

Case Study Handbook

BioCV

+20° 46' 00"
Palm Recognition
Cigar Galaxy (M82):
Right Ascension 09h 55m 52.2s

Multi-modal Biometrics
Technology
+69° 40' 46"

ZKT_{ECO}

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451.91

152.68

268.38

818.71

ZKTeco Accreditations



Quality Assurance
Management



Occupational Health And
Safety Management



Environmental
Management



Information Security
Management



Information Security
Management



Information Security
Management



Software Development
Maturity



IT Service
Management

Our Partners



Customised OEM Access Control Swing Barriers for Unmanned Supermarkets in USA

Industry

Unmanned Supermarkets

Location

USA

Solution

Access Control & System Integration



Client Overview

With the rapid growth of technologies, various techniques are widely applied to people's daily lives like autopilot, self-help checkout and automated manufacturing etc. to enhance the efficiency. Our client of the solution is a renowned multi-national enterprise, and one of its multiple businesses is unmanned supermarket. Customers enter the stores and purchase in a fully automated process including palm recognition, RFID card scanning for access, exit and payment. ZKTeco offered an access control solution for the entire line of supermarkets in the USA. Here below are the requirements and the details of the deployment of the solution.



A. Full Compliance with the Needs of the Supermarkets

The unmanned supermarkets are designed with detailed assessment and evaluation to offer the best shopping experience of the customers. Thus, all the details including the size and specifications of the system must perfectly fit into the client's expectation.

- Apart from providing current various types of barriers, ZKTeco is also an original design manufacturer (OEM) which provides customized products fully according to the client's specific needs. ZKTeco manufactured and provided to the unmanned convenient stores swing barriers for access control. All swing barriers' material, colour, size, and the position of different devices, including card readers and palm readers, are designed according to the needs of the client after thorough communication.

- ZKTeco offered over 1,000 units of customized swing barriers for the entire line of Supermarkets, as ZKTeco has the ability of research and development of both software and hardware, expert teams consisting of technical and engineering experts, and large and advanced manufacturing line for OEM products in extra-large batch.

B. Reliability of Access Control System

Unlike the conventional retail stores manually operated by staffs, the client's unmanned supermarkets are fully operated automatically by biometrics recognition for identity verification, and automated POS systems for purchase of goods, and there is no staff for services. If error of devices often occur or there are frequent needs of maintenance, the efficiency of the operation of the stores will be significantly decreased.

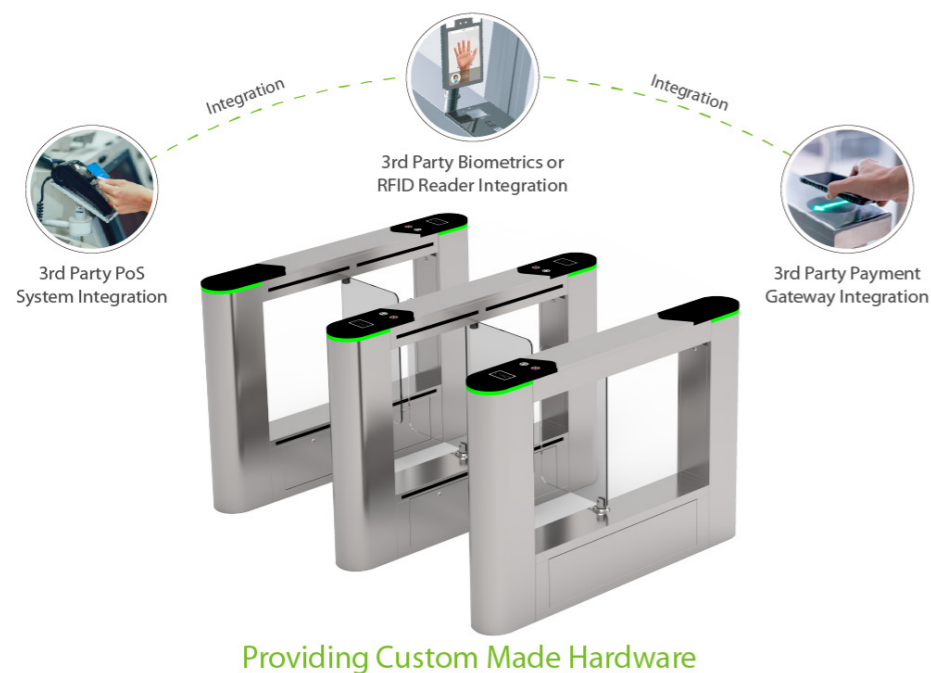
Our client has deep knowledge and understanding to the relevant specifications of the devices, and stated particular and precise requirements of the devices, including:

1. The devices must be certified with UL294 standard by the Underwriter Laboratories;
 2. The devices must reach the standard of the mean cycle between failures (MTBF) in the quality test.
- ZKTeco has obtained the UL294 certification for all the swing barriers. UL294 is a compliance standard of access control devices with 4 major requirements including level of destructive attack, line security, endurance and standby power. Apart from UL294, the devices are also certified by CE to ensure the quality of the swing barriers.
 - ZKTeco installed in the swing barriers high-quality brushless direct-current motors with compact size yet high performance, IP65 waterproof and dustproof level, and the certifications of UL, CSA and CE. The MTBF of the swing barriers reach as high as 10,000,000 times to minimize the failure and maximize the efficiency of the supermarkets' operation.

C. Integration with Third-party Systems

Another critical requirement is the integration with the client's own systems including biometrics devices, POS systems and RFID readers. ZKTeco must provide a system that enables integration with the above devices in order to enhance the cost efficiency of the entire solution.

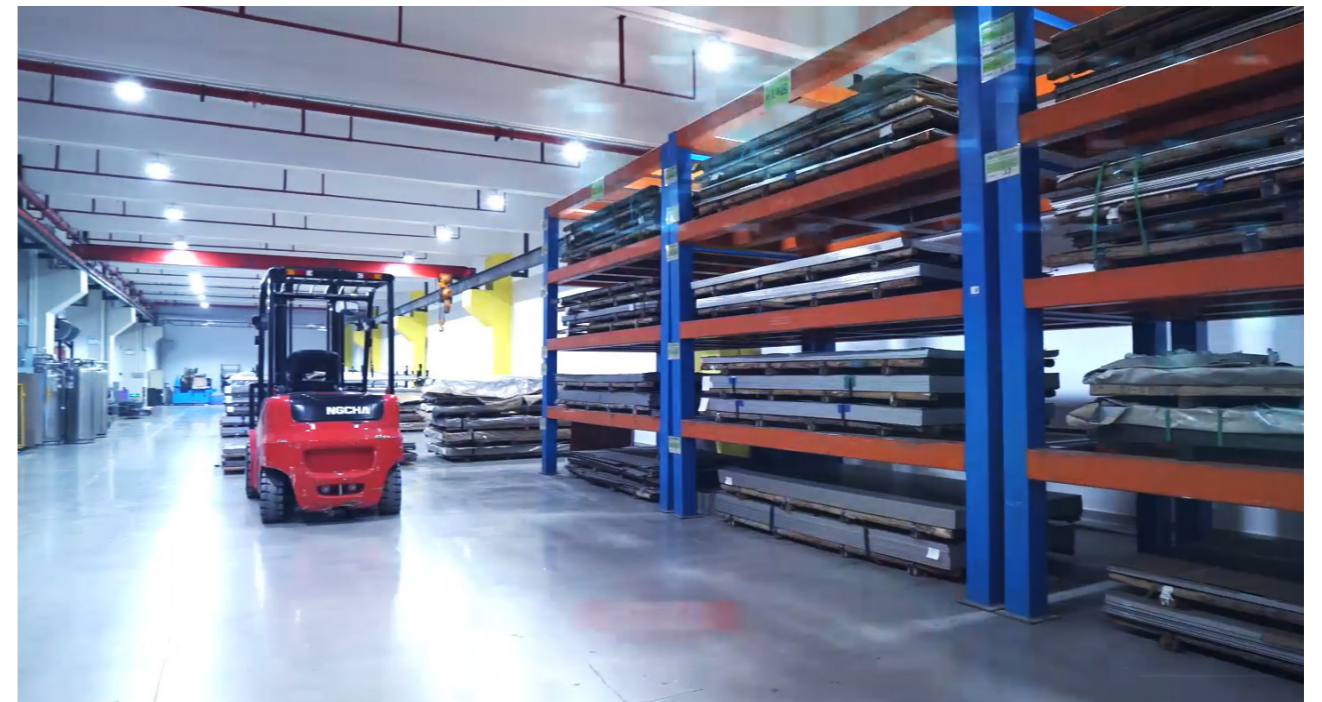
- ZKTeco has the comprehensive capability of research & development of both software and hardware, and expert teams consisting of multiple engineering and technical experts. With years' experience in biometrics and POS systems which have been covered in its major business, ZKTeco is able to perfectly combine the solution with the client's own devices and system.
- The swing barriers customized by ZKTeco are designed specifically to embed the client's palm recognition readers and QR code readers for interlinkage. The swing barriers' access and exit is then controlled by the verification system.
- The swing barriers are also connected with the POS systems of the supermarkets. The POS system thus are enabled to access the data of the access control of the swing barriers for the enhancement of convenience and efficiency of management.



D. Participation of Product Design and Manufacturing

The client has strict requirements of the solution and expects to have thorough understanding to the details of the design and manufacturing of the access control devices.

- ZKTeco invited the client's representatives for visit to our manufacturing base for more understanding to the entire production process and better communication, to ensure that the solution perfectly fits the requirements of the client.
- The client delivered a technical team to join the quality test of the products to guarantee satisfactory results of the solution.



FRUIT &
VEGETABLES

Carrefour Integrated Time & Attendance Management Solution for the Entire Retail Network in Romania

Industry: Retail **Location:** Romania
Solution: Time & Attendance

The Challenge

In this case study, our partners Advance S.R.L analyze the requirements for an integrated Time & Attendance-related project for **Carrefour** Romania in the retail industry, currently managing 17.000 employees.

The initial project specifications included implementing a comprehensive T&A system in which:

Employees can record when they clock in and out, track breaks, and other attendance events on a device. The attendance devices must be accessible to the customer's (Carrefour) local network from any point and at any time. Therefore, the device must include multiple wired and wireless communication methods.

Resources are used in the employee database in the customer's system and infrastructure.

The system generates employee attendance reports for subsequent use by the client's Human Resources department.



Our Partner



Advance S.R.L, is in Cluj-Napoca, Romania and is part of the Building Equipment Contractors Industry. With more than 120 employees and their own R&D and Project departments, Advance has developed many projects related to the security industry and to the time management sector, making a name for themselves as a complete technology solution provider. **Advance S.R.L.**, a company with deep technical know-how and a remarkable experience matured over the years, has selected ZK Teco among many other manufacturers working in the mentioned business lines.

