enhancing security and operational efficiency.

With options ranging from entry-level setups to high-end configurations, there's a solution tailor-made for every facility's needs. Here, we break down the costs and benefits associated with these systems, including scenarios for manned and unmanned gates.

Initial Setup Costs

The initial investment for purchasing and installing automated vehicle access systems can be substantial.

This includes the cost of hardware such as ANPR cameras, RFID readers, and gate control mechanisms, as well as software for integration and management. For example, the cost of a comprehensive automated gate system can range from $50,000 to $150,000, depending on the complexity and scale of the implementation.

This upfront expenditure covers the equipment, software licenses, installation, and initial configuration.

Operational Costs

While automation reduces labor costs, it introduces new operational costs in terms of maintenance and technology upgrades

Regular maintenance is essential to ensure the system's reliability and efficiency. Annual maintenance contracts can cost between $5,000 and $20,000, depending on the system's size and complexity.

Additionally, technology upgrades and software updates may incur periodic costs to keep the system up-to-date with the latest security features and functionalities.

Return on Investment (ROI)

The ROI of automated vehicle access systems is realized through faster processing times and improved efficiency. Reduced wait times and enhanced operational flow can lead to significant cost savings. For instance, a facility that processes 100 vehicles per day can save approximately $100,000 annually by reducing labor costs and increasing throughput.

Over time, these savings can offset the initial investment and lead to a positive ROI.

Cost Scenarios: manned v.s. unmanned gates

	MANNED GATE	UNMANNED GATE
INITIAL SETUP COSTS	$20,000	$100,000
OPERATIONAL COSTS (LABOR)	$150,000	$20,000
TOTAL ANNUAL COST	$170,000	$120,000

Factors Influencing Price

Hardware Components

The cost of cameras, sensors, and other physical infrastructure necessary for the system.

Customization

Additional costs for custom features or adaptations to meet specific operational needs.

Software Licensing

Fees for the software that manages data collection, processing, and integration with existing systems.

Maintenance and Support

Ongoing support, updates, and maintenance contracts to ensure system efficiency and security.

Installation and Integration

Costs related to professional services for system installation and integration with existing operational systems.

8 Our Recommended Providers

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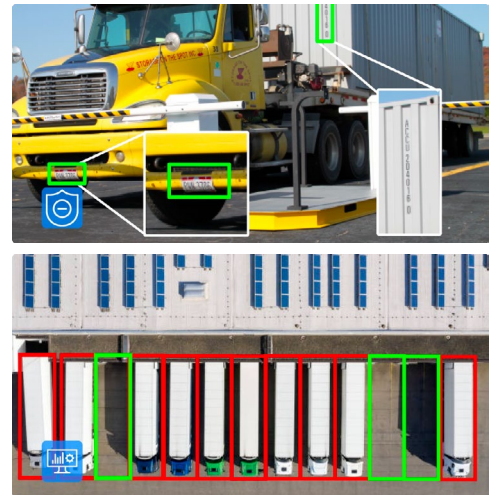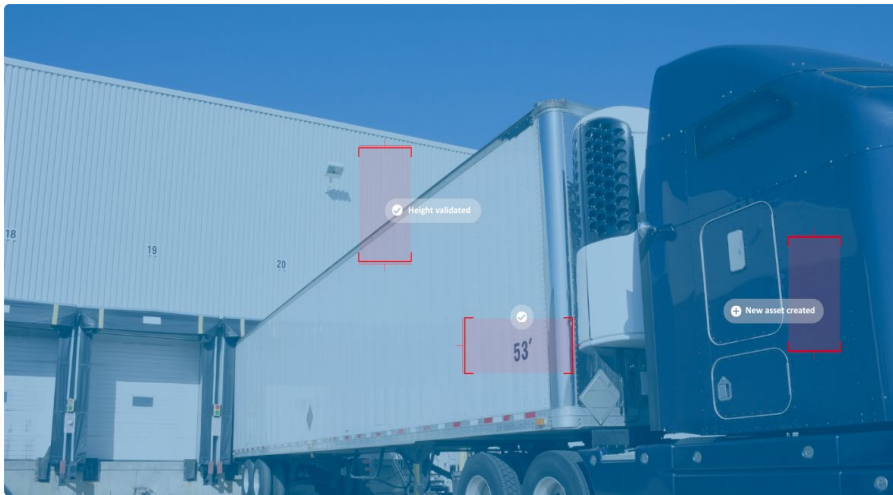
EAIGLE™

EAIGLE is an end-to-end AI platform that enables enterprises in the supply chain and retail sectors to leverage vision data to address security, transportation, and operational challenges.

