ZKTeco

THE BIOMETRIC PIONEER

Edition Oct., 2017

Speech of the Chairman & CEO of ZKTeco pg2

Biometric Technology Introduction pg6

Deep Learning of AI (Artificial Intelligence) pg4

All In One Web Based Security Management Solution pg24

Law Enforcement Agency Solution pg32

HKTV Mall Online Shopping Platform Access Control Management pg50

ZKTeco FOR A SMARTER WORLD

John Che
Chairman & CEO of ZKTeco

Dear Partners and Friends,

With the coming of the new technologies like IoT, Big Data and AI, and the increasingly closer footsteps of the 5G Era, smart city has been a digital platform promoting social harmony, convenience, safety and efficiency. I can foresee that, the establishment of the globalized smart cities will last for approximately 20 years. After the 20 years, Human will completely enter the era of smart living. So what is the role of ZKTeco in this revolution? How do we actively participate in? The answer is simple: The O2O platform with hybrid biometric verification will become the core identification technology of both virtual and physical world, and will be widely applied in different fields like entertainment, community, daily living, anti-terrorism, and government. The security management platform of entrance, car entrance and freight management will be the core of the core of smart city. A smart city without security management is a destined crisis.

We will open doors with our preferred methods when we go home, go to office or clubs. Fingerprints, palms, faces, irises are all integrated in a single sensor. License plate recognition is everywhere when we drive to malls, companies, government, from chassis no. to personnel, all matching and big data tracings are available. All payments will adapt iris and face recognition methods. All RFID cards will be equipped with fingerprints and solar batteries. You will be able to logging in your computer using your preferred methods, face, iris, or a hybrid ones. Solar RFID fingerprint cards will be required for premises with high security demands. In all public locations, hotels, malls, sports utilities, airports, 3D inspection machines are everywhere, all blacklisted personnel will be strictly taken care of with their luggage. All people will live in a comfortable and delightful environment, these all are from the ecosystem platform built by ZKTeco with hybrid biometric verification technologies.

We see unlimited prospects and we have unlimited confidence for the future. I truly hope that, with ZKers and cooperation partners, we will found a secure society.

With ZKTeco, the world are safer.

Thank you all.

TABLE OF CONTENTS

02 Speech of the Chairman & CEO of ZKTeco – John Che
04 Deep Learning of AI (Artificial Intelligence)

BIOMETRIC TECHNOLOGY INTRODUCTION
06 Fingerprint Recognition Explanation
08 Finger Vein Recognition Explanation
10 Face Recognition Explanation
12 Palm Recognition Explanation
16 Annual Development Overview of ZKTeco's Product Technology

OUR COOPERATIVE PARTNER INTERVIEW
18 Fernando Ducay Real (CEO of ZKTeco Europe Branch)
20 Our Global Partners Network

INDUSTRY SOLUTION
24 ZKBio Office Solution
26 ZKTeco Car Park Solution
32 Law Enforcement Agency Solution
36 ZKBio Data Center Solution
38 ZKBiosecurity Elevator Control Solution
44 ZKBiosecurity Hotel Management Solution

CASE STUDY
50 HKTV Mall Online Shopping Platform Access Control Management
52 Nipponham Group - Japanese Food Production Enterprise in Thailand Entrance Control Management
54 Li & Fung Warehouse Access Control Management
56 Access Control and Visitor Management Solution for National-Scale Stock Exchange
58 Campus Key - University Accommodation in South Africa Smart Lock

DEEP LEARNING

Chen Shukai, *ZKTeco's Biometric Recognition Research Director*

The concept of **AI (Artificial Intelligence)** has been increasingly popular in recent years, and meanwhile deep learning has triggered heated discussion. Actually, deep learning originates from neural network algorithm, and it just gets deeper and more expressive. "Deeper" indicates that the algorithm evolves from two or three layers to thousands of layers now and "expressive" means that it can fit any mathematical function and deliver effective training. Today, deep learning has generated several frameworks including Convolutional Neural Network, Deep Belief Network, Recurrent Neural Networks, and Deep Reinforcement Learning, which have been widely used in such fields as computer vision, speech recognition, natural language processing, audio synthesis, automatic control and bioinformatics, which results in overwhelming superiority over traditional algorithm on the whole.

The success of deep learning depends on a few important factors. Firstly, the improvement of computer calculation - deep learning requires a lot of calculations, which is difficult to complete for previous CPU versions, especially when GPU technology provides computing power dozens of times of previous CPU, making a large number of data, deeper and wider network training possible. Secondly, training depth network needs a lot of data. For example, our face recognition algorithm uses more than 20 million face images for training. This was also difficult to do before, but today we can collect enough training samples through the internet. Finally, thanks to the scientists and researchers such as Yann LeCun and Hinton, who have been insisting on the research and improvement of the field despite neural network was at its trough. They have brought about achievements on back propagation algorithm, convolution network, Max-Pooling, ReLU, Dropout, LSTM, etc., and bit by bit contributing to deep learning today.

As an open technology, the research results of deep learning are usually published in the paper pre-printed site arxiv.org at its fastest pace, or published in the CVPR and other top conferences. Google, Facebook, Microsoft, Baidu and other enterprises all compete to participate in this trend, and they also open source on their own deep learning framework, which establishes their leadership in the field of artificial intelligence. Caffe, Torch (PyTorch), TensorFlow, CNTK, MxNet and other frameworks have become essential tools for researchers aiming at deep learning and its application.

Our face recognition is one of the earliest algorithms that applied deep learning. In contrast to the traditional methods, deep learning of face recognition algorithm have well solved the problem of recognition due to changes in facial posture, facial expression or ambient light, making face recognition in normal visual light environment a practical technology. For the analysis of face attributes, such as age and sex, etc., deep learning manifests remarkable attributes.

With the use of deep learning, palm vein recognition algorithm and iris recognition algorithm delivers more accurate results in key point detection and accuracy and speed in image registration, with less interference by noise. By applying deep leaning to the study of palm vein and iris texture features, more discriminatory features of the expression is to be obtained.

At present we are carrying out the study on the deep learning of fingerprint recognition algorithm and have achieved excellent results in aspects as estimation of fingerprint orientation, reconstruction of low quality fingerprints, restoration of deformed fingerprints, and detection of fingerprint minutiae, etc. It is expected that with the full adoption of deep learning, fingerprint recognition algorithm will usher in a major breakthrough.