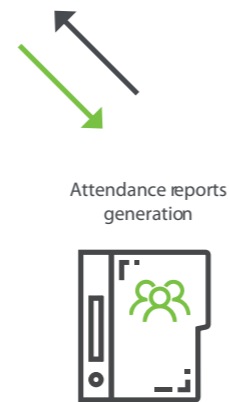
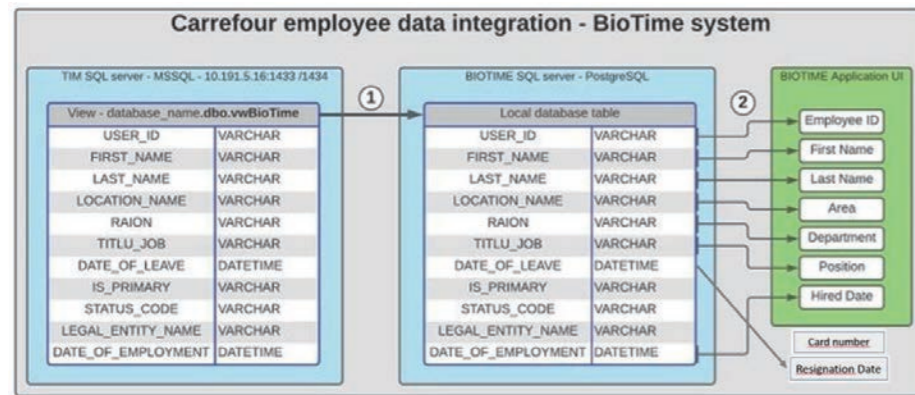
The Project

The project's key objective is to grant both effective Time & Attendance management and a seamless user experience integrating ZKTeco platforms. To this end, two main elements were used to develop the solution:

ZKBio Time (software) and ZPad Plus (hardware). ZKBio Time allows the creation of Middle tables to manage the data created within the MS SQL server (Carrefour) and convert them into a set of values that can be processed and displayed correctly. Based on the employee's unique key name or **USER_ID** data, ZKBio Time creates the employee's anagraphic sheet and updates the existing sheet details using a mapping table such as the one provided below:

Mapping Table

Employee data integration with ZKBioTime



The solution works as follows:

1. It implements a Server connection table between BIOTIME POSTGRESQL and MSSQL, performing a data GET whenever deemed necessary by the system administrator.
2. Creates/Updates employees within the T&A system (software and devices), although its inception uses a different protocol.
3. Configuration and automation of recurring tasks: ZKBio Time POSTGRE database consults customer's MS SQL database scheduled tasks.
4. Data is formatted and adapted to ZKBio Time's database with employee privilege integration.
5. The device provides attendance events and punches.



Benefits of the Solution

Replacing the time management system with ZKTeco solutions has greatly reduced operational costs for Carrefour, providing:

- A complete and unique software structure
- All devices are synchronised and updated
- Remote management from anywhere
- Customised report generation
- Multiple types of verification according to requirements
- Flexible and reliable network communications
- User-friendly for employees
- Highly scalable solution

System Elements

Key aspects taken into account and the main functionalities implemented in the solution.

ZPad Plus

As for the hardware, ZKTeco's **ZPad Plus** is the Time & Attendance device of choice thanks to its interface communication features, flexible power supply, push protocol for real-time software data exchange, infinite customization options (thanks to its Android core) and aesthetic looks. In addition, its dual antenna makes it the ideal device to punch in and out with the currently distributed cards, allowing future optional use of QR codes or fingerprint recognition.



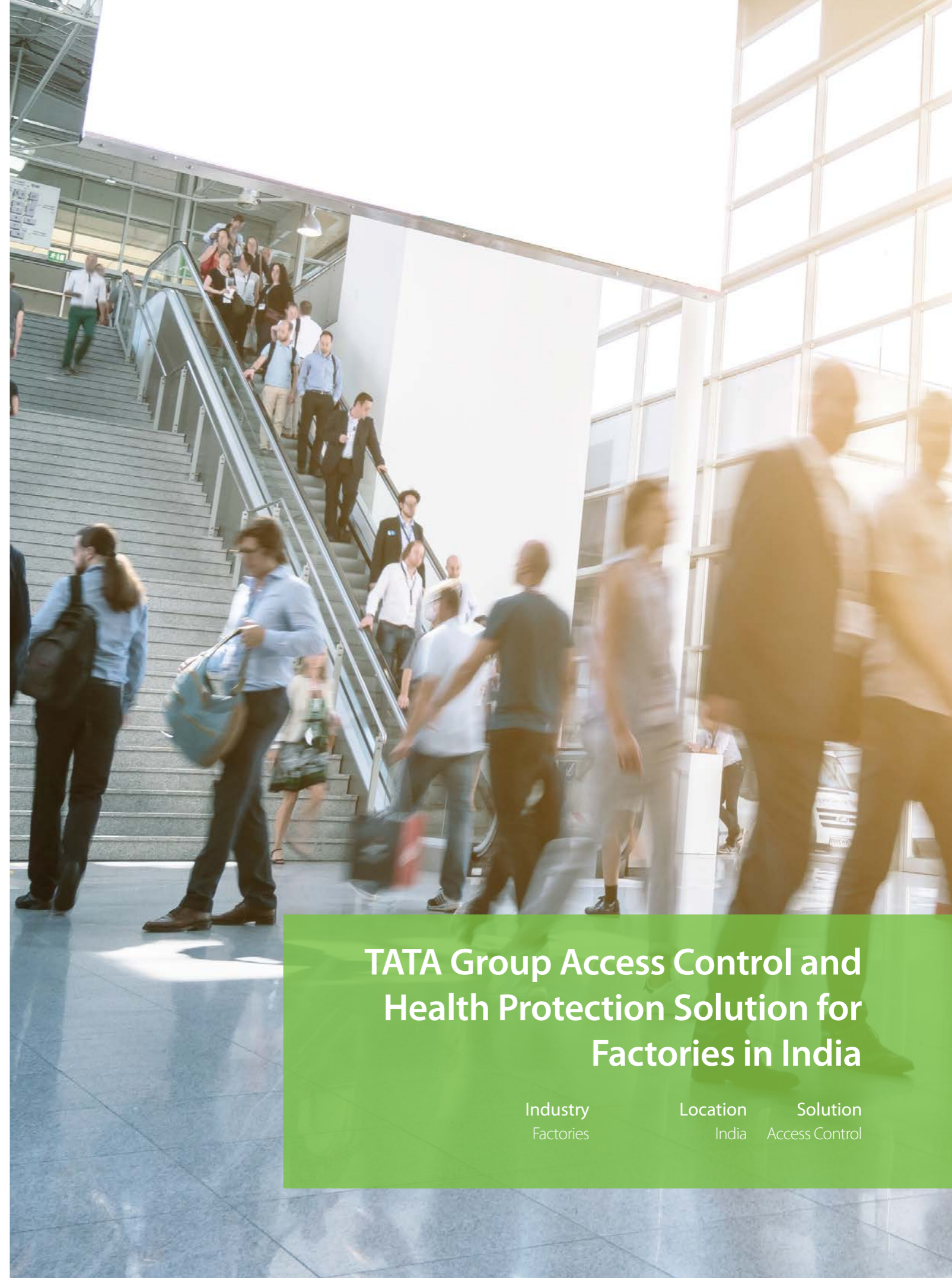
- ZPad Plus can display a personalized interface or company logo on the screen.
- It allows the selection of attendance events via its touch screen (Check IN, Check OUT, and Breaks).
- Wireless communication via WiFi and 4G.
- Registration using different verification systems: fingerprint, card or QR.
- • • • • • • • • •

ZKBio Time

ZKTeco's ZKBio Time software is the ideal solution for the project requirements; thanks to its native on-premise architecture as well as the possibility to build Middle Tables for data integration.



- Installation and maintenance within the customer's infrastructure (allowing an on-premise architecture).
- Automatic update of employee database every 24 hours, proactively obtained from the company-owned server (located on a different network).
- T&A reports generation that reflects the reports currently used by the customer's HR department.



TATA Group Access Control and Health Protection Solution for Factories in India

Industry
Factories

Location
India

Solution
Access Control

Project Description

Tata Group is an Indian multinational conglomerate headquartered in Mumbai, Maharashtra, India. Founded in 1868 by Jamsetji Tata, the company gained international recognition after purchasing several global companies. It is one of the biggest and oldest industrial groups in India. Each Tata company operates independently under the guidance and supervision of its own board of directors and shareholders.

Our solution involves the newly applied access control management system with health protection measures for the management of their factories of TATA Electronic and Titan Factory which are nationally distributed. ZKTeco is honoured to provide a complete solution management for them.

Solution Details

A. Reliable and Efficient Biometric Verification Method

In order to ensure accuracy of access control, the conventional card punching has to be replaced as it does not satisfy the needs due to that it is not capable to verify if the card holder is the authentic person the card belongs to, yet an access control system that truly verifies and authenticates the persons punching in or out does. After having a deeper understanding of different access control methods, our client required a biometric verification system with facial recognition function.



Another problem is that TATA Group has as many employees as 200,000 nationwide, thus the conventional methods have been way too inefficient. Since our client highly concerns both the security of the site and efficiency of human resources, a truly reliable verification method of a person's identity which does not sacrifice quickness thus has become the critical point of the security. Thus it requires a biometric verification method with unique authentication of a person's identity.

Fingerprint verification is becoming general in verification as it offers both preciseness and efficiency, however physical contact is one of the main modes of virus transmission. To secure hygiene but not sacrifice accuracy and quickness, a reliable authentication method must be deployed, our facial recognition then becomes the optimal choice.

Solution

ZKTeco in each factory deployed a 5-channel entrance which consists of ProFace X [TI] Facial Recognition Access Control Terminals and SBTL 300 Series Swing Barriers. They offer high-performance facial recognition functions, with staffs' face images registered, there are enabled to simply have their faces scanned to finish the entire verification process in only 0.3 second.



B. Health Protection Measures

TATA Group also needs an effective health protection measures to ensure safety of the factory sites. As the most common symptoms of COVID-19 include fever, malaise, dry cough and shortness of breath, identifying people with high temperature has become one of the most common method to decrease the risk of virus spread. Generally, independent temperature detection devices are applied in access points including handheld infrared ear or forehead thermometers, however it not only take more manual work to staffs, but also does not prevent manual mistakes of detection. ZKTeco as a complete solution provider always expects to offer higher efficiency and performance.

Apart from concentration on temperature, wearing mask is regarded as one of the significantly useful measures to reduce transmission, thus it is critical to ensure that people including both staffs and customers entering the shops put on their masks.

Since the Terminals are enabled with thermal imaging function, temperature is also detected during the recognition process, no further independent temperature check is required. The system is able to automatically display all real-time detected temperature to promptly identify all potential threats.

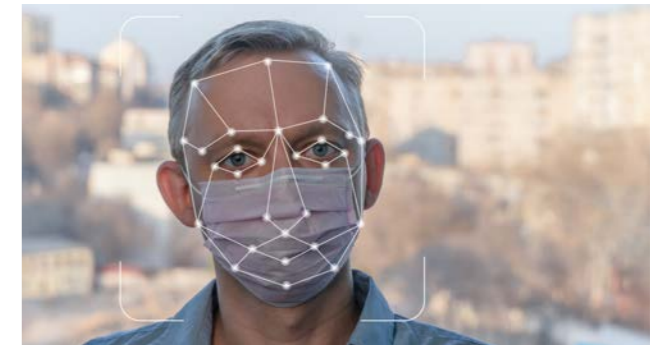
In the temporary construction sites of factories, ProFace X [TI] Facial Recognition Terminals are deployed to ensure people are masked on and with normal temperature, since ProFace X [TI] Terminals are enabled with thermal imaging function, no further independent temperature check is required. The system is able to automatically display all real-time detected temperature to promptly identify all potential threats.

An obvious contradiction is, we need a facial recognition for effective access control, and in the meanwhile we need to ensure that everybody covers their faces. Facial Recognition is an optimal choice for accurate verification, however since 2020 most things do not work the way they were anymore. Since the pandemic, mask has been the most critical measure to reduce transmission of virus as it covers the entire lower face to prevent droplet transmission. In this time, masks have become the biggest obstacles to the conventional facial recognition devices and they cover a certain part of the facial features one human face which are critical to the verification process.

As our deployment of biometric devices are expected be used by the entire 200,000 employees, we do not expect every user taking off their masks to scan their faces, as we do not hope to see the efficiency it should provide seriously depreciated, and we also do not hope to see people taking off their masks unnecessarily anyway.