EAIGLE leverages vision data from existing security cameras at the gate to offer comprehensive vehicle data collection, registration, and validation. This ensures that the correct vehicles are promptly granted entry and exit, enabling robust data collection and utmost security while facilitating a seamless traffic flow.

C3 Solutions offers native integration with EAIGLE. This integration ensures that the correct vehicles are promptly granted entry and exit, allowing for robust data collection and maximum security while facilitating a seamless traffic flow. It also enhances the efficiency and security of C3 Solutions' dock scheduling and yard management systems, providing customers with a cutting-edge solution for automated vehicle access.

As part of our strategic partnership, C3 Solutions and EAIGLE provide unified Solution for customers who choose to implement both products. By leveraging the combined power of C3 Solutions' dock scheduling and yard management systems with EAIGLE's advanced AI platform, customers can enjoy a comprehensive, efficient, and secure operational environment.

Want to learn more about the Power of C3 Solutions and EAIGLE's Unified Solution?

Contact us today to learn more about how you can benefit from this special offer and take your supply chain and retail operations to the next level.

Talk to an Expert

**Industry Leaders in Yard and Dock Management**

Genetec is a pioneer in the physical security and public safety sectors, offering a comprehensive suite of security software, hardware and cloud-based services.

Its flagship product is the Security Center, a unified security platform that seamlessly integrates IP video surveillance (Omnicast), access control (Synergis), automatic license plate recognition (AutoVu) and other security systems into a single, intuitive solution.
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security platform that seamlessly integrates IP video surveillance (Omnicast), access control (Synergis), automatic license plate recognition (AutoVu) and other security systems into a single, intuitive solution.

C3 Solutions has successfully collaborated with Genetec on various projects, integrating their advanced security solutions with our dock scheduling and yard management systems.By combining Genetec's robust security capabilities with C3 Solutions' expertise in yard and dock management, we have achieved remarkable success in enhancing operational efficiency and security for our clients.
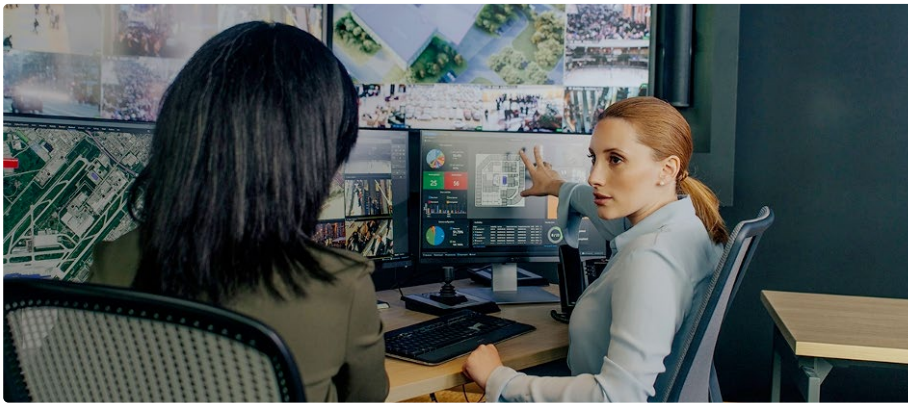
Embracing automation at the gates of your distribution center is more than just a technological upgrade—it's a strategic transformation that promises enhanced security, improved efficiency, and significant cost savings.

By implementing an Automated Vehicle Access System (AVAS), you can drastically reduce human errors, cut down on processing times, and minimize labor costs, all while maintaining the highest levels of security.

The journey to automation begins with understanding your unique operational needs and selecting the right technology and partners. Integrating AVAS with your existing Yard Management System (YMS) further amplifies the benefits, offering real-time data exchange, improved scheduling, and enhanced security. The financial investment in AVAS is justified by the substantial returns in operational efficiency and security, ensuring a positive return on investment.

By following this blueprint, your facility can navigate the complexities of implementing an automated gate system and emerge more efficient, secure, and prepared for the future. Embrace the future of gate operations and unlock the full potential of your distribution center with automated vehicle access systems.

Kickstart Your Automated Gate Project with C3 Yard & Dock Management Systems and EAIGLE's Unified Solution!

Talk to an expert now!   Visit our website