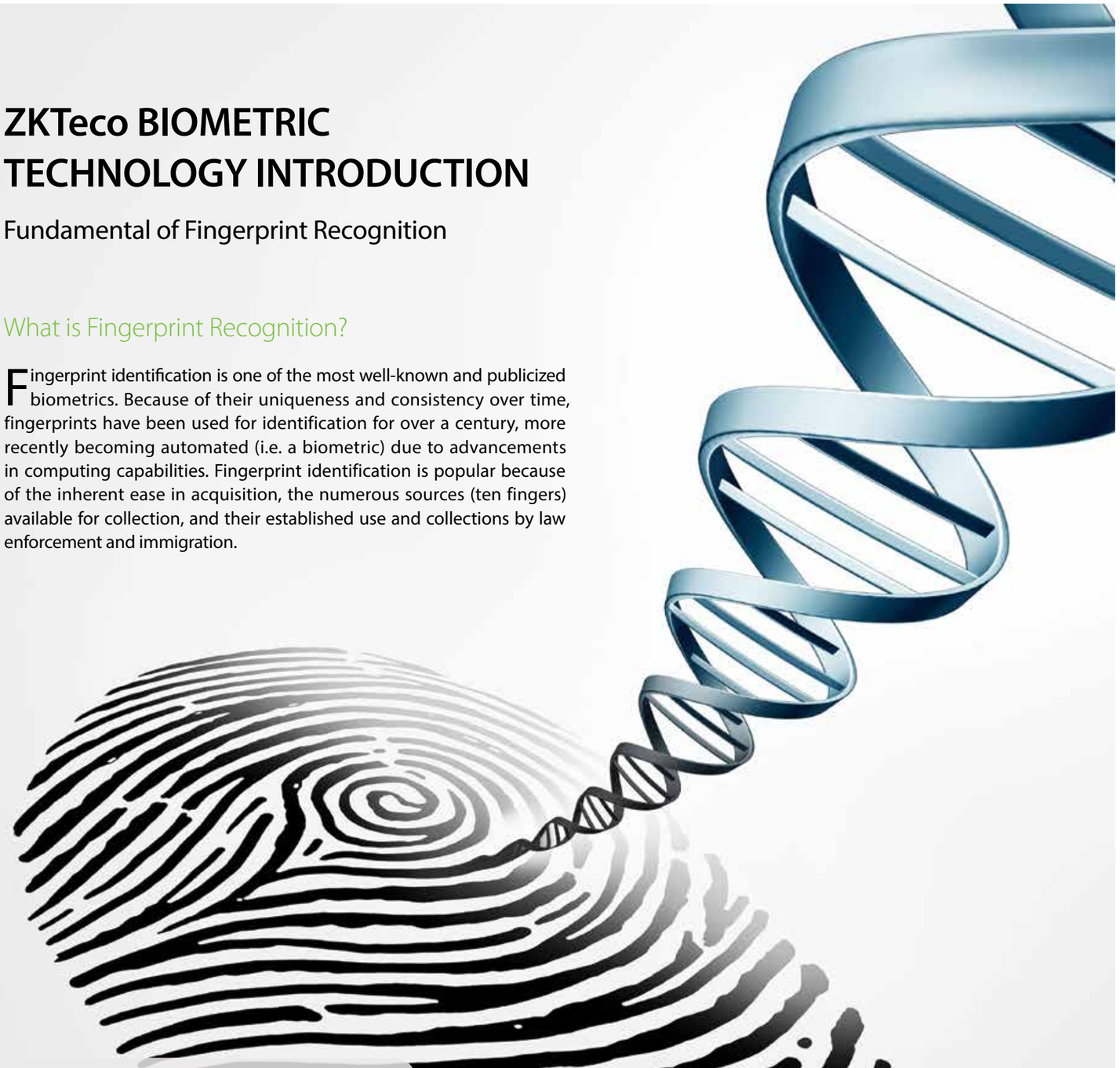
Biometric technology is embracing deep learning across-the-broad, and exciting technological advances will continuously spring up. Technological progress will surely lead deep learning into more extensive realms. During this technological revolution, we are looking forward to witnessing more excellent products to bring more convenience and wonders to our life and work.

ZKTeco BIOMETRIC TECHNOLOGY INTRODUCTION

Fundamental of Fingerprint Recognition

What is Fingerprint Recognition?

Fingerprint identification is one of the most well-known and publicized biometrics. Because of their uniqueness and consistency over time, fingerprints have been used for identification for over a century, more recently becoming automated (i.e. a biometric) due to advancements in computing capabilities. Fingerprint identification is popular because of the inherent ease in acquisition, the numerous sources (ten fingers) available for collection, and their established use and collections by law enforcement and immigration.



ZKTeco offers own intelligent property rights based algorithms, in the meantime our templates are privately owned, ZKTeco never releases algorithms and template formats to any 3rd party, the reliability of ZKTeco algorithms is based on our 20-year algorithm development experience and the database with integration of up to 10 million fingerprint images, in every year up to a million time & attendance and access control devices have presented our international standard quality of matching passing rate, matching consistency and algorithm preciseness.

Technical Algorithm

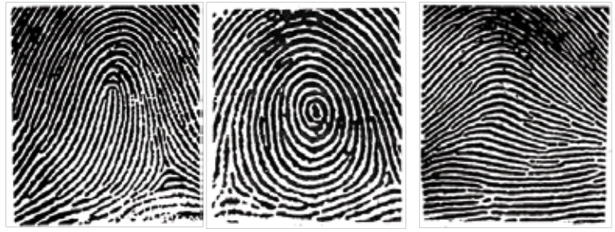
The foundation of fingerprint algorithm is based on the verification and matching by the features of fingerprint images and their related information. With year's effort of various enterprises and research organizations, different digital algorithms have been generated. Although algorithms differ, they are all categorized as the identification and matching of the features found in fingerprint images.

General Features

Refers to the visually identifiable features, including:

1. Fingerprint Patterns

Other fingerprint patterns are based on these 3 basic patterns: Loop, Whorls and Arches. Only identifying fingerprints with fingerprint pattern is only a general categorization which is far from precise, a detailed classification enables quicker and more precise search of fingerprints in big-data database.



Loop Whorls Arches

2. Mode Zone

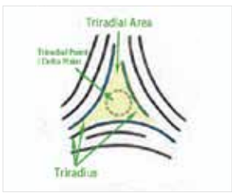
It refers to the zone which covers the general features of fingerprint, in mode zone it is able to identify the type of fingerprint. Some fingerprint verification algorithms only uses data in mode zone.

3. Core Point

The core point is located at the gradual center of the fingerprint line pattern, it is used as a reference point for reading and matching fingerprints. Many algorithms are based on core point, which can only process and verify fingerprints with core point.

4. Triradial Point

The triradial point is located at the first segregation point or breaking point from the core point, or the junction, isolation point, or turning point of two lines, or towards these singularity. The triangular point provides a starting point of calculation and traction of a fingerprint line pattern.