Solution

With advanced facial recognition algorithm, the deployed ProFace X [TI] Terminals are all enabled to verify faces even if they are masked. Thus facial recognition with mask is accepted, thus students are not required to remove their mask during recognition to minimize respiratory droplet transmission of virus. Moreover, the terminals are also able to detect if people properly wear masks. All staffs and customers are eligible for access only with mask on to minimize respiratory droplet transmission of virus.



C. Visitor Management

The factories not only are accessed by their employees but also visitors, including clients and other external personnel that they also need to manage. As the factories are divided into different areas with different departments, thus it is critical that the visitors only have access to the specific areas they are allowed to.

Solution

There are some certain areas that require further permissions for access, including manager rooms, store rooms, production line areas, clean rooms and changing rooms. We have also deployed SBTL 300 Series Swing Barriers with KR503 Card Readers for access control in clean rooms and changing rooms. Other areas are deployed with KR503 readers also, and all readers are connected to the central management system via either InBioPro 460

or C3 Pro Access Control Panels. Visitors who needs to have access to any one of the above areas will be issued RFID cards with their personal information quickly registered and their specific rights of access. They are only eligible to have access to the specific areas they are granted.



End User: TATA Group

Configurations

System	Device Name	Device Model
Access Control	Facial Recognition & Body Temperature Detection Access Control Terminal	ProFace X [TI]
	Access Controller	InBio Pro 460
	Access Control Card Reader	KR503
	Access Control Software	ZKBioSecurity

Photo Gallery



ZKTeco Under-Vehicle Inspection System (UVIS) for Security Protection of Hong Kong-Zhuhai-Macao Bridge

Industry	Location	Solution
Hong Kong-Zhuhai-Macao Bridge	Hong Kong	(UVIS) Systems

Clients

The Hong Kong-Zhuhai-Macao Bridge is a landmark infrastructure connecting the three metropolises in China with over 55 km in length, making it the longest sea-crossing bridge in the world. Given the importance to the development of the Greater Bay Area's trade, tourism and economy, and the length and complexity of its structure, there are significant security challenges including detecting potential security threats such as smuggling, terrorism and illegal immigration.

To address these challenges, the Electrical and Mechanical Services Department (EMSD) of Hong Kong initiated the installation of under-vehicle inspection systems (UVIS) on the bridge to provide real-time monitoring and threat detection capabilities, which are critical in enhancing the bridge's security, ensuring safe and efficient transportation for all users.

Requirements

High-speed Image Capturing | Heavyweight load Bearing | Ultimately Clear Imaging | Extremely Quick Installation | Real-time Monitoring

- The project aimed to procure 20 sets of UVIS, with four sets installed and deployed in the current phase.
- It is required to capture clear images up to 60km/h vehicle speed.
- The system must support up to 30 tons weight for heavy-weight vehicles.
- The system needed a high-resolution colour image for clear inspection of vehicles.
- The installation process had to be completed within 10 minutes using a portable terminal.
- The UVIS system was to provide real-time monitoring with a high-resolution monitor for real-time image inspection.

Solution

To provide a comprehensive security solution for the bridge's complex security challenges, ZKTeco's ZK-VSCN100 UVIS system was chosen, which is a high-end system equipped with dual high-speed cameras, infrared sensors for object detection, and fill light for image-capturing.

The ZK-VSCN100 UVIS system can scan the undercarriage of vehicles at a speed of up to 60km/h, while capturing clear and detailed images, ensuring that no potential threats are missed. The system supports heavy-weight vehicles of up to 30 tons.

The ZK-VSCN100 UVIS system provides real-time monitoring for immediate threat detection and is easy to install with the portable terminal, enabling installation within 10 minutes. The system's integration with surveillance cameras ensures that the captured images are easy to search and analyze, providing operators with a seamless and efficient security solution.

The core features of the ZK-VSCN100 UVIS system include:

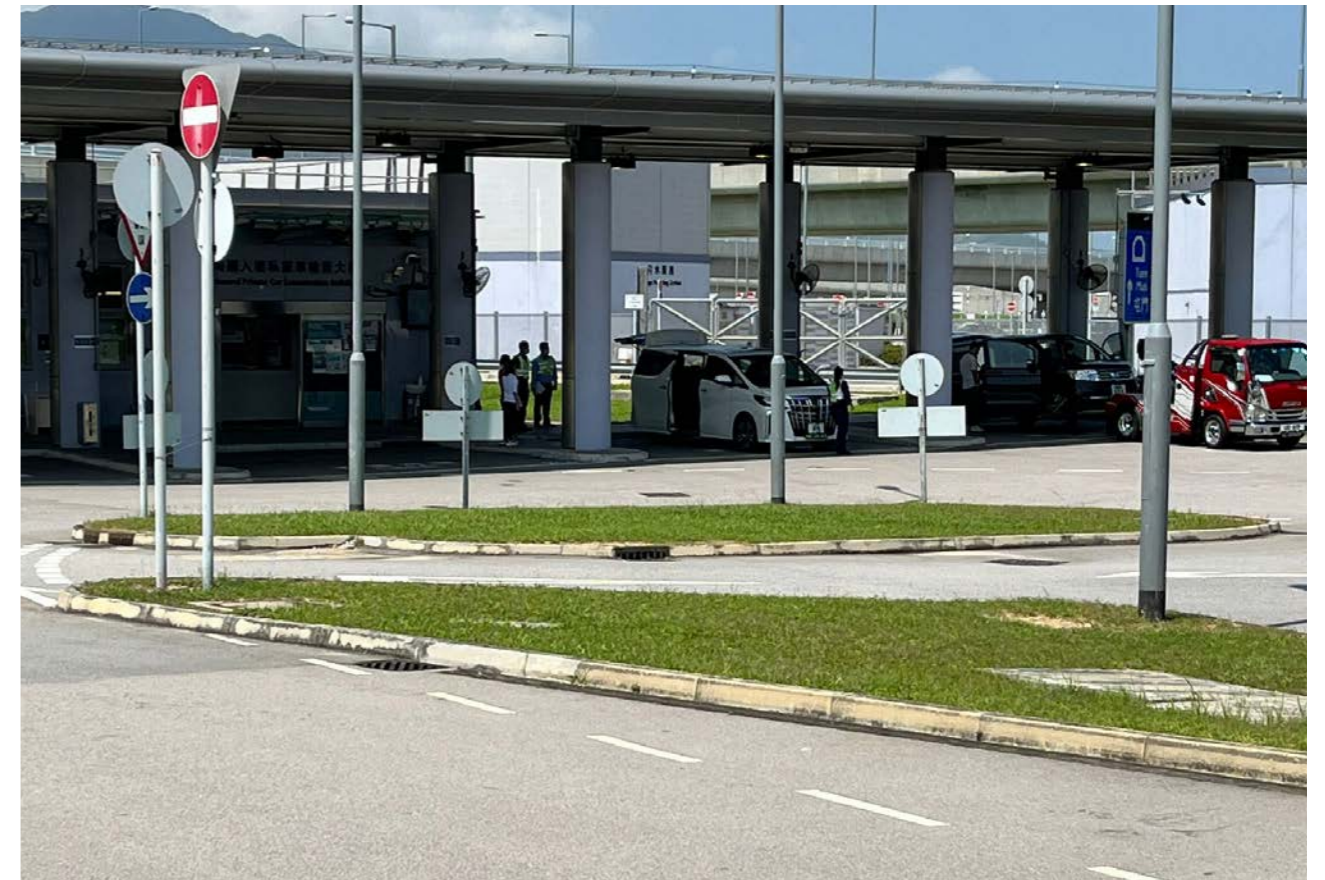
- Dual high-speed cameras accurately capture the undercarriage of vehicles at high speeds for comprehensive security coverage.
- Infrared object detection sensors ensure no potential threats are missed.
- Fill light for image-capturing ensures accurate and detailed captured images even in low-light conditions.
- Supports capturing clear images up to 60km/h vehicle speed, providing real-time monitoring capabilities.
- Supports heavy-weight vehicles of up to 30 tons for comprehensive security coverage of most vehicles.
- Provides real-time monitoring for immediate threat detection, ensuring quick response times.
- Portable terminal enables easy installation within 10 minutes, providing a user-friendly and efficient installation process.
- A colour image resolution of minimum 6000*2048 pixels provides clear and detailed images for accurate detection and analysis of potential threats.
- The operator terminal has a high-resolution monitor for real-time image inspection for efficient and accurate image analysis.
- The system's integration with surveillance cameras enable capturing of vehicle outlook images, which can be correlated in the backend for better analysis.



ZKTeco's ZK-VSCN100 UVIS system provides a comprehensive and efficient security solution for the Hong Kong-Zhuhai-Macao Bridge. The system's advanced features and user-friendly design make it an ideal solution for enhancing security measures in large-scale infrastructure projects. The ZK-VSCN100 UVIS system's efficient performance and real-time monitoring capabilities ensure quick response times and accurate threat detection, providing all users a safe and secure transportation link.

Configurations

System	Type	Quantity
Under-Vehicle Inspection System	Under-vehicle scanner	4
	Operator terminal	4
	Surveillance camera	4





Access Control with Pandemic Prevention for a Major Metro System in Argentina

Industry: Metro Station

Location: Argentina

Solution: Access Control

Project Description

Project Site: Argentina, South America

The globally spread COVID-19 has been changing people's daily life, work, school, gathering are never the same again. Given the prevailing COVID-19 infection, a reliable verification system with health protection system which is also efficient in pandemic control is critical to all major public transport spots with numerous people traffic. As a global biometric verification enterprise, ZKTeco has been striving for providing safe and efficient products. ZKTeco is honoured to provide a quick yet efficient solution to a major metro system in Latin America. Here are their major requirements.

Project Requirements



QR Code Recognition

QR codes are generally applied in train stations for seat reservation. Passengers are required to pre-register and reserve their seats on mobile app., then upon arrival to the station present their specific QR codes on their phones which are delivered upon their purchase of train tickets. Our client thus required ZKTeco to provide a more efficient and precise .

Reliable Method against Virus Transmission

As the most common symptoms of COVID-19 include fever, malaise, dry cough and shortness of breath, identifying people with high temperature has become one of the most common method to decrease the risk of virus spread. Generally, independent temperature detection devices are applied in access points including handheld infrared ear or forehead thermometers, however it not only take more manual work to staffs, but also does not prevent manual mistakes of detection. Apart from concentration on temperature, wearing mask is regarded as one of the significantly useful measures to reduce transmission, thus it is critical to ensure that people entering the crowd put on their masks.



Integration with the Existing System

Our client already has an operation system for seat reservation. Considering efficiency and cost effectiveness, our client expected to remain their existing system instead of an entire replacement. Thus, the deployed devices must be integrated with and overdubbing the existing system.



Type of End User: Metro System

Configurations

System	Device Name	Device Model
Access Control	Facial Recognition Terminal	SpeedFace V5L [TI]

Technical Features

- ZKTeco SpeedFace V5L [TI] Facial Recognition Terminals have been deployed at the entrances of the metro stations.
- All passengers continue to present their pre-obtained QR codes on screen, and all QR codes are read by the SpeedFace V5L Terminals. They are only eligible to access they are authorized to after successful verification.
- Temperature will then be detected during the recognition process, no further independent temperature check is required. The system is able to automatically display all real-time detected temperature to promptly identify all potential threats.
- The SpeedFace V5L [TI] Terminals are able to detect if people properly wear masks. All passengers are eligible for access only with mask on to minimize respiratory droplet transmission of virus.
- All SpeedFace V5L [TI] Terminals are connected to the client's own management software as ZKTeco is able to perform SDK 3rd party integration with our devices.
- With ZKTeco's SpeedFace V5L [TI] Terminals, the efficiency of both access control and health protection are significantly enhanced as no more time consuming manual process are needed anymore. And it is precisely guaranteed that only people complying the health standards are eligible to have access to certain public areas which is believed as one of the most critical measures for the potential termination of pandemic.

