



Entrance Control and Time & Attendance Management for POWERPAC Mobile Entrance Cabinet

Industry
Construction

Location
New Zealand

Solution
Entrance Control
Time & Attendance

Client Overview

Established in 1976, POWERPAC Group is a leading supplier in New Zealand's construction industry, with bases in Wellington, Auckland, and Christchurch. As a family-owned business, POWERPAC offers a unique blend of products and services, including large capital equipment, consumables, and signage solutions. Renowned for its commitment to customer satisfaction, POWERPAC provides tracked delivery services across major centers, ensuring timely order fulfillment. By importing directly from manufacturers, the company offers competitive pricing without intermediaries.

Requirement

As a leading construction solution provider in New Zealand, POWERPAC offers a variety of facilities and equipment to numerous construction sites. In addition to construction-related equipment, it also includes entrance control and time attendance equipment. Generally, construction sites use various styles of access control systems installed at their entrances. The site environment can vary greatly and is often harsher than that of offices, with equipment exposed to dust and rain. For the access control system to function effectively, it must meet certain specifications, which often increases costs. However, construction sites are inherently temporary; once a project is completed, all equipment must be dismantled. As a supplier, POWERPAC seeks a more cost-effective method that minimizes waste. POWERPAC's idea is to adopt a rental model akin to office copying equipment, leasing access control and attendance equipment to contractors. This approach can lower costs for contractor clients, making POWERPAC's services more attractive, while also allowing for equipment recovery, thereby increasing return on investment. To achieve this goal, access control and attendance equipment must be mobile and relocatable. A feasible method is to utilize containers, commonly used on construction sites as temporary offices and storage rooms, taking advantage of their easy transport characteristics, making them ideal for port installations at site entrances. To become an ideal entrance control and time & attendance management system, it must possess various functionalities:

Precise Identity Authentication

Large construction sites often have a significant number of different workers entering and exiting, which poses challenges for attendance and security. The high volume of staff makes it difficult to ensure that the person clocking in is indeed themselves. Relying on security personnel for visual identification can easily lead to mistakes, resulting in issues such as buddy punching, which negatively affects human resource management efficiency. Moreover, failing to accurately identify entrants can create security loopholes, allowing unauthorized individuals easy access, leading to potential dangers or losses. Therefore, relevant regulations often require contractors to maintain accurate records of entries and exits. Thus, a reliable method for accurately identifying entrants is crucial for improving human resource efficiency, attendance management, security, and compliance with legal requirements.

Operational Efficiency

With a large number of employees entering and exiting daily, inefficiency in this process can severely disrupt construction operations. Thus, while ensuring precise identity verification, it is also essential to ensure that the system operates quickly and smoothly.

Adaptability to Harsh Environments

Unlike indoor office settings, construction sites are greatly influenced by weather conditions. Factors such as wind, rain, and even snow must be considered, and the cleanliness of the site is generally lower, with more dust and debris. Therefore, equipment used on construction sites must be more robust and durable to withstand harsh and variable environments.



Challenge

Wiring Difficulty

Security or attendance equipment cannot simply be installed in one place and considered operational. For proper functionality, equipment must connect to power and a transmission network. For fixed installations, this is not overly complicated. However, if the systems are installed in movable containers, every installation requires complex wiring, which can reduce installation efficiency and ultimately increase costs, contradicting the goal of cost-effectiveness and decreasing the attractiveness to potential customers.

Equipment Size and Container Capacity

The equipment required by POWERPAC needs to achieve high-strength access control to prevent illegal entry, including direct intrusion and tailgating. This often cannot be easily achieved with standard half-height turnstiles commonly found at railway

stations. Full-height barriers are needed for comprehensive protection. However, the environmental differences at construction sites can be substantial, and not all sites have enough space to place a 20-foot container as an entrance. Therefore, some containers may not have openings on both ends but only at the front and back, allowing them to be positioned vertically as entrances. Some containers may even need to be reduced to 10 feet in length. Full-height turnstiles are large, making it difficult to fit them into relatively confined spaces.

Solution Details

ZKTeco's Entrance Control and Time & Attendance System Installed on Containers

ZKTeco provides a customized integrated entrance control and attendance system solution for customers, including the FHT2300D full-height turnstile and SpeedFace M4 biometric authentication terminal, connected to the ZKBio CVSecurity comprehensive security management software platform for centralized management of entrance control and attendance.

The FHT2300D and SpeedFace M4 are not installed at specific sites of POWERPAC's clients but are located within containers owned by the clients, becoming a movable entrance control and attendance system.

Biometric Authentication of Identity for Entrance Control and Attendance

POWERPAC places the entire container at the construction site as the entrance. All employees entering the site must pre-register their employee and facial recognition data in ZKBio CVSecurity. While employees are issued RFID staff cards, they do not need to swipe cards for identification when entering or exiting the site; they only need to scan their faces at the SpeedFace M4, which will perform facial recognition and matching. Upon verifying their identity and permissions, they will be granted access.



Integration with Existing Human Resource Systems

Considering that POWERPAC already has an effective human resource management system, the most cost-effective approach is to integrate ZKBio CVSecurity with their existing MS SQL database via a direct link. This enables real-time transmission of attendance records to POWERPAC's MS SQL server, allowing human resource staff to obtain timely attendance data without manually collecting it from the attendance system.