5. Number of Lines

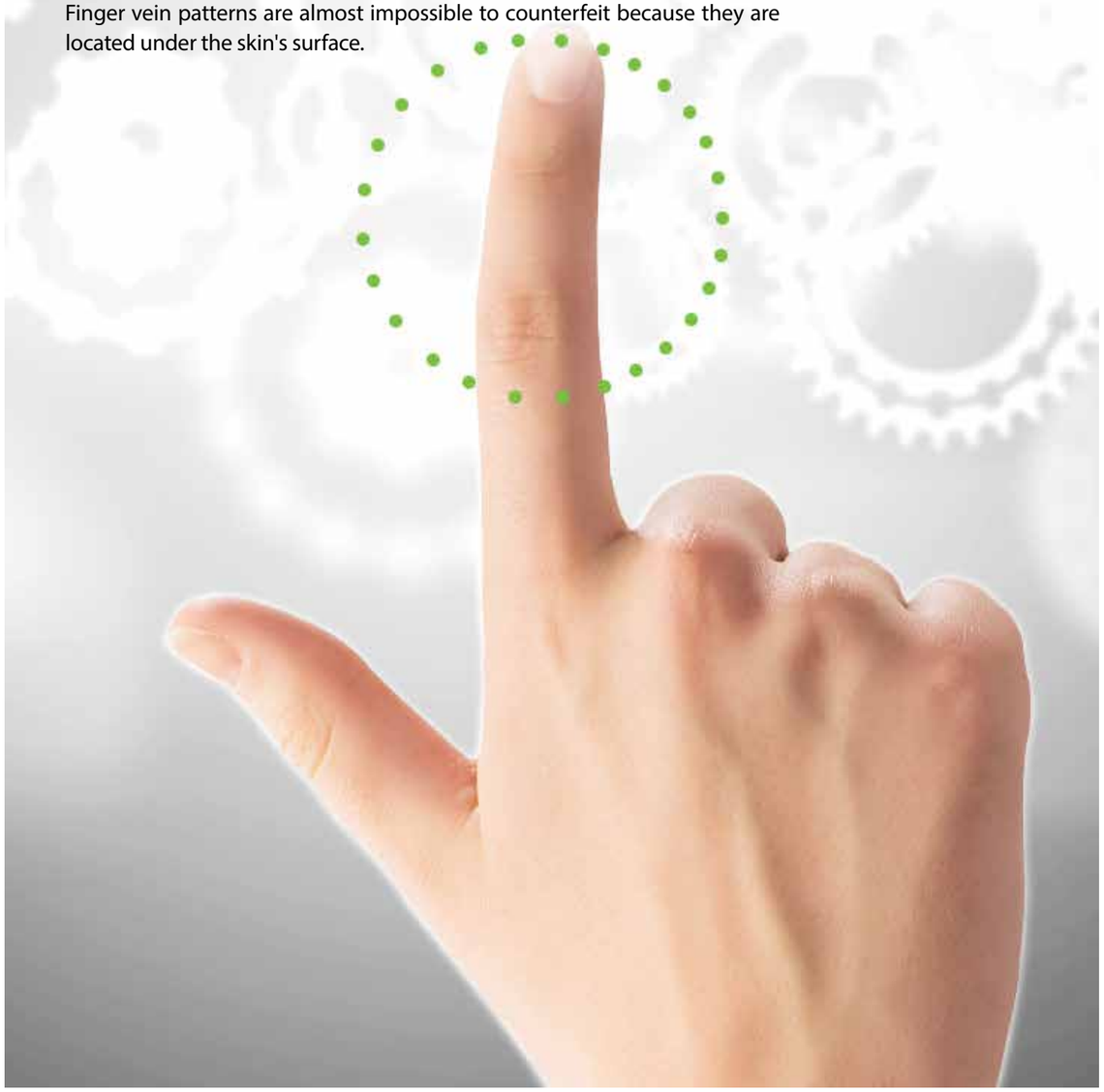
Refers to the number of lines in mode zone. Before calculation of the number of fingerprint lines,it joins the core point and triangular point first. The number of intersection of this joint line and fingerprint line pattern can be seen as the number of lines.

ZKTeco BIOMETRIC TECHNOLOGY INTRODUCTION

Fundamental of Finger Vein Recognition

What is Finger Vein Recognition?

Finger vein recognition is a method of biometric authentication that uses pattern-recognition techniques based on images of human finger vein patterns beneath the skin's surface. Finger vein recognition is one of many forms of biometrics used to identify individuals and verify their identity. Finger vein patterns are almost impossible to counterfeit because they are located under the skin's surface.



Technical Algorithm

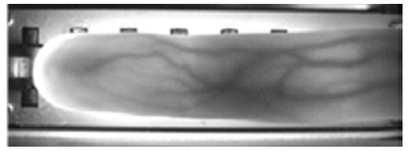
1. Principle

Using Infrared ray to capture the specified patterns of veins in fingers.

2. Finger vein is the inside feature of finger. The technique of finger vein recognition utilizes the reaction of hemoglobin of human blood and infrared ray with specified wave length. Bones, muscles, fat and skin in the finger will also affect veins, but the patterns and structure of veins cannot be changed. Therefore, CMOS module with high response curve of near-infrared ray and high transfer speed is usually used as finger vein scanner.

Capturing fingervein data

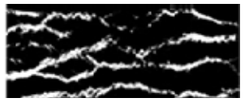
Finger vein image is captured in distribution pattern. Data mainly present in the position and distribution of vein. Terminal points, bifurcation points and turning points provide the largest amount of data and thus used as featured data.



Existing finger vein features include vein pattern, vein texture, minutiae points and learnt features

1. Vein texture characteristic: During the process of finger vein recognition, the texture characteristics of image are mainly presented in partial binary codes. The binary codes are transformed by the comparison of the greyscale of existing pixels and greyscale of area pixels.

2. Vein line characteristic: Capturing the pattern from finger vein grayscale image. These features present a better topographical structure of veins.



3. Minutiae point characteristic: The minutiae points of finger vein recognition refers to the terminal points and bifurcation points of blood vessels.

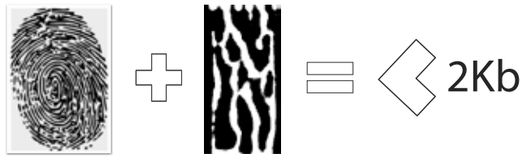
4. Learnt features: Through machine learning methods, features of finger vein can be extracted. For example, through dimensional reduction by Principle Component Analysis to the effective area of finger vein image can be captured the feature of main component amount of finger vein image.