Function Description

- SpeedFace-V5L [TI] is a fully upgraded version of the SpeedFace-V5L [TD] visible light facial recognition body temperature detection terminal, using Thermal Imaging intelligent engineering facial recognition algorithms and the latest computer vision technology.
- It supports both facial and palm verification with large capacity and speedy recognition, as well as improves security performance in all aspects. SpeedFace-V5L [TI] adopts touchless recognition technology and new functions namely temperature detection and masked individual identification which eliminates hygiene concerns effectively.
- It is also equipped with ultimate anti-spoofing algorithm for facial recognition against almost all types of fake photos and videos attack. Importantly, the 3-in-1 palm recognition (Palm Shape, Palm Print and Palm Vein) is performed in 0.35 sec per hand; the palm data acquired will be compared with a maximum of 3,000 palm templates.
- The terminal with temperature and mask detection will be a perfect choice to help reduce the spread of germs and help prevent infections straightly at each access point of any premises and public areas such as hospitals, factories, schools, commercial buildings, stations during the recent global public health issue with its fast and accurate body temperature measurement and masked individual identification functions during facial and palm verification.

Photo Gallery





Monticello Grand Casino Entertainment Resort in Chile Access Control Management Case Study

Industry	Location	Solution
Casino	Chile	Access Control

Project Description

Project Site:

Monticello Grand Casino and Entertainment World the largest casino in Chile, was opened in 2009, with a spectacular performance by Jennifer Lopez and Marc Anthony, establishing Monticello as Chile's ultimate entertainment destination. Located only 45 minutes from Santiago, Monticello Casino in Chile has hosted celebrations like Carnival Under the Stars, exclusive parties with the world's best DJs, and sporting events that include the Tennis Masters Tournament. Designed for fun for all ages, Monticello is a family-friendly destination and offers the largest range of entertainment in the country, all under one roof.

Project Requirements

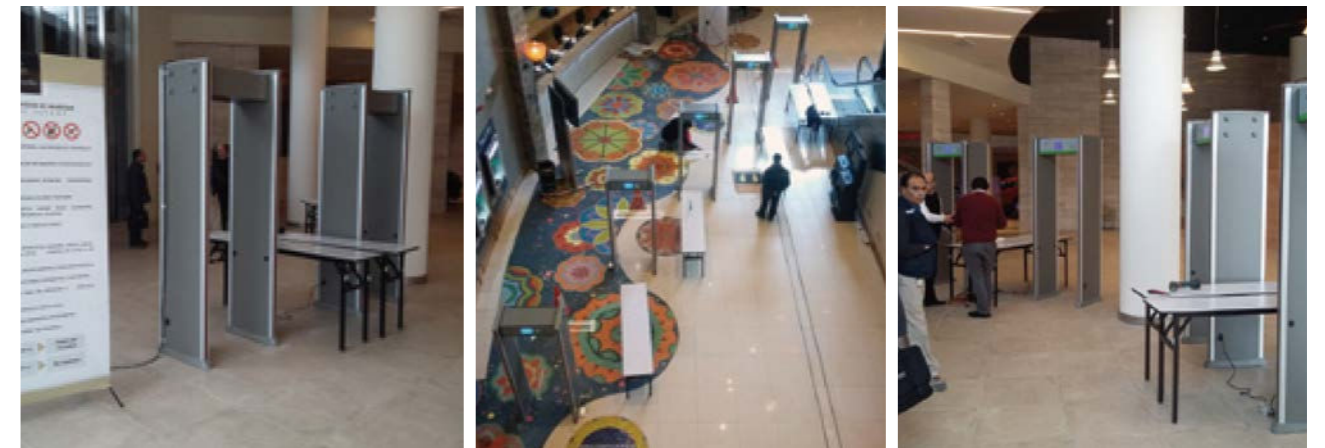
In July, the Casino has encountered a fatal gunshot which caused 2 deaths and left 6 people injured. The incident has forced the Casino and related governmental departments to fully review the existing security problems. In fact, in recent years it is not rarely seen that public security crisis occur in entertainment premises. In June, Resorts World Manila, the renowned casino in Philippines, has encountered gunshots which caused over 30 deaths. These occurrences have raised the public concern regarding the public security.

As a reputable entertainment provider, it would be hugely threatening to clients' lives if the same kind of crisis occur again, with increasing terror attacks globally coming with the growing tension among nations and geopolitical risks, it is definitely necessary to enhance the public security level in order to prevent losses of clients.

Reliable Weapon Detection System

As a premise providing gambling entertainment and services, Monticello Grand Casino needs to serve a great quantity of clients including a large amount of walk-in gamblers. It would not be realistic and possible to register every client's identity, and it would not prevent armed attacks either. Thus, a feasible solution is a system that is able to instantly and effectively detect and recognize dangerous good including weapons in order to stop any potential threat to security.

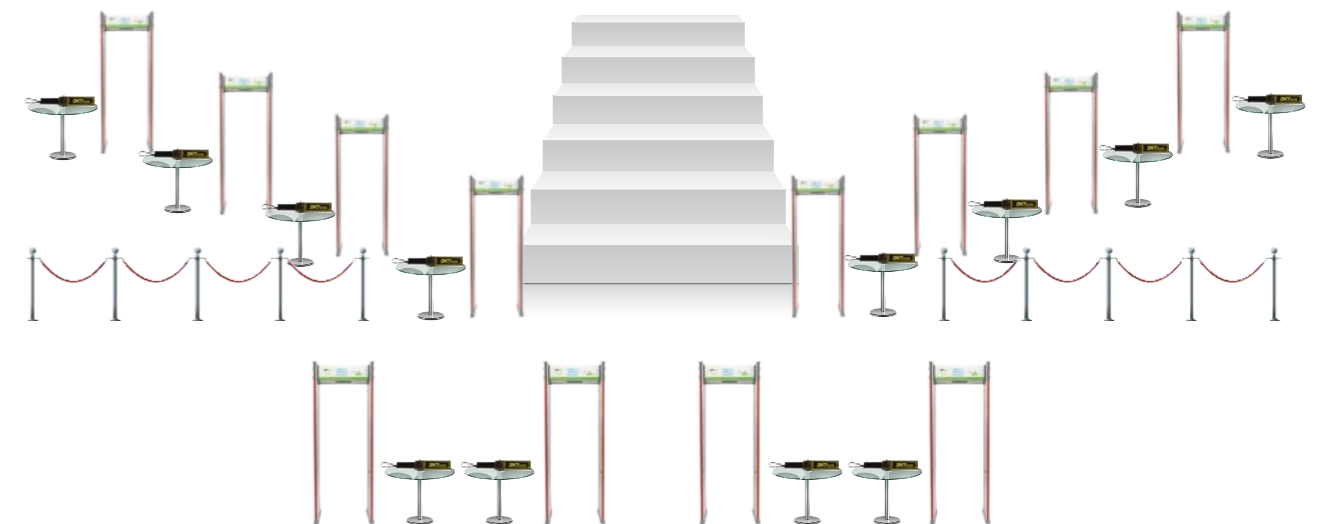
End User: Monticello Grand Casino



Configurations

System	Device Name	Device Model
Access Control	Walk-through Metal Detector	ZK-D3180S
	Hand-held Metal Detector	ZK-D100S

Schematic Diagram



Technical Features

- The applied solution involves 16 units of ZK-D3180S Walk-through Metal Detectors and 20 units of ZK-D100S Hand-held metal detectors.
- The walk-through metal detectors are deployed in various entrances of the casino. All visitors are required to be scanned by the devices to ensure that no weapons or abandoned goods are carried into the area of casino.
- Due to the instant and emergent needs of the deployment of a system for the detection of weapons, it requires an easy installation that does not need large space and modification. Thus, ZK-D3180S are deployed with its easy assembly and installation, its modularization design also enables easy maintenance and replacement.
- Security staffs of the casino regularly patrol the area and randomly perform security inspections with the hand-held metal detectors.
- With instant sound and LED notifications, once any metal weapon is scanned and discovered, security staffs will be promptly informed for the prevention.

Function Description

- ZK-D3180S is a walk-through metal detector with ultimately outstanding performance of metal detection, with 18 mutual over-lapping detection zones and simultaneous alarm from multi-zones, it easily detects all means of metal objects to offer full preciseness. It also has adjustable sensitivity levels from 0 to 255 to suit every customer's needs.
- ZKD100S is a hand-held metal detector specially designed for body search of metal weapons. With rechargeable battery it is convenient for security patrol and random metal detection in the entire area.
- With sound and LED alarm notifications, when any metal is detected, security staffs are instantly informed and the LED indicates the position of the detected metal.
- The walk-through metal detector are protected by password verification, only authorized persons are able to perform operation to the devices after successful verification.
- Generally one major concern to the actual application of metal detection devices is that its potential harm to human body, necessary life-maintenance devices or other important devices. The applied devices are all harmless to human body, pregnant women, heart pacemakers, magnetic floppy or recording tapes etc.
- The ZK-D3180S also is able to perform alarm counting for the convenience of review of security measures, automatic visitors counting also is favorable to business analysis.



Runergy PV Technology in Thailand Access Control Solution for Large-scale Manufacturing Base of Solar Cell

Industry

Manufacturing | Research & Development | Solar Cell

Location

Thailand

Solution

Access Control

Client Overview

Jiangsu Runergy New Energy Technology Co., Ltd., established on 10th May 2013, is a leading manufacturer of solar cells in the industry committed to realizing the corporate's vision of creating wealth, value and clean energy for the society. Since its establishment, the company has seized the global new energy development opportunities and focused on the research and development and production of high-efficiency solar cells. According to PV Infolink's statistics, in 2020, 2021, and the first half of 2022, the company's solar cell sales was ranked third in the world.

ZKTeco is honoured to have had offered an access control management system for the solar cell manufacturing base of Runergy PV Technology (Thailand) Co., Ltd., which is a subsidiary of Jiangsu Runergy in Thailand.



Solution Details

The clients needed an efficient access control system for their large-scale workforces accessing and exiting the main entrance and different areas of the manufacturing base.

Challenge 1

Apart from the main entrance, there are over 60 locations that requires access control management in different areas of the manufacturing base.

Solution

ZKTeco deployed an SBTL2000 Swing Barrier with a ProID10WM RFID Card Reader as the main entrance gate of the manufacturing base. For the other 69 access points in the manufacturing base, ZKTeco also deployed at each a ProID10WM RFID Card Reader.

All staffs are issued with their own staff cards with their personal information stored. In order to access and exit, they are only required to swipe their cards over the card readers.

ZKTeco SBTL2000 Swing Barrier offer speed of throughput as quick as 30 time per minute, which enables it to easily cope with large access and exit flows even in the peak hours.

ProID10WM RFID Card Reader also enables ultimately quick reading speed as ≤ 300 ms for smooth and efficient access & exit.

Challenge 2

Our client researches, develops and produces a great quantity of pioneering technologies and innovative products, and the related personnel, confidential information and production and manufacturing facilities are stored in the base. Thus, it is expected to enhance the security level in certain critical areas like manufacturing workshops or offices than other areas.

Solution

ZKTeco deployed at the critical areas 7 units of TS2000 Pro Tripod Turnstiles. At each access & exit channel, 2 sets of SpeedFace V5L Hybrid Biometric Recognition Standalone Terminal, one for access and another for exit.

Staffs who are authorized the access the critical areas are registered with their face images in the database. To access and exit the areas, they are required to have their faces scanned by the SpeedFace V5L terminals.

The terminals are equipped with advanced Visible-light Face Recognition function, enabling it to precisely recognize face images within 1 second. With the pioneering anti-spoofing face recognition algorithm, it effectively identifies print attacks, including laser, coloured and black & white images, video attacks and even 3D mask attacks.