FHT2300D

FHT2300D Turnstile Customization

ZKTeco customizes the FHT2300D for different container sizes to fit each container's layout. For example, in a sufficiently spacious 20-foot container, the arm can be extended to create a wider passage while still preventing tailgating. In a narrower 10-foot container, overlapping sections of two FHT2300D units used for entry and exit can be shared, thereby reducing the space occupied by both sets of equipment inside the container.



Solution Advantages

Plug-and-Use Entrance Control and Attendance System

The solution provided by ZKTeco enables POWERPAC to create a plug-and-use large entrance control and attendance system successfully, due to the high flexibility of ZKTeco products:

- **Modular Design**

The FHT2300D full-height turnstile features a modular design, with most basic assembly completed before delivery, allowing for quick on-site assembly.

- **Strong Integration Capability**

Both the FHT2300D and the SpeedFace M4 biometric authentication terminal mounted on it have high integration capabilities, facilitating their use together. This endows the full-height turnstile with facial recognition capabilities, managed by ZKBio CVSecurity for comprehensive security and attendance management, achieving highly accurate identity verification and efficient human resource and security management.

- **Flexible Wiring**

Achieving high flexibility also requires diverse wiring options to meet various scenario needs. The SpeedFace M4 biometric authentication terminal supports multiple power supply and network connection methods. Its support for Power over Ethernet (PoE) using the IEEE 802.3at-2009 standard allows for simultaneous data and power transmission through a single Ethernet cable, making it particularly convenient for the limited wiring conditions often found at construction sites.



After installing ZKTeco's FHT2300D and SpeedFace M4, POWERPAC's container-based access control and attendance system can truly achieve plug-and-use functionality. Simply connecting to power and the PoE line allows it to be utilized for facial recognition access control and attendance management.

Quick and Precise Identity Authentication with SpeedFace M4

The solution provided by ZKTeco enables POWERPAC to create a plug-and-use large entrance control and attendance system successfully, due to the high flexibility of ZKTeco products:

- **Integrated Entrance Control and Time & Attendance Management**

All SpeedFace M4 terminals installed at the FHT2300D barriers are connected to the ZKBio CVSecurity comprehensive security management platform, equipped with multiple modules, including entrance control and time & attendance management, enabling staff to complete both access and attendance through facial authentication. This significantly improves operational efficiency as they no longer need to clock in separately after entering the construction site.

- **Accuracy**

The SpeedFace M4 is a standalone terminal with exceptional facial authentication capabilities. Its advanced ZKFace V3.9 algorithm ensures highly precise identification with anti-spoofing features, effectively preventing impersonation and buddy punching, thus minimizing manual errors by security personnel.

- **Speed**

Using facial authentication eliminates the need for staff to carry physical ID cards, saving time. The SpeedFace V5L can authenticate in less than 0.5 seconds per face, enhancing entry and exit speeds.

- **Convenience**

Workers no longer need to worry about forgetting their staff cards, reducing the workload on human resources staff who would otherwise manage manual identification and registration.

Ultimate Reliability of Security with FHT2300D

The ZKTeco FHT2300D full-height turnstile, standing at 220 cm, covers the height of an adult and provides better protection compared to typical half-height turnstiles, making it suitable for the 259 cm high space of a 20-foot container. It creates a wide barrier to prevent anyone from jumping over the turnstile. Its three-rod rotating design allows only one person to pass at a time, further effectively preventing tailgating.

Adaptability to Harsh Environments

The FHT2300D full-height turnstile selected by ZKTeco is capable of functioning well in harsh and variable environments. Its body and turnstile arm are made of SUS304 grade stainless steel (with the option of SUS306 grade for the arm), providing strong resistance to environmental factors and minimizing damage from weather or human impact. With an IP54 rating for dust and water resistance, it can operate normally in outdoor and dusty environments. It also functions within a temperature range of -28°C to 60°C and a humidity range of 0% to 95%, capable of handling severe and extreme weather conditions. Additionally, ZKTeco products undergo rigorous testing before shipment, ensuring strict quality control. The FHT2300D has a mean cycles between failures (MCBF) of 1,000,000, significantly reducing the risk of malfunction.

In addition to the robust performance of the FHT2300D, the SpeedFace M4 biometric authentication terminal also has an IP66 rating for dust and water resistance, and operates effectively within temperature and humidity ranges of -10°C to 50°C and 10% to 90%, respectively, ensuring it functions well in highly variable environments. ZKTeco's solution ensures that POWERPAC's integrated system can deliver an excellent user experience in construction environments.

Magnificent Third-party Integration Capability

One of the main advantages of ZKTeco's products is their strong integration capabilities with third-party systems. In the solution, the ZKBio CVSecurity has been integrated with POWERPAC's human resource management system via an MS SQL database link, enabling data synchronization without needing to replace the existing system. This saves costs and allows POWERPAC to maintain its own independent and mature systems, enhancing operational efficiency.

After integration, ZKBio CVSecurity delivers instant data collected from the SpeedFace M4 terminals to POWERPAC's human resource management system. Users do not need to manually transfer data from ZKBio CVSecurity to POWERPAC's system; instead, relevant attendance and access control data is automatically imported for performance evaluations, payroll calculations, workforce analytics, and recruitment. With ZKTeco products' remarkable third-party integration capabilities, the operational efficiency and cost-effectiveness of the solution are maximized.