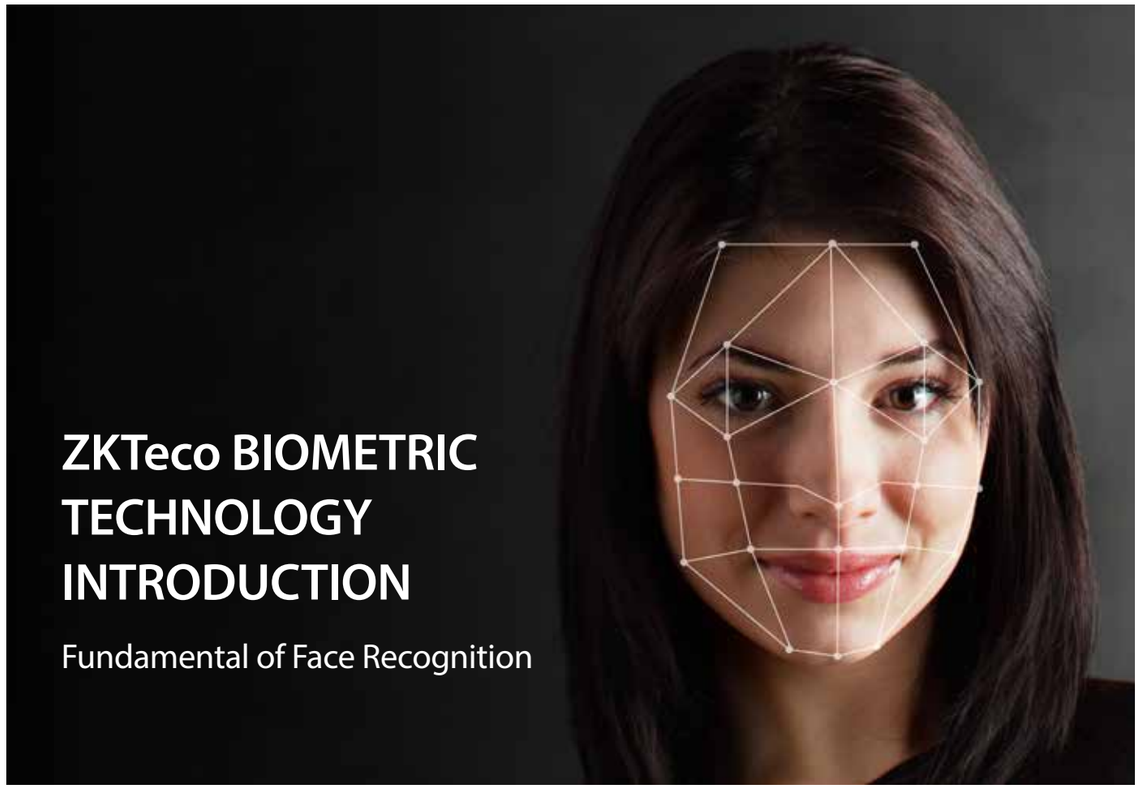
Main Features of combining fingerprint and finger vein technology

1. Since finger veins are covered by skins and invisible to human eyes, there are lower risks of spoof or duplicated vein features, and it is even lower of the combination of fingerprint and finger vein features, which provide higher anti-spoof ability;

2. Suitable for large-scale users: the combination of fingerprint and finger vein verifications can reduce rejection and failure of verification and enables applications with a large number of users;

3. Small Storage Space Required: the template of fingerprint and finger vein is lower than 2Kbyte.





ZKTeco BIOMETRIC TECHNOLOGY INTRODUCTION

Fundamental of Face Recognition

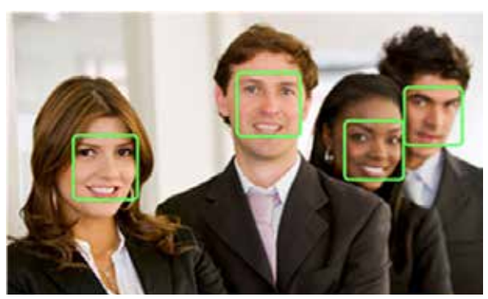
What is Face Recognition?

Using near-infrared ray or visible light reflection to capture the features of human face is the fundamental principle of face recognition. Features of human face include eyes, ears, nose, mouth and their distributions. The distributions of these organs were set since your birth. Comparing with other biometrics recognition techniques, face recognition has its unique feature: non-aggressive to human. It is a "passive" recognition that users need not to get close and touch the device. As face recognition devices can be placed everywhere, the devices can be highly concealed. Therefore, users can recognize the target person quickly without contact at a long distance. Thus face recognition is used broadly in public security system with a large scale of application.

Technical Algorithm - The Architectures of Face Recognition

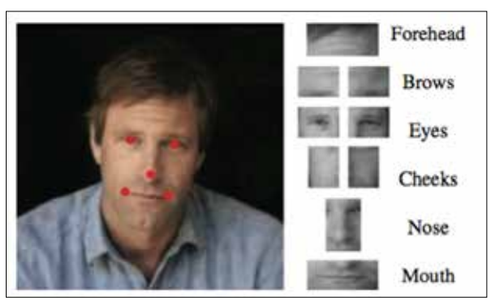
Face Detection:

Detecting whether the image contains human face through Deep Learning.



Face Landmarks:

Finding the landmarks and distributions of the detected face. Landmarks can be 5-68 in amount, depends on the device.



Face Alignment:

Analyzing the landmarks of input facial image and aligning the image with the pre-saved facial template by cropping and resizing.

Face Comparing process:

To confirm the identity of detected facial image or search and compare the detected facial image with facial images in the database. This process will finally find out if there is a pre-saved image can match with the detected image and thus confirm the identity.

ZKTeco's face recognition algorithm had been examined by templates of more than 20 races of human in 180 countries and set up a huge database.

Main Features of Face Recognition

Adaptive to the environment:

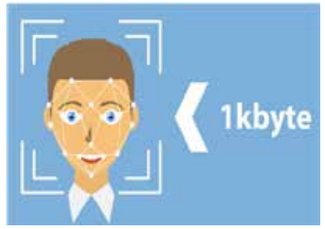
Suitable to use in both indoor and outdoor. than 20 races of human in 180 countries and set up a huge database.

Contactless Authentication:

No need to touch the device, and thus more hygienic and causing lesser inconvenience.

Small Storage Space Required:

The template of facial image is lower than 1Kbyte.



ZKTeco BIOMETRIC TECHNOLOGY INTRODUCTION

Fundamental of Palm Recognition

What is Palm Recognition?

Palm Recognition is a biometric authentication method based on the unique patterns of various characteristics in the palms of human's hands. Basically, Palm Recognition utilizes use a scanning device or a camera-based application, along with associated software that processes image data from a photograph of an individual's palm and compares it to a stored record for the user. ZKTeco's Palm Recognition technology consists of Palm Vein Recognition and Palm Print Recognition.

Main Features of Palm Recognition

High Security Level:

Combining palm print and palm vein recognition can prevent fake verification effectively.

Accurate:

Hybrid-biometric recognition can reduce False Acceptance Rate and False Rejection Rate.

Touchless Authentication:

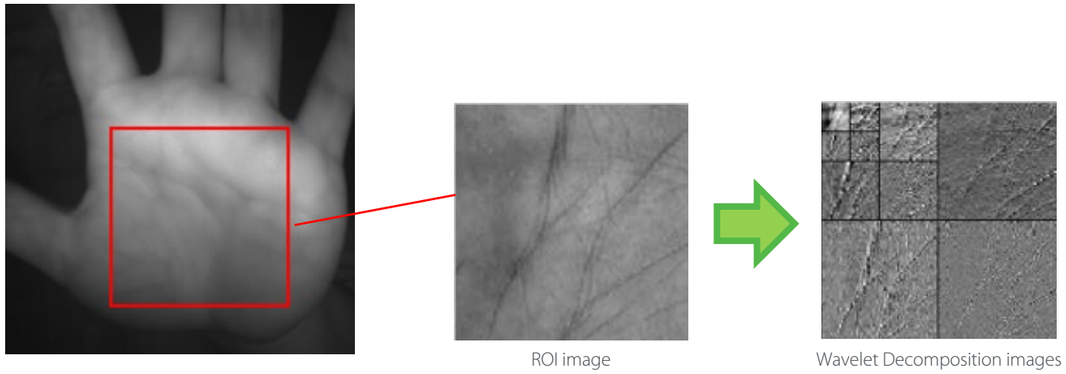
Hygiene and reduce contradiction of users mentally.