Challenge 3

The manufacturing base is ultimately large in size, and the access points are separated in different zones, which could result in difficulty in the monitoring and the prompt handling of any security abnormality.

Solution

All the devices are connected to the InBioPro Series Access Controllers and are centrally managed by the ZK BioCVSecurity Access Control Management Software, all access and exit records are transferred to the software for unified management. Manual collection of every device is no longer needed.

The InBioPro Series Access Controllers are enabled with advanced access control functions including global anti-passback and global linkage. In case any security abnormality like tail gating, illegal break-ins or device damages is inspected, prompt notifications will be delivered to the software for instant handling of security events.

Configurations

System	Device Name	Device Model	Device Quantity
Access Control	Tripod Turnstile	TS2000 Pro	7
	Swing Barrier	SBTL2000	1
	ProID10WM	Card Reader	70
	Hybrid Biometrics Standalone Terminal	SpeedFace V5L	14
	Access Controller	InBio Pro 460	9
	Access Controller	InBio Pro 260	16
	Access Controller	InBio Pro 160	8



Ministry of Foreign Affairs of the Republic of Indonesia Access Control and Time & Attendance Solution

Industry

Foreign Affairs of the Republic of Indonesia

Location

Location Indonesia

Solution

Access Control and Time & Attendance Solution

Client

The Ministry of Foreign Affairs of the Republic of Indonesia is an Indonesian government ministry responsible for the country's foreign politics and diplomacy. Its headquarter buildings are located in Pejambon 6 Central Jakarta, Jakarta Capital Region, Indonesia. ZKTeco is honoured to have had the chance to offer an integrated access control and time & attendance solution for them.

Solution

- 52 units of ZKTeco's SBT6000 series swing barrier are deployed in the various entrances of the buildings of the Ministry to form multiple channels for access & exit use.

Each channel are deployed with 2 units of ZKTeco's FaceDepot-7B hybrid-biometrics access control standalone

- terminals, one for access and the other for exit.

All of the devices are connected to ZKBioSecurity management software for centralized management.

Absolute Reliability of Access Control

- As the official department in charge of the foreign affairs of the nation, the Ministry of Foreign Affairs of the Republic of Indonesia requires absolute security to prevent any illegal access that may cause significant threat to the national interest.
- The Ministry has up to approximately 3,400 public servants, and a total number of employees of approximately 69,000, which is extremely difficult in manual security monitoring.
- Manually verifying every accessing person including employees and visitors cause heavy cost of both time and human resources and would not prevent mistakes.
- A more precise and effective system securing the access to the buildings are necessary.
- All access and exit records are delivered to ZKBioSecurity and are instantly viewable for any security use.
- All employees working in the Ministry buildings are pre-registered with their personal information and their face

images in the database.

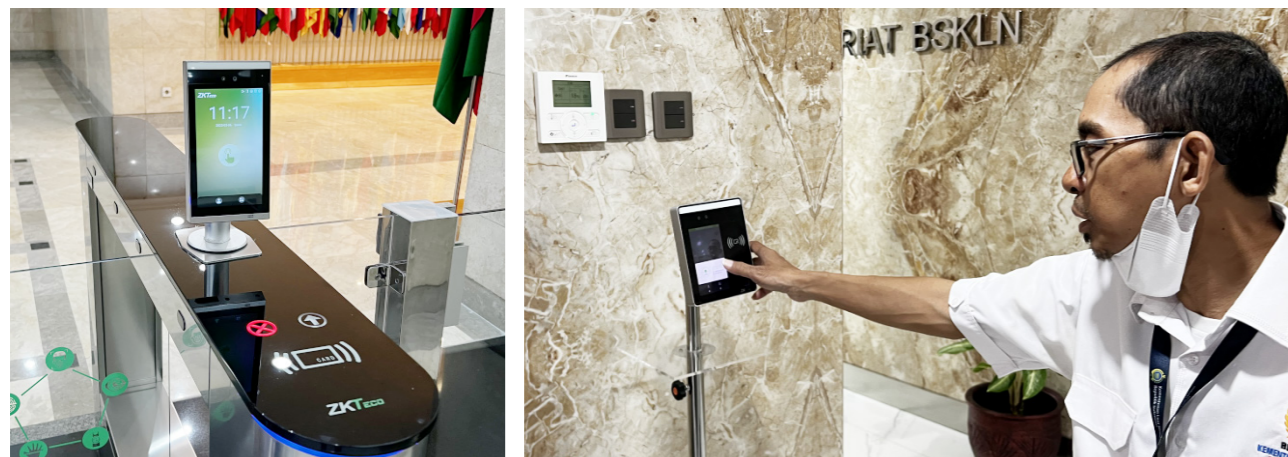
- To access the buildings, they are required to have their faces scanned by the FaceDepot-7B terminals.
- FaceDepot-7B terminals are able to perform precise face recognition with its advanced algorithm and from a distance of 3 metres for quick yet accurate verification.
- Upon successful matching with employees' faces and the database, they are granted access to the buildings and to their specific workplaces.
- Apart from the access process, one other critical feature is the anti-passback function. Any person who attempts to exit without any corresponding access record will be denied to prevent tailgating illegal access.

Effective Visitor Management

- Apart from employees, there are numerous visitors to the Ministry.
- It is required to deploy a visitor management system for visitors' convenience of visit while the security is guaranteed. ZKTeco deployed its RS100 Optical Character Recognition (OCR) reader, which is a compact, fast and multi-functional document reader utilizing optical character recognition technique.
- Instead of filling in the registration forms manually, visitors without pre-registration of face image are only required to present their travel documents upon the RS100 reader, as the reader automatically reads and extracts data from ICAO standard travel documents including most of the passports, Visa, ID cards, driving licenses and other travel documents for verification.
- With quick OCR registration, visitors no longer are required for complicated registration, they just need to wait a short while, and upon successful verification, they will be issued with temporary RFID cards for visits, and staffs of the Ministry will lead the guests to the designated places for visits.

Efficient Time & Attendance Management

- As there are up to thousands of employees managed by the Ministry, and they are widely dispersed in different departments in different building.
- There different working hours and rules for different departments.
- It is expected to have a more efficient system for time & attendance management to release the burden of manual workload.
- All records of access will be delivered to ZKBioSecurity, which is equipped with time & attendance module. The module is customized to adapt all the different time & attendance rules of different departments for easy and convenient attendance management.
- Different formats of attendance reports are also customizable to different needs, no more unnecessary and inefficient manual calculation and data input are required.



Instant Measures for Emergency

- In case of any security event or emergency, the Ministry expects a useful measure for further actions. As all swing barriers and face recognition terminals are centrally connected to and managed by ZKBioSecurity,
- security staffs are enabled to suspend the entire operation of the access control system and deny all accesses and exits of the buildings in case any emergency occurs for further security actions.

Configurations

System	Type	Device Model	Unit
Access Control	Swing Barrier	SBTL6000	52
Access Control / Time & Attendance	Hybrid-biometrics Standalone Terminal	FaceDepot-7B	104
	OCR Reader	RS100	01
Access Control / Time & Attendance	Management Software	ZKBioSecurity	/





Entrance Control System for Major Railway Stations in South Sulawesi Province, Indonesia

Industry
Stations
Location
South Sulawesi Province
Solution
Entrance Control

The solution involves a newly established major railway in South Sulawesi Province in Indonesia, covering the entire province with over 145km distance and a total investment of IDR \$971,000,000,000. The first stage of the establishment of the railway involves 10 stations including Marang, Labakkang, Garongkong, Mangilu, Mandale, Ramang-ramang, Maros, Pangkajene, Tanette Rilau and Barru.

The Railway is highly expected by the Government of Indonesia to expand the passenger capacity and boost the economy and the development of the tourism. On 6th November 2022, trial run of the railway was initiated, and the officials of the South Sulawesi Province attended the inauguration ceremonies in Garangkong and Mangilu. The first stage of establishment of the railway is expected to be finished in early November, and the Minister of Transportation of Indonesia is expected to present in the visit to the various stations, and followed by Joko Widodo, the President of Indonesia, to attend the grand inauguration ceremony of the railway in the coming December.

Solution

ZKTeco deployed entrance control systems for the 10 newly established railway stations, with FBL2000, FBL2200, FBL200 and FBL220 Flap Barriers, and TS2000 Pro and TS1000 Pro Tripod Turnstiles to form multi-channel entrances and exits.

All channels are deployed with ZKTeco QR500B QR Code & Barcode Scanners. Ticketing system are provided and operated by the management department of the railway stations.



Client Requirements

A. Integration with the Existing System

- There are currently 2 methods of ticketing, including online ticketing and walk-in ticketing.
- There is already an efficient ticketing app. for purchasing tickets, and website online ticketing is also expected to be completed in the coming year.
- Prepaid RFID card payment operated by E-money, which is a prevailing consumption management system in Indonesia, is currently being integrated with the third-party controllers in the system, and is estimated to be officially in two months.
- The solution must be able to integrate with the existing system and the newly added system in the soon future.

Solution Details

- For online ticketing, passengers may purchase digital tickets via Jokka app, and upon successful payment via the Internet, passengers will be each issued an E-ticket with a barcode for the authentication of the access to the railway.
- For walk-in ticketing, passengers may purchase for physical tickets at the stations for the access to the railway.
- ZKTeco installed QR500B QR Code & Barcode Scanners in the entrances and exits, which are able to directly scan and read the barcodes on both digital tickets purchased online and physical tickets purchased at the stations, for quick authentication of passengers to take the railway.
- For the prepaid RFID card payment, as ZKTeco's all installed gate barriers and turnstiles enable flexible integration with other third-party systems, with no changes are required, they can all be installed with the card readers of the existing systems of the railway and connect to the control systems. Upon simple and convenient installation of card readers, passengers will be enabled to directly swipe cards and have access to the railway.



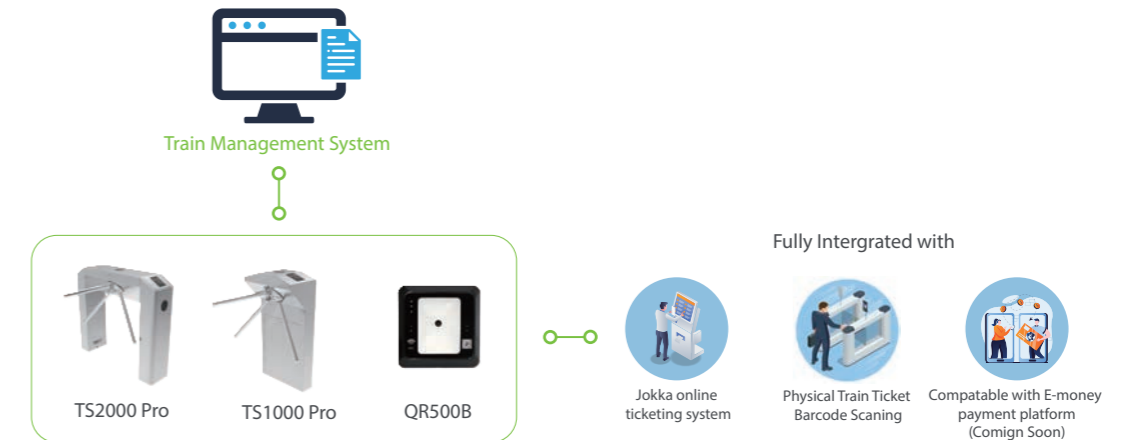
B. Capability for the Large Passenger Flow

- As the stations are located in the major cities with high population density, and the railway is expected to be the major method of commuting, the passenger flow thus will be significantly large.
- During the peak hour the stations' traffic could be extremely busy.
- The solution must enable smooth access and exit in order to ensure smooth traffic for the large passenger flow.

Solution Details

- ZKTeco installed TS2000 Pro and TS1000 Pro Tripod Turnstiles in the stations, which enable throughput as many as 30 times per minute for quick access of large passenger flow.
- QR500B QR Code & Barcode Scanner enables up to 5cm reading distance for quick and precise code scanning and authentication.
- For entrances and exits in certain periods with extra-large passenger flow, ZKTeco installed FBL2000, FBL2200, FBL200 and FBL220 Flap Barriers, which enable throughput of 42 times per minute for quicker access to the railway.
- All gate barriers and tripod turnstiles are equipped with indicator light display to guide passengers for quick access.

Schematic Diagram



C. Semi-outdoor Application

- As some entrances and exits are in semi-outdoor environment, the impacts of temperature and humidity on the system are particularly evident.
- The solution must ensure proper operation of the system in semi-outdoor environment with higher changes of temperature and humidity.

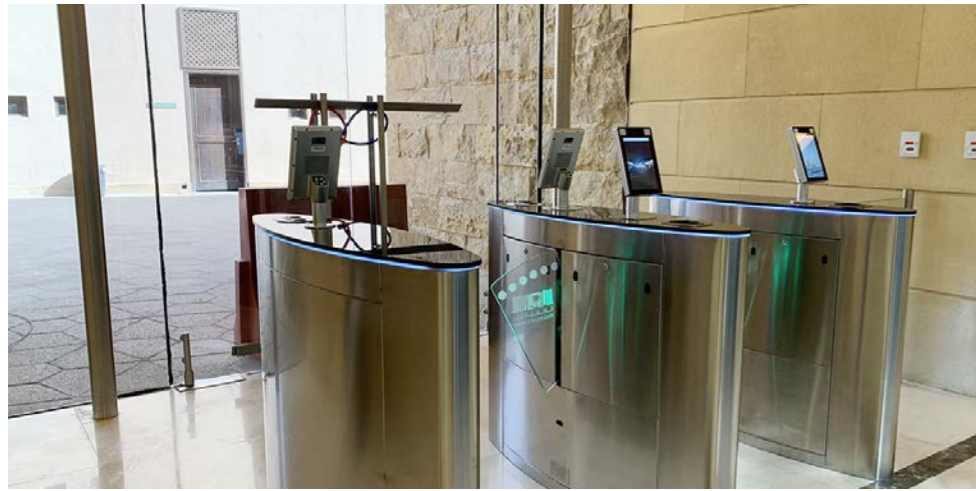
Solution Details

- All shells of the installed gate barriers and tripod turnstiles are made of high-quality SUS304 stainless steel, and are able to properly operate in a temperature range from -28°C to 60°C and in a relative humidity range from 55 to 80%.
- QR500B QR Code & Barcode Scanner is also able to properly operate in a temperature range from -10°C to 50°C and in a relative humidity range from 20 to 80%.

Configurations

System	Type	Model
Entrance Control	Flap Barrier	FBL2000
	Flap Barrier	FBL2200
	Flap Barrier	FBL200
	Flap Barrier	FBL220
	Tripod Turnstile	TS2000 Pro
	Tripod Turnstile	TS1000 Pro
	QR Code & Barcode Scanner	QR500B





Enterprise Grade All in One Access Control Management Case Study

Enhanced security with visible light facial recognition

Industry

The Ministry of Culture

Location

Saudi Arabia

Solution

Access Control

Project Description

Project Site: Saudi Arabia

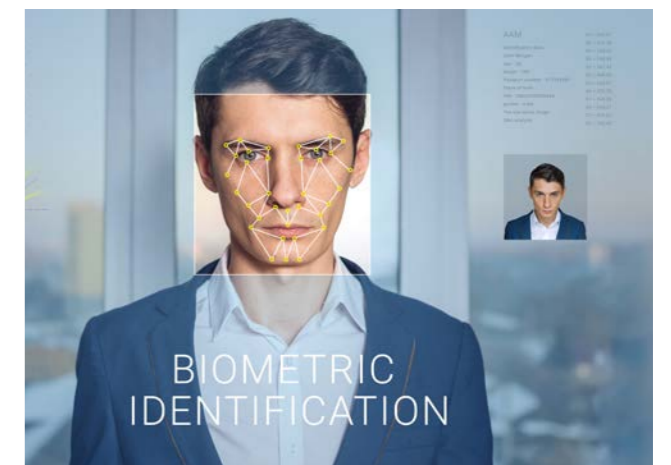
The Ministry of Culture symbolizes the national and international advancement of culture in the Kingdom. The Ministry will preserve the Kingdom's historical past and promote a culturally rich future that fosters art and culture. The Ministry was created on the 2 June 2018 by Royal Order A/217, under the leadership of His Highness Prince Badr bin Abdullah bin Farhan Al Saud, the Kingdom's first dedicated Minister of Culture. The Ministry has a crucial role to play in delivering Saudi Arabia's ambitious transformation programme, Vision 2030. Our goal is to contribute towards building a vibrant, thriving, and ambitious nation. The Ministry formally launched on the 27 March 2019 when we published our cultural vision for the Kingdom. This set out the Ministry's key aspirations, which are: promoting culture as a way of life, enabling culture to contribute to economic growth and creating opportunities for international cultural exchange.

Our solution involves a newly installed access control system, as they wished to enhance security level of their new office building. ZKTeco is honoured to provide a solution to them.

Project Requirements

Reliable Facial Recognition

Biometric Verification Methods have been widely applied as it offers convenience and accuracy that conventional verification methods are not able to achieve. Our client is deeply interested in its preciseness of verification, however in the past, facial recognition deployment in Middle East region had always been a challenge because of the general face features of their people, as male there normally have beard on their faces and also because of the intense sunlight that exceeds the tolerance level of conventional facial recognition to properly perform. ZKTeco thus had to provide something else that is truly pioneering in facial recognition.



Verification Methods suitable for different needs

Biometric Verification Methods have been widely applied as it offers convenience and accuracy that conventional verification methods are not able to achieve. Facial recognition as a biometric verification has been significantly improved in terms of its quickness, preciseness and convenience, and our client is also impressed by our pioneering visible light facial recognition technology, as it is able to operate under normal lighting environment, and no longer needs infrared sensors which in the past was compulsory to near-infrared facial recognition terminals. The Ministry of Culture had positive attitude towards facial recognition, but also had their concern that most of the Muslim females' faces are covered which may disable them from being successfully verified. Therefore, apart from only facial recognition, our client required a system provides different biometric verification methods that are compatible with different users' needs.

End User: Ministry of Culture of Saudi Arabia

Configurations

System	Device Name	Device Model	Device Quantity
Access Control	Flap Barrier	FBL5000	12
	Access Control Terminal	ProFaceX	16
	Access Control Fingerprint Reader	FR1200	12
	Access Control Fingerprint Reader	ZK4500	4
	Access Control Panel	InBioPro	12
	Access Control Software	ZKBioSecurity	N/A

Technical Features

- 12 units of ZKTeco FBL5000 Flap Barriers have been deployed at the entrance of the building.
- Each flap barrier is equipped with 1 unit of ProFace X Visible Light Facial Recognition Access Control Terminal and 1 unit of FR1200 Fingerprint Reader.
- There are other 4 main doors of the building, 1 unit of ProFace X and FR1200 are also installed at each door to perform access control.
- All staffs are registered with their personal information, face images and fingerprints. They are required to either scan their faces verification. Only upon successful verification are they allowed to have access to the building.
- For staffs who wish to remain their appearances, they may scan fingerprints instead of faces for verification.
- Each staff is also given a staff card with their personal information. It is an RFID card which can be scanned by the access control terminals for access control purpose.
- Visitors are also required to have a quick and convenient registration of their faces and fingerprints to have access.
- Since the ProFace X is visible light facial recognition enabled, staffs and visitors may even simply use selfie photos for registration and access verification, of course we deployed IP cameras for photo registration in case anybody needs.
- As ZKTeco's visible light facial recognition technology enables proper functioning under intense sunlight, and is able to recognize faces' with different face features with its computer vision and deep learning technology and the new WDR camera, it works perfectly in this case.
- All terminals and readers are connected by the InBioPro Access Controllers and are centrally managed by the ZKBioSecurity Access Control Software. All access control status can be reviewed anytime and access control reports

can be easily generated.

- In the next phase, our client is planning to integrate the facial recognition system with other systems such as ERP system, CRM system and HR management system. All these integration can be easily achieved as through the ZKBioSecurity API, to achieve an intelligent office.



Functional Description

- ProFace X is a fully upgraded version of the ProFace product line, which is designed to deal with all kinds of scenarios. It's powered by the latest ZKTeco-customized CPU for running the intellectualized engineering facial recognition algorithm to boost up the performance in all aspects.
- With its powerful core and the latest facial recognition algorithm, the ProFace X facial recognition capability has reached a new height in the biometrics industry with a maximum of 50,000 facial templates, facial recognition speed less than 0.3 sec per face, ultimate anti-spoof ability against almost all types of fake photos and videos attack.
- Other than the powerful core, ProFace X is also equipped with the latest face capture system, which enables the terminal to recognize faces under extreme strong light conditions (50,000 lux), and a microwave detector to precisely evaluate the distance between the user and the device for waking up the terminal.
- ProFace X comes with a robust design that can work in extreme weather conditions from -30°C to 60°C; The IP68 dust and waterproof standard and IK04 protection standard also enhance its outdoor durability.
- FR1200, a fingerprint reader with RS485 communication interface works with biometric access controllers and fingerprint standalone access control, including inBio series controllers, F8 and so on. It offers the function of capturing and transferring fingerprint samples to access control panel. With its IP65 rated rugged structure, FR1200 offers extra durability in all weather conditions including outdoor environments.
- ZK4500 is a stable and excellent fingerprint scanner. The device can capture fingerprint image and upload to PC by USB interface. It supports Windows 2000/XP/2003/Vista/7(32/64bit). We provide developer with SDK. The developer can integrate the hardware into their own system. This product is widely used in social insurance, public security, time attendance, fingerprint encryption, embedded system and other fields of application.
- InBio Pro Series is a project oriented high-end product line with unique features such as embedded fingerprint verification and advanced access control functions, which can be managed by TCP/IP communication thru LAN or WAN networks. InBio controller firmware can be upgraded in the field. Stores up to 3,000 fingerprint templates, 30,000 card users, and up to 100,000 events and transactions. Controller is backed up in real-time in on-board SD card. Data

is preserved if power is lost. InBio continues to operate if network connection is interrupted. Along with relay contacts for controlling door locks, easily programmable auxiliary relays can be used for additional control and interface to lights, alarms, annunciators, intrusion detection panels, or even extra locking devices or gate controllers.

- InBio controllers come in three sizes to suit project needs and reduce the cost of unused capacity. 1-door, 2-door, and 4-door models can be mixed and matched in an optimized system architecture. Anti-Passback, First-Card Opening, Multi-Card Opening, Duress Password Entry, and Auxiliary Input / Output Linkages are built into controller firmware.
- ZKBioSecurity is the ultimate "All in One" web based security platform developed by ZKTeco. It contains multiple integrated modules: access control, time attendance, elevator control (online /offline), hotel module, visitor management, parking, guard patrol and video linkage. With an optimized system architecture designed for high level biometric identification and a modern-user friendly UI, ZKBioSecurity provides the most advanced solution for a whole new user experience.