Technical Algorithm - The Architectures of Palm Recognition

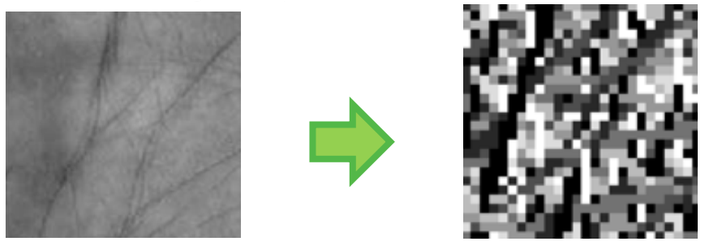
Palm Recognition Features

With near infrared lighting, due to the absorption of infrared light by palm veins, the palm veins reflect less light and are darker than its surrounding, and form palm vein patterns.
When palm pattern is detected, through the square-shaped Region of Interest (ROI) is located at the center of the palm accordingly.

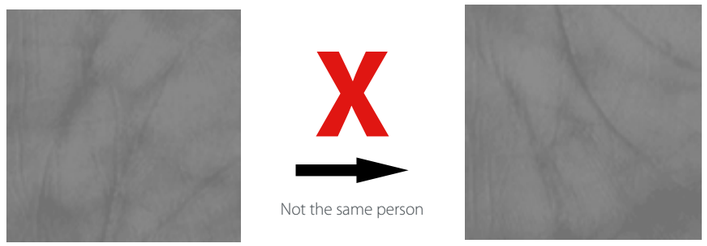
ROI is the red square in the middle.
Transform ROI image into wavelet decomposition images.



Transform Palm ROI image into template.



After matching with pre-saved template, the identity of the person can be confirmed.



For images captured by different capturing devices different resolutions and light sources, suitable modifications of the standard palm vein image, its size of ROI, frequency of the filter, size and step length according to the actual situation could be applied.

TL400B
BLUETOOTH ENABLED
FINGERPRINT DOOR LOCK WITH REMOTE KEY SHARING

Features

- Support multiple unlocking way, including fingerprint/password/card/mobile phone/key
- Manage your lock via your phone, support editing user, record checking and setting time zone.
- Bluetooth is not required for visitor password, you may send passwords to every corner in the world without any limitation of time and location.
- Voice guide for more easy operation with adjustable volume.
- Random password for more security.
- Capacity: fingerprint/password/card--100

Installation Friendly | **360° Fingerprint Recognition**

TIME AND ATTENDANCE WORKFORCE MANAGEMENT TERMINAL

360° all direction Fingerprint Recognition

D1 & D2 are specially designed for table or counter use. The fingerprint sensor placed on top of terminal, it enables all-directional fingerprint reading for the convenience of attendance. BioID high sensitivity fingerprint sensor provides faster and more accurate fingerprint verification.

Features

- Countertop placed without installation
- WiFi Communication
- Build in battery up to 8 hours standby
- Build in Time Attendance
- Mobile App. control and report download
- USB Microport for DC power bank

D1 D2

For more information
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Annual Development **Overview of ZKTeco's Product Technology**

Li Zhinong, *ZKTeco's CTO*

With the growth of ZKTeco's R&D team size in Dalian, Xiamen and Dongguan and their technical experience, ZKTeco's technologies in biometric algorithms, hardware and software has been improved greatly.

The easy-to-use of face algorithm, palm vein algorithm, finger vein algorithm, iris algorithm and license plate recognition algorithm have achieved superior results and applications.

The depth study-based visible light face recognition algorithm and its Android/PC SDK were initially released. This algorithm can capture various facial attributes, including age, gender, head gesture, eye state, mood, mouth state, sunglasses wearing state, etc., and offers more than 78 high-precision key facial feature points, including face contour, eye, eyebrow, lip and nose contour. In multi-player scenarios, it can capture all the face key points detected from the video stream, regardless of the number of faces. The high robustness algorithm suits for all kinds of extreme scenarios.

The visible light face recognition algorithm has been applied in face recognition, fingerprint reading and ID card verification system, Dazhanggui and face camera projects. In the face, fingerprint and ID card verification system solution, it is combined with gate, hand-held equipment and vertical verification equipment to form a comprehensive inspection platform, such as the ID card verification system integrating ID card reader, face camera and fingerprint acquisition module, and face recognition of gate visitors via WeChat and kindergarten management system. In the security channel access control solution, Dazhanggui based on Android operating system, completed the embedded visible light Face recognition camera, supports mobile phone/tablet mobile APP face registration, P2P remote monitoring and NVR local video recording, can connect to ZKBioSecurity system (time attendance, access control, elevator control, visitor management), and provides standard middleware API that enables the integration with the third-party applications. In the security camera system applications, ZKTeco introduced the embedded face recognition-based NVS software.

The computers with i5 processor can connect four embedded face recognition cameras at a time, offering the functions such as visible light face recognition, blacklist management, access control video linking and video surveillance.

The 9.0 near-infrared face recognition algorithm and its Android/Linux SDK were released. The 9.0 algorithm improves the correct recognition rate, reduces the false positive rate, solves the difficulties of recognizing the users with glasses and eliminates the impact of environmental light and other non-identity factors. ZKTeco introduced the Android-based smart building access control equipment with outdoor face and palm multi-mode fusion identification and inSun100 facial fingerprint attendance access control that can be normally used in the outdoor environment over 80,000 lux. Meanwhile, ZKTeco is pushing the development of "face + iris" offline access control.

The non-contact palmar recognition algorithm and its Android/Linux/PC SDK were first released, which combines two basic biometrics, i.e. palmprint and palm vein, and is more accurate and safer, compared to single palm or palm vein.

The finger vein algorithm 5.0 and its Android/Linux/PC SDK were launched, which optimizes the detection speed of the finger vein algorithm, and provides the technical conditions for the implementation of fingerprint and finger vein recognition project.

The vehicle license plate recognition algorithm designed for China and Thailand and its Linux/PC SDK were first released. Multi-color space detection ensures accurate identification of a variety of license plate types, such as domestic blue license plates, yellow license plates, military vehicle license plates, police vehicle license plates, WJ vehicle license plates, personalized license plates, embassy license plates, Guangdong and Hong Kong license plates, etc., and Thai white card license plates, red license plates, yellow license plates, orange license plates, green license plates, embassy license plates, personalized license plates. In the traffic channel applications, ZKTeco planned an application system integrated with face recognition, fingerprint reading and ID card verification and license plate recognition that enables ID card information reading, face comparison and license plate recognition without opening the car door.

Release or plan hardware platforms for Linux, Android and Windows series to meet the needs of different application scenarios

ZMM720 core board based on Linux system platform was launched, which is 4-core Cortex-A9 structure, 1.6 GHz. ZSM750, ZSM760 and ZSM150 core boards based on Android system platform were launched, where ZSM750 is the dual Cortex-A72 large core + four Cortex-A53 small core structures, 2.0GHz; ZSM760 is 4-core Cortex-A17 structure, 1.8GHz. Also, ZKTeco is promoting the Windows10 system core board. The introduction of multiple platforms for different scenarios and applications meets the needs of ZK smart channel, security inspection, attendance and access control and different applications in other industries.