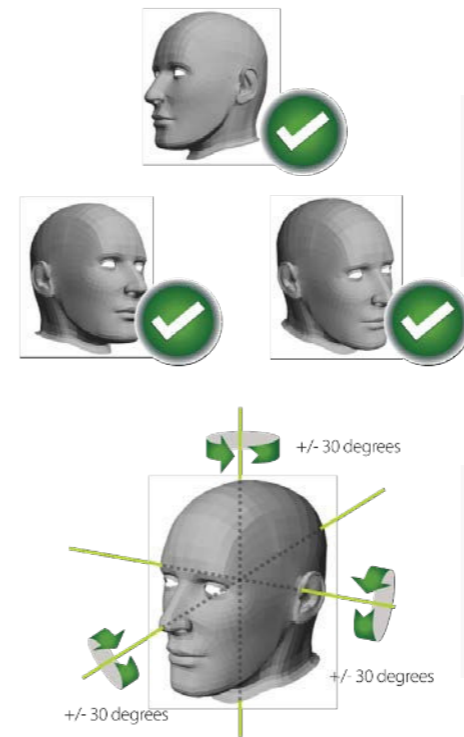
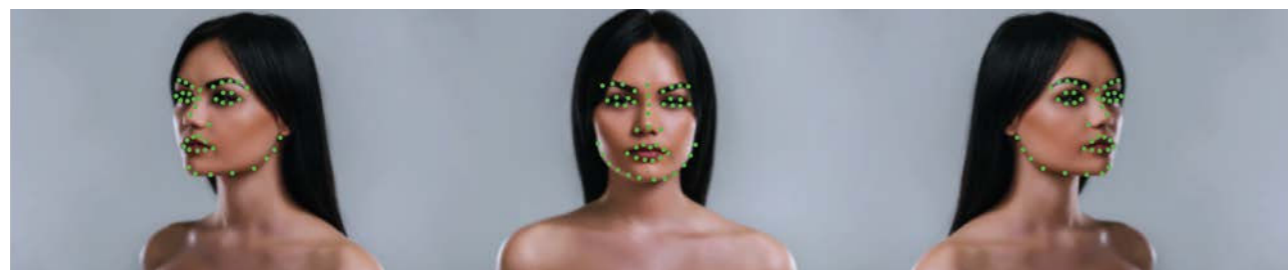
Schematic Diagram



Visible Light Facial Recognition Competitive Advantage

Wide Pose Angle Acceptance

As the CNN deep learning algorithm is applied, the terminals now have true cognition offaces, which enables larger pose angle acceptance by applying 3D rendering.



Deep learning technology enriched the pose angle of the recognition up to 30degree in all angles such as pitch, row and yaw.

Extra wide angle recognition (+/- 30 degrees)
While most of algorithms only support 15-degree angle facial recognition ZKBioFace supports 30-degree angle facial recognition.

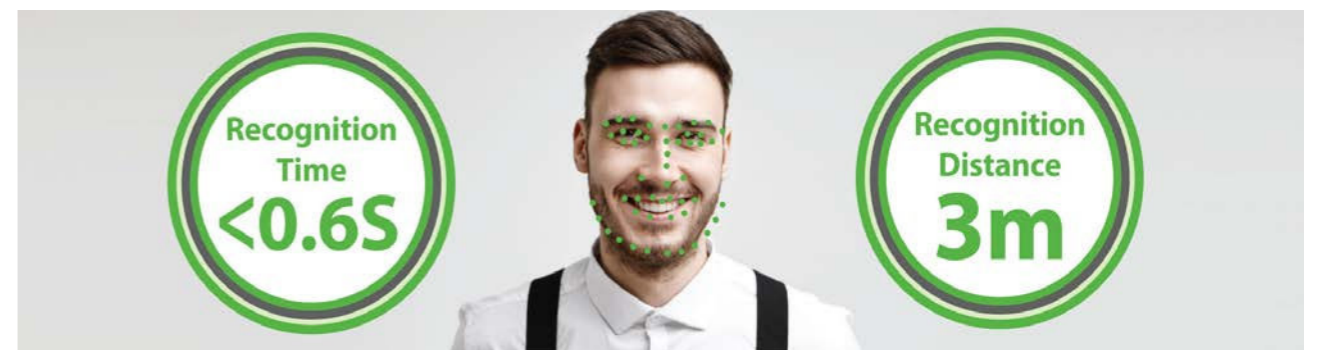
Make-up, Glasses And Different Styling Acceptance



Delighted by deep learning technology, the recognition technology now able to recognize human from the fundamental pixel level, which greatly enlarged the tolerance of make-up, glasses and styling.

Speedy Recognition

The visible light facial recoanition is way faster than the previous near Infraredfacial recoanition, and the recoanition distance has been greatly extended up to 3 meters long, which significantly improves maximum traffic rate.



Ultra-fast real time Less than 0.6 Second

The most advanced face recognition algorithm enabling industry-leading quick face recognition with less than a second.

High speed processing time

Due to the low processing size of the image, visible light facial recognition provides a 3 times faster processing time than the traditional IR facial recognition.

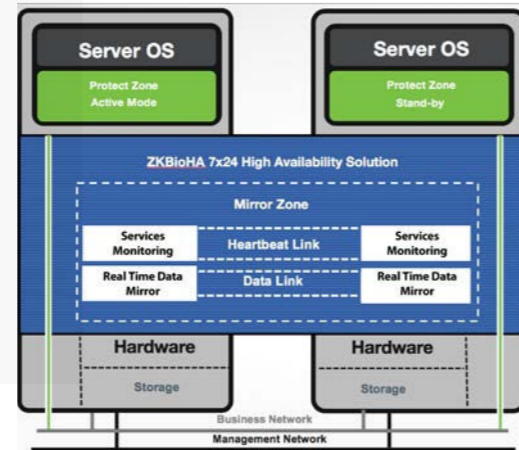
ZKBioSecurity Competitive Advantage

Highlight 2: Highly integrated with ZKBioHA - Continuous Service Guaranteed 24/7



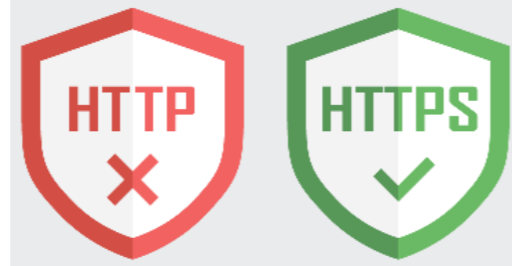
What is ZKBioHA

ZKBioHA is a high availability solution for enterprise, it could integrate with ZKBioSecurity platform to provide professional real-time sync of business data and business continuity protection for customer. The solution supports high availability protection for different app software platforms and mainstream databases, so as to provide data and app protection for customer's kernel business system.



HTTPS

ZKBioSecurity provides a high secure communication over a computer network, HTTPS (HTTP Secure), an adaptation of the Hypertext Transfer Protocol, which is widely used on the Internet. It means all communications between your browser and the ZKBioSecurity Client are encrypted.



Operation Log

The Operation Log function monitors and records the operation on the system modules. This function enables users to check who performed each operation, when it was performed, what was performed, and where it was performed. In addition, this function can help you analyze the causes of system errors or other types of problems from the record data.

Operation User: Operation Time From: To: More

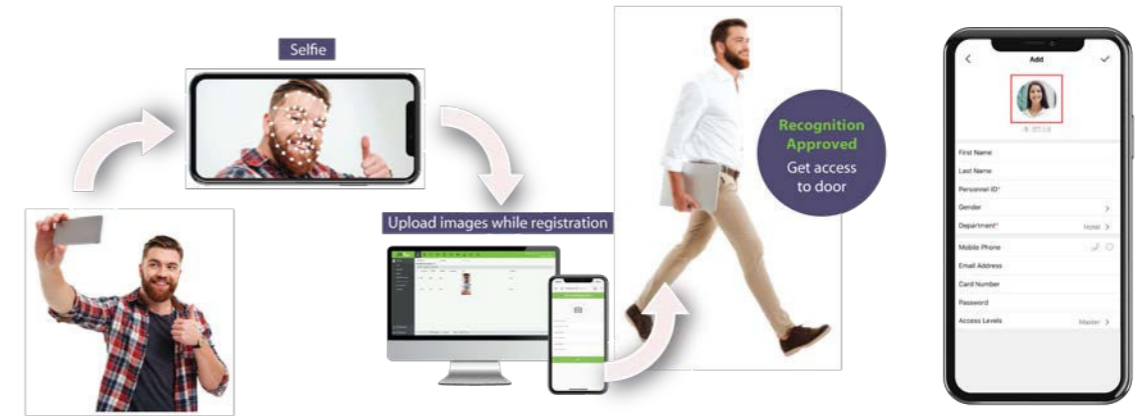
The current query conditions: None

Operation User	Operation Time	Operation IP	Module	Operating Object	Operation Type	Operation Content	Result
admin	2017-11-30 14:52:36	192.168.191.253	System	User	Login	Login	✓
admin	2017-11-30 14:11:21	192.168.191.253	System	User	Login	Login	✓
admin	2017-11-30 12:59:12	192.168.191.253	System	User	Logout	Logout	✓
admin	2017-11-30 12:40:07	192.168.191.253	System	User	Login	Login	✓
admin	2017-11-30 11:51:46	192.168.191.253	System	User	Login	Login	✓
admin	2017-11-30 11:51:42	192.168.191.253	System	User	Login	Login	✓
admin	2017-11-30 11:46:40	192.168.191.253	System	User	Login	Login	✓
admin	2017-11-30 10:33:28	192.168.191.253	System	User	Login	Login	✓
admin	2017-11-30 03:46:43	192.168.191.253	System	User	Login	Login	✓
admin	2017-11-29 18:27:40	192.168.191.253	System	User	Login	Login	✓
admin	2017-11-29 18:05:23	192.168.191.253	System	User	Login	Login	✓
admin	2017-11-29 17:15:17	192.168.191.253	System	User	Login	Login	✓

ZKBioSecurity Competitive Advantage

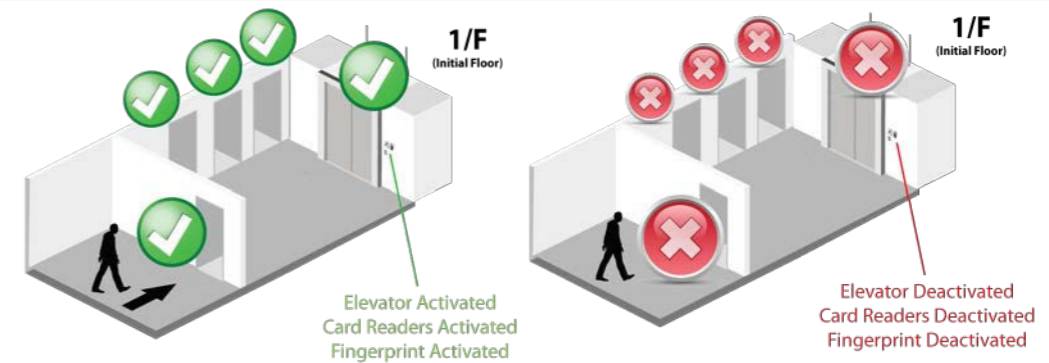
Supports Mobile APP Personnel Photo as Visible Light Facial Recognition Registration

When using ZKBioSecurity Mobile APP, when personnel sets a profile picture in the APP, that profile picture will be used as the visible light facial recognition template.



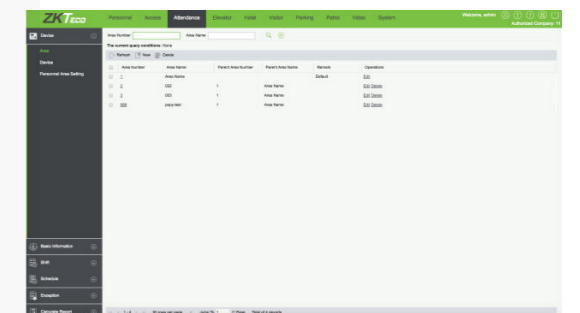
Global Interlock

Global Interlock is an advanced security function that heightens the security level by interacting with different security areas. It is designed to prevent persons from opening more than one door at a time even, if the persons have multiple door access authorities. It is able to precisely appoint access authorization including activations of access authorization of specific doors when the correlated doors are locked properly. Most commonly used in man-traps.



Time & Attendance

As an "All in One" security platform, the ZKBioSecurity contains a web-based time & attendance module. Administrators can manage the Time & Attendance module from anywhere they have access to the Internet. Moreover, this is a powerful time & Attendance system, which can handle most of the complicated time & attendance circumstance, such as, flexible shifts, multi-level OT, cross day shift and online leave application with multi-level approval.



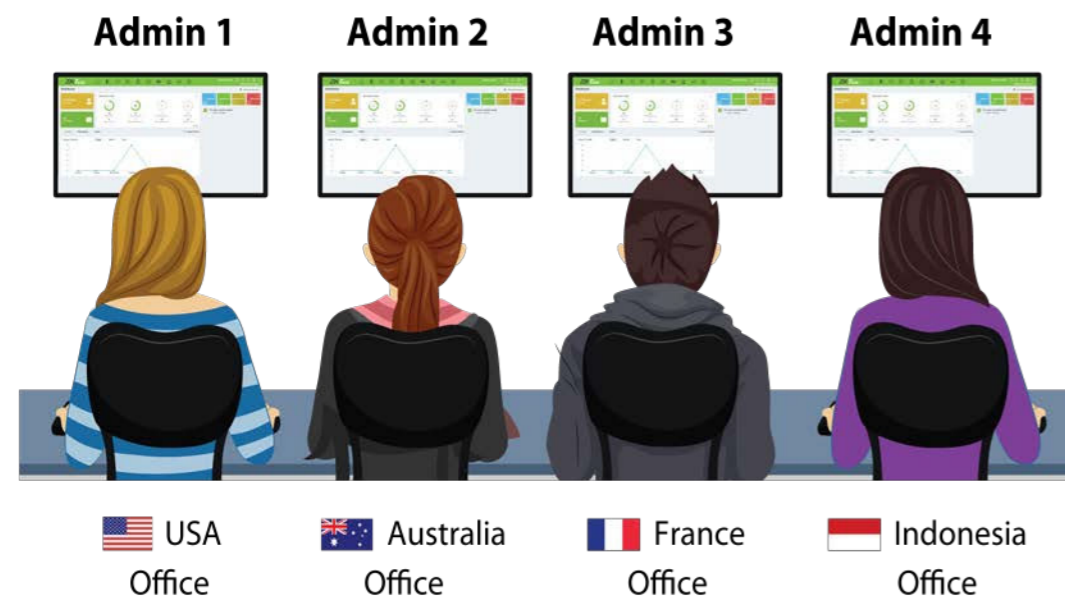
Merge with the 3rd Party HR Management

In order to extend the ZKBioSecurity functionality, ERP and HR integration is possible by generating automatic data with custom attributes , such as, staff name, department, area, staff ID, etc.



Multi-Location

Users can access the centralized system anywhere by their web browser to remotely manage thousands of standalone terminals and controllers under wide area network (WAN).



Integration Solution at State Islamic University (UIN) Sayyid Ali Rahmatullah Tulungagung in Indonesia

Industry: University

Location: Indonesia

Solution: Time & Attendance, Access Control, Video Surveillance and Parking Management

Client Overview

State Islamic University (UIN) Sayyid Ali Rahmatullah Tulungagung or UIN ONE Tulungagung (standing under the name STAIN Tulungagung and then named IAIN Tulungagung) is a state Islamic university in Indonesia located in Tulungagung, East Java. IAIN Tulungagung officially upgraded its status and changed its name to UIN Sayyid Ali Rahmatullah Tulungagung based on the Presidential Decree of the Republic of Indonesia (Number 40 of 2021, dated 11th May 2021). UIN Tulungagung was named Sayyid Ali Rahmatullah which is the real name of Sunan Ampel . The academy is expected to have an increasingly important and steady role in improving the intelligence, dignity and worth of the nation, by producing Islamic experts/scholars who have broad and open insight, integrative thinking skills and perspectives who have managerial and professional abilities in accordance with the demands of society in the current era of globalization. ZKTeco is honoured to have had the chance to offer the client an integrated solution of time & attendance, access control, video surveillance and parking management.

Solution Details

Flexible, Efficient, Safe and Precise Attendance Taking of Students

- Large-scale Academy with numerous students, schools and departments.
- There are generally no specifically fixed classrooms for classes, students are required to attend their classes accordingly, and there are changes from semester to semester or even from lesson to lesson.
- The solution must provide a more efficient attendance management method than manual attendance taking, in order to, in order to reduce staffs' administrative workload and minimize manual mistakes.
- Also, considering the still existing threat of the pandemic, the University hoped to provide students an attendance taking method which effectively ensures health.
- ZKTeco installed in each of the 105 classrooms a SpeedFace V5L Biometrics Time & Attendance Standalone Terminal. All students' personal information are pre-registered and are issued with their own student cards.



- SpeedFace V5L is able to identify RFID cards and faces. Students may choose to punch in by card swiping or face recognition.
- As face recognition is touchless, students are thus not required to touch any device. Instead, by simply standing in front of the device, the SpeedFace V5L terminals automatically and accurately recognize the identities of the students and take their attendance.
- SpeedFace V5L is equipped with ZKTeco's pioneering face recognition algorithm which identifies faces with masks precisely.
- All SpeedFace V5L terminals are already connected to the ZKBioSecurity Access Control and Time & Attendance Integrated Management Software Platform for the University to conveniently view and manage students' attendance.
- As there is already an existing smart campus management system used by the University, ZKTeco chose integration

instead of total replacement to maximize the client's interest.

- ZKTeco integrated the ZKBioSecurity with the University's management system via API, the systems thus are enabled to synchronize and co-share the data for better management of both time & attendance and access control.
- The installed SpeedFace V5L QR MF terminals are by default enabled with QR code scanning function. In case it is needed in the future, for example temporary attendance, tickets with QR code for temporary attendance can be issued.

Effective Campus Security Monitoring

- Most of the areas of the campus are open to public.
- Except classrooms, workspaces and libraries, the campus are accessible to everyone.
- The University expected to, without limiting the access and exit of the public to the campus, effectively monitor the entire campus area, and ensure that in case of emergency or security events, prompt and proper handling is guarantee to protect everyone's safety.
- ZKTeco installed various models of video surveillance cameras in different areas of the campus, including 20 units of BS-855L22C-E3 Network Video Surveillance Cameras, and 50 units of BS-852T22C Network Video Surveillance Cameras which cover the entire campus. The former model is equipped with a 2-megapixel camera and the latter model is equipped with 5-megapixel camera for high-resolution monitoring of the campus according to the needs of the specific areas. The cameras are all enabled with 3D DNR (Digital Noise Reduction) technology and infrared light as far as 30m to ensure non-stop clear video under both daytime, night time, lightness and darkness. Furthermore, with IP67 waterproof & dustproof level and 6kv lightning protection level, the risk of device malfunctioning has been reduced to the minimum.



- Apart from the two above models, ZKTeco has installed 3 units of PS-855C18L PTZ Cameras in the areas that require frequent changes of the angles of monitoring. PTZ refers to pan, tilt and zoom, which indicate that, with ZKTeco's KB200 remote keyboard, the cameras can be remotely controlled and flexibly move and adjust the monitoring with as speedy as 180° pan and 100° per second to ensure large and wide coverage of high quality images and videos.
- All cameras are connected to the 2 units of Z8636NF-16F network high-resolution video recorder, 2 units of Z8532NFR high-resolution recorder and 15 units of PE08-120 video recorder, all video records are thus saved in the devices for view according to needs.
- The video recorders can even be connected to external NAS devices via firmware for backup. Even the video recorders are damaged due to external factors, the video clips can be retrieved from NAS devices.

Efficient and Precise Access Control of Library

- The library is only for staffs' and students' use to ensure they enjoy sufficient learning and teaching resources. Thus, it is needed to have an efficient access control identify the rights of access.
- The University expected a more effective access control than manual checking of library cards to avoid mistakes.

- ZKTeco installed 3 units of TS2011 Pro Tripod Turnstile and 2 units of ProID 10 MB Card Reader to form a two-way & 2-channel entrance.
- ZKTeco also installed a FBL4011 Pro Flap Barrier entrance with customized width of 900mm for the convenient access of people with different needs.
- ZKTeco deployed in each channel of entrance a unit of ProFace X MF Face Recognition Standalone Terminal.
- Students and staffs may choose to access the library by card swiping or face recognition.
- All Barriers, card readers and face recognition standalone terminals are centrally connected to ZKBioSecurity Access Control and Time & Attendance Integrated Management Software Platform for view and management of the access control of the library.



Parking Management

- As there are numerous staffs and students driving in and out of the University daily, the University expected an efficient management of the carpark, especially in the peak hours for smooth traffic of the carpark's entrance & exit.
- The University also expected a reliable security monitoring of the carpark.
- ZKTeco installed in the entrances and exits of the carpark 6 units of BG1030 Parking Barrier with 6 units of ProID 10MB Card Reader to form a multi-channel entrance & exit.
- Staffs and students may have access and exit by swiping their staff cards or student cards.
- In all lanes of entrance & exit, VR10 Pro Parking Radars were installed, which are ZKTeco's newest parking radar

for carpark. VR10 Pro enables sensing and identifying different types of vehicles approaching the barriers (including motorcycles, vehicles and even trucks) and also approaching pedestrian. Upon connection to the parking barrier, VR10 is able to sense approaching cars (with adjustable sensing range from 1m to 6m), and the barrier thus will only drop and close the access after the cars have left the lane of access to prevent collision.



- VR10 has relatively far more convenient installation than the conventional detection loops installed underneath the lane, which saves installation costs and the limits, and is far easier for maintenance.
- Video surveillance cameras were also installed in the carpark and have been connected to the parking barriers and radars. In case any car or pedestrian's approaching is detected, the cameras will be triggered to automatically capture images of the objects and record in the database for further security management.
- In all lanes of entrance & exit, VR10 Pro Parking Radars were installed, which are ZKTeco's newest parking radar for carpark. VR10 Pro enables sensing and identifying different types of vehicles approaching the barriers (including motorcycles, vehicles and even trucks) and also approaching pedestrian. Upon connection to the parking barrier, VR10 is able to sense approaching cars (with adjustable sensing range from 1m to 6m), and the barrier thus will only drop and close the access after the cars have left the lane of access to prevent collision.
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Configurations

Time & Attendance for Classrooms

Device	Model	Quantity
Face Recognition Standalone Terminal	SpeedFace V5L QR MF	105

Time & Attendance for Library

Device	Model	Quantity
Tripod Turnstile	TS2011 Pro	3
Flap Barrier	FBL4011 Pro	1
RFID Card Reader	ProID 10 MB	3
Access Control Panel	InBio 260	1
Face Recognition Standalone Terminal	Proface X MF	3
Face Recognition Standalone Terminal	Proface X MF	3

Video Surveillance for Campus

Device	Model	Quantity
Video Recorder	Z8636NF-16F	2
Video Recorder	Z8532NFR	2
Video Recorder	PE08-120	15
PTZ Cameras	PS-855C18L	3
Bullet IP Camera	BS-855L22C-E3	20
Bullet IP Camera	BS-852T22C	50
Camera Remote Control Keyboard	KB200	1

Parking Management

Device	Model	Quantity
Parking Barrier	BG1030	6
Vehicle Detection Radar	VR10	6
RFID Card Reader	ProID 10 MB	6
Access Control Panel	InBio 260	3
Access Control Panel	InBio 460	1
Bullet IP Camera	BS-852T22C	50
Camera Remote Control Keyboard	KB200	1

BIOCAT = Bio + CAT = ZK + (Bio) + (CAT) (66)



Visible Light
Facial Recognition



+47° 11' 43"
Computer Vision
Whirlpool Galaxy (M51a):
Right Ascension 13h 29m 52.7s

range print



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