Launch the planning and development of Android firmware with new architecture to lay the foundation for a series of Android products.

A new architecture Android firmware development team was built in Dalian R & D center in July, which has completed the construction of new architecture Android firmware and part of the development needs. The new architecture Android firmware is compatible with the channel hybrid biometric platform, 5.5-inch and 7-inch Android attendance access control devices, Biocam400 and Android iris integrated machine and a series of Android system-based product firmware applications.

Optimize and release face, palm, finger vein and fingerprint modules and collectors to adapt to different product applications.

FAM300, the near-infrared and visible light face acquisition module and FAM400, the visible light face acquisition module were released. The palm modules and readers for the different indoor and outdoor scenarios and applications were introduced. The small fingerprint finger vein module and the readers were completed. ZKTeco is promoting the development of small and large capacitive fingerprint readers and smart fingerprint chip card. The ID card embedded fingerprint matching module was completed. Guarantee has been made for adapting to the application of different forms of products.

Build one-stop service cloud platforms based on biometric technologies, including Smart Tower cloud platform, ZKBioSecurity and Fufu HR management cloud platform. The development-oriented hardware and software platform was built and allows easy and flexible integration.

Smart Tower ID verification cloud platform is based on the micro-service architecture, which is a completely modular and service-oriented business system, that is, the business system can be split into small applications independent developed, designed, operated and maintained. These small applications are interacted and integrated through service. An open, scalable, cross-platform O2O identity authentication platform was built to achieve safe, convenient, true and correct authentication of the user's identity, and is suitable for security risk prevention of computer network applications in the finance, telecommunications, electricity, social security, education, medical, military, civil industries, etc.

ZKBioSecurity software platform is managed through open modules, which provide a large number of API interfaces and intermediate data interchange schemes and can incorporate other systems such as video surveillance, burglar alarm, building intercom, enterprise ERP (UFIDA, Kingdee). Through connection, the platform allows information acquisition and data exchange with the connected sub-system, combined plan processing, and integrated monitoring and management operations, builds a spatial, visible and decision-making dynamic information library with the elements including "people, object, place, event and organization", and achieves "centralized and scattered" large-scale system-wide smart security management.

The Chinese version of Fufu HR Management Cloud Platform has been optimized, and the Indonesian version has been launched and commercialized in Indonesia. Fufu uses the mode "cloud HR system + mobile APP + cloud time attendance machine", with built-in employee performance reports, time attendance reports, payroll statements, vacation details of different computing dimensions, supports automatic card punching via Bluetooth and APP in the mobile phone, report exporting and saving, and generating human resource analysis chart according to the enterprise situation, etc. Fufu plans to provide professional HR management solutions while expands more value-added services, focuses on both the enterprise management and concerns on employees' life and conditions, allows enterprises to quickly understand the employees' states and provides basis for decision making.

OUR COOPERATIVE PARTNER INTERVIEW

Fernando Ducay Real,
CEO of ZKTeco Europe Branch

My dearest Friends and Family of ZKTeco,

I would like to talk to you about my experience and perception of ZKTeco´s evolution over the last 10 years.

From its humble beginnings as a local technology company with a limited product range, ZKTeco has evolved into a global reference and pioneer of physical and logical security products and solutions.

A decade ago, the main range of products that we worked on was limited to biometric time and attendance and access control terminals, with limited software, languages and technical support capabilities. We also manufactured biometric smart locks, without any necessity for software. In general, our work did not focus on thinking about solutions and integrations. We lacked sufficient technical and functional understanding of the requirements of different international markets.

Our team was not accustomed to daily interaction with international companies, which impeded our ability to communicate and fully comprehend their requirements and of the evolution of the security industry on a regional and global level.

It was in 2010, with the launch of the C3 and Inbio access controllers, that we witnessed a massive jump in quality and in functionality throughout the access control sector, both in hardware and in software.

We also saw great advances in all our products related to T&A, with more functionalities, faster hardware and an improved biometric algorithm technology, both in fingerprint and facial recognition.

We must not forget that the core of our business has always been biometric recognition, both physically and logically.

As for the international expansion of ZKTeco, this began in 2009 with the opening of the first international offices in USA, followed by Europe, Mexico, Dubai, Indonesia, Turkey, South Africa... as of today we have more than 20 offices spread all over the world.

Undoubtedly, this is one of the reasons that has made our company grow in recent years, having a more in-depth technical and functional understanding of each regions' requirements and its own technological evolution.

Regional market presence has given us more knowledge, and this we are all benefiting from in the personal and professional development of all members of ZKTeco, which is in a very natural way creating our own corporate culture.

Coming back to the technological evolution of ZKTeco…

It is at the end of 2013 when we launched our first turnstiles and where we entered a market that only 2 years earlier would have been unthinkable for us. At that moment we created our own biometric turnstiles solution, being the only company in the world able to integrate biometrics and turnstiles under the same roof, from the same manufacturer.

I can assure you that although it took a lot of time, learning and suffering, it was most certainly worth the effort and time that we all invested in it.

Since the launch of the entire range of turnstiles we offer, including tripod, flap barrier and swing barrier, the natural progression in this family of products was when in 2016 we began to manufacture our first parking barriers, which this year we have integrated with one of the most advanced license plate recognition systems in the world today.

During this ongoing and versatile evolution of creating new products and solutions, during the opening of more and more international offices, there was always one burning question ... How to do Branding?

One answer to the question of "Branding" was revealed in 2016. It is called Green Label a special high-end product range under the ZKTeco brand, focusing mainly on access control solutions, with flexible software applications (modules) that can integrate different elements of security (Elevators, CCTV, Visitor Management, etc.)

It is, from this moment on, that software acquires a far more important role in the ZKTeco brand, providing our company with an integrated multi-platform security solution, at the same time when our first integrated solutions with third party companies are launched (SAP, Lenel, Herta, etc.)

As a result of these software innovations, today ZKTeco´shardware range is designed, developed and manufactured with concise focus on integration, connectivity, on software solutions and the integration to what is globally known as IoT.

A clear example of this - we offer an entire range of biometric modules for such integrations (Fingerprint, facial recognition, Iris, fingerprint & vein and palm), that are starting to bear fruit due to the large number of markets and vertical applications these can be applied to and which more and more technological companies are integrating with.

At the same time, two of our greatest achievements this year, and not without great effort, is the launch of our new security systems of Metal Detectors and X-Ray inspection machines, the latter of which includes a new innovative biometric feature.

And the other, our newest video surveillance solutions for analog and IP cameras, video recorders, related software and video analytics.

On a final note, I would like to say that with all of these technological developments created in recent years, I have seen a spectacular improvement in the professional and human quality of employees and collaborators of ZKTeco. Without the incredible efforts that have been put forward by all of these people, this growth would not have been possible. Words like "passion", "dedication", "excellence", "teamwork", "responsibility", etc... are a part of us as they are part of our corporate culture.

Looking back on these last 10 years, on the path we have taken, and on the formidable growth we have achieved, there is no doubt that ZKTeco is going places, and that in the years to come ZKTeco will continue as a global leader and innovator of new solutions and platforms for physical and logical security, as well as data (Big Data, smart cities, Smart office, etc.).

Fernando Ducay Real
C.E.O ZKTeco Europe

For years, ZKTeco has been impressing me most with the enterprise spirit of "pursuit of excellence, constant breakthroughs, continuous innovation", the high-end and forward-looking global perspective and development concept, the world-class and industry-leading advanced technology, the efficient, rigorous, serious and practical work style, all of which makes ZKTeco a real national brand and national pride. I sincerely hope that ZKTeco will continue to guide the development of the security industry to an even better place in the near future and create greater value and contribution to the world.

TCT Group
CEO Mr. Xie Chongtong

We started our business relationship with ZKTeco in 2005, since then ZKTeco has been a great business partner, always with cutting edge technology through the development of new technologies that allow our Integrators to offer the best Access Control Solutions. Another important factor that distinguish ZKTeco it´s their unconditional support to their clients, offering them the confidence that the 100% of their solutions measure up to the best quality standards. Now days we are confident to say that there is no other brand in the market that offers the solutions that ZKTeco can offer, that distinguish mainly for its reliability, professionalism and intelligence. ZKTeco is without a doubt an excellent business partner, now days we´re very glad to say that we have generated a very successful business relationship as well as a friendship relationship based on values.

TVC en Línea-
Carlos Pino –Sales Director

ZKTeco it's a great company, we have a business relationship for years since their first terminal up to date with all of the most advanced devices, we really like all of the variety of solutions in terms of access control and time attendance, always innovating and making new and better products for the security market, always having the correct device for what's needed. There is no doubt that ZKTeco brand is one of the best products we can offer in our business.

SYSCOM

Felipe Sanora - Product Manager

During this 10 years of partnership with ZKTeco, DIGICORP has grown very fast, thanks to all support we received with high technology, innovation, good quality, very competitive prices, good sales team and good technical support. It is an honor to be part of the ZKTeco family.

DIGICORP

Samuel Soliz - CEO

From the year 2010 we began to work with the products of the company ZKTeco. From the outset we were surprised by their high degree of commitment and professionalism. A company with a great vision of global leadership and long-term strategic planning. We have found a partner with an incredible capacity for innovation in its products, which present a design of excellence and represent a constant challenge for distributors since it forces us to be all the time training and incorporating new concepts and new features. For FUSIONAR, it is very important to have a supplier of the level of ZKTeco, an agile company in the answer, in commercial and technical aspects and concerned with listening its distributors as a way to improve their products and services. We have been able to provide our clients Access Control, Time Attendance and CCTV solutions of the highest level.

FUSIONAR
Jorge Núñez - CEO

Since 2011, ZKTeco has provided a total support, complying with indisputable quality products with unparalleled after-sales service, providing assistance with all the projects that were developed with products of the brand throughout Paraguay in various sectors of business.

The road to success was found mainly thanks to the cutting edge of ZKTeco, which is always one step ahead in all aspects of control and security, thus ensuring leadership in this business segmentation.

During all these years of working together, HPTI Sistemas y Equipamientos S.A. and ZKTeco consolidated a brand, a way of working. With a view to the future, we believe in a lasting relationship based on quality, commitment and, above all, success.

HPTI Sistemas y Equipamientos S.A.
Lorena Aldama – General Manager

We have been using ZKTeco products and services for over 7 years, they provide us with a diverse range of cutting edge data collection and access control products. The products meet the ever changing needs of our customer base and offer a good fit for the varying environmental conditions for clock and reader placement.

With the help of ZKTeco's development team we have customised the firmware to meet the UK market requirements. While this was a lengthy process we believe we now have a functionality rich portfolio of data collection devices, thus providing ELF with a unique offering to the market place of real time, push data collection clocking terminals encompassing the latest biometric recognition. Combining this with our award winning time and attendance software means that ELF continue to be a torch carrier in this technically advanced industry.

We look forward to continuing building upon our already strong and established business partnership.

ELF Productivity Ltd.
Paul O'Brien-MD

North Time and Data Ltd has been working with ZKTeco for over 2 years, and we have been very impressed with their products and solutions. In particular we have found ZKTeco's biometric solutions to be of excellent quality and very price competitive.

Using the SDK tools that we have been provided with and thanks to ZKTEco's ongoing post sales and technical support, we have integrated their hardware solutions with our combined T&A and access control software solution. As a result of these new solutions NTD business has expanded rapidly in both Northern Ireland and the UK. We sincerely hope to maintain and improve this successful business partnership with ZKTeco for the years to come.

North Time & Data Ltd.
Stephen Brown-MD

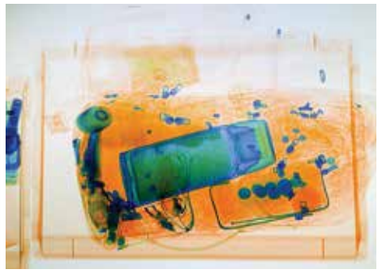
X-RAY SECURITY INSPECTION SYSTEM

ZKX10080

- Offer higher Wire Resolution with HAMAMATSU® X-ray detector
- Large tunnel size very suitable for registered luggage
- Ergonomic & Modern design

ZKX6550D

- Double X-ray generator offers two different view of scanning image at the same time
- Offer higher level of security inspection
- Ergonomic & Modern design



2 in 1 FINGERPRINT + FINGER VEIN, **HIGH ACCURACY OF THE VERIFICATION**

FPV10R is a fingerprint and finger vein combined scanner. In mathematics, it has index level accuracy improvement. With a single scanning, it does two verification of both fingerprint and the finger vein. It has the capability to scan both surface signature of the skin (fingerprints) and the inner side (finger vein), and offers reliable solution to block fake attempts to the system.

For more information on our branches and products, please visit our website:
www.zkteco.com

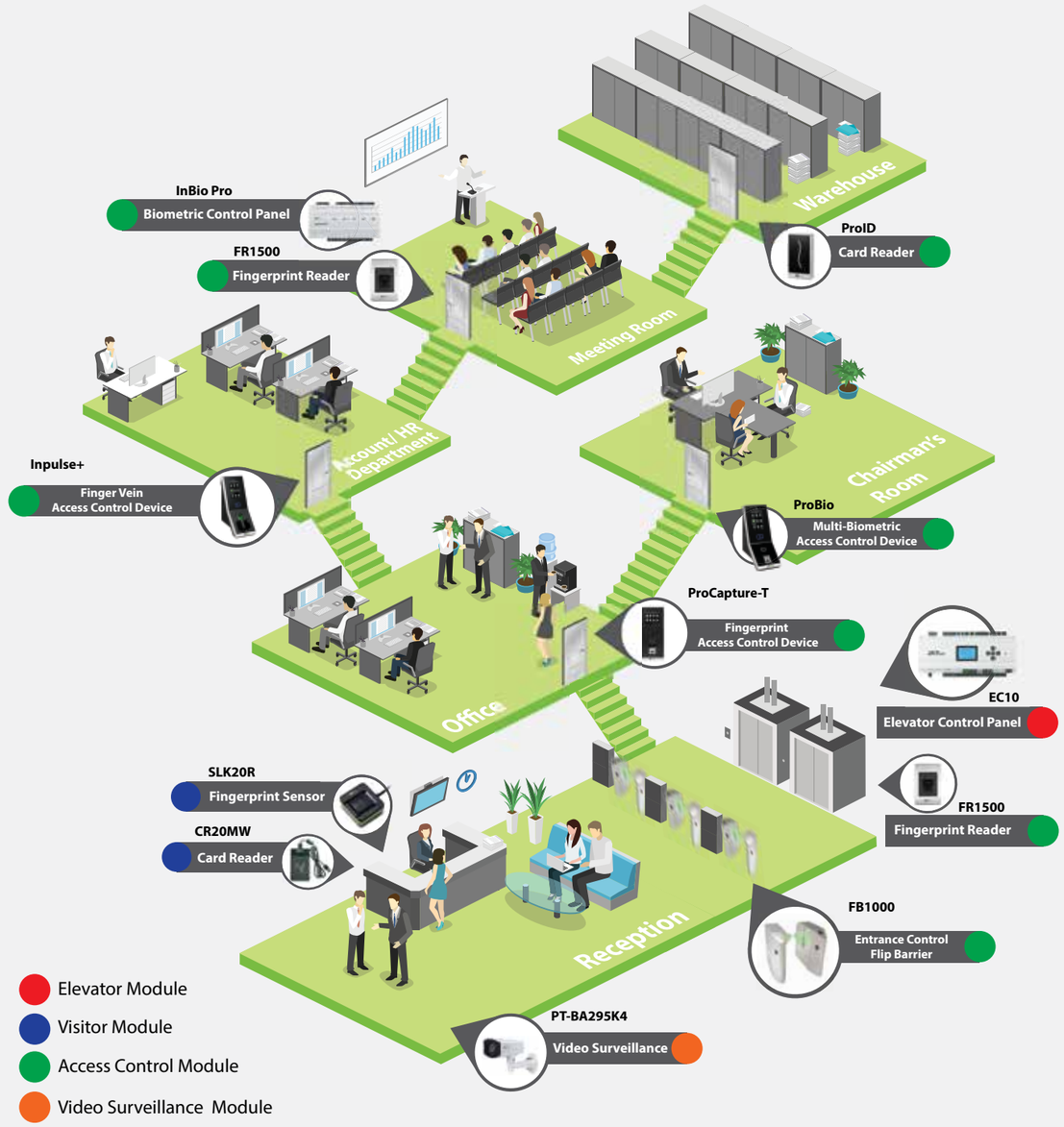
ZKBIO OFFICE SOLUTION
ONE TOUCH TO ACCESS ALL AREAS

Office is a place urbanites spend more time than are their homes, and is a place which stores crucial enterprise properties and confidential information, thus requires a complementary security control for its safety and privacy, other than main door and reception, including various departments, rooms or even elevators. However, to staffs and visiting clients, having verification steps in every single access point would be lengthy tedious, sometimes inefficient. ZKTeco All In One Security Management Solution centralizes access control, entrance control, video surveillance and elevator control. With highly precise hybrid biometric verification technologies, it allows One-Touch to access all areas. With Global Anti-Passback and Global Interlock functions, all corners are secured with strict and effective means.

Features

- Unlimited Admins & Employees Accounts
- Web Based Solution
- One Touch To Access All Areas
- Full Functioned Visitor Module
- Multi Card Technologies: Support HID Proximity, HID iClass, Mifare Classic, Mifare Plus, DESFire EV1/ EV2, LEGIC, ID Proximity
- Support Biometric Technology: Fingerprint & Finger Vein & Palm & Face Recognition

ALL IN ONE WEB BASED SECURITY MANAGEMENT SOLUTION

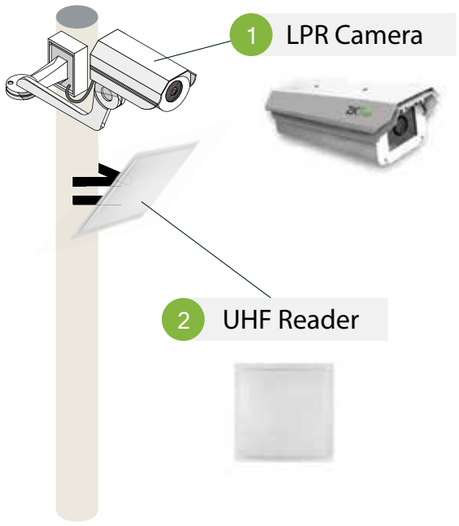


ZKTeco CAR PARK SOLUTION

With the rapid development of the global economy and the consistently improving living standard, there has been a growing number of vehicles. for efficient vehicle management, there has been an increasing number of parking lots and vehicle management areas beginning to use License Plate Recognition (LPR) products and Ultra-high Frequency (UHF) products. The recognition rate of LPR and UHF can reach over 99%. With no credit cards required, the automatic license plate identification enables fast vehicle access to parking, which provides convenient user experience.

Features

- Unlimited Admins & Employees Accounts
- Web Based Solution
- One Touch To Access All Areas
- Full Functioned Visitor Module
- Multi Card Technologies: Support HID Proximity, HID iClass, Mifare Classic, Mifare Plus, DESFire EV1/ EV2, LEGIC, ID Proximity
- Support Biometric Technology: Fingerprint & Finger Vein & Palm & Face Recognition



There are two kinds of UHF tags in this long distance fixed vehicle access management application.

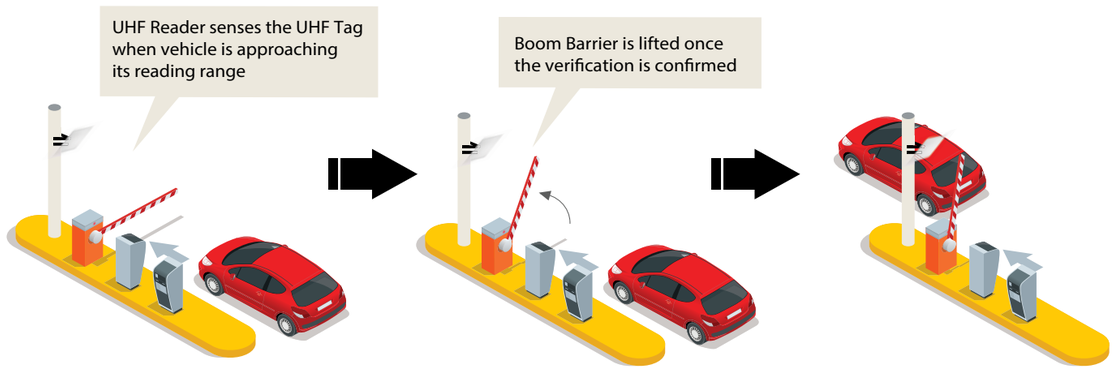
3A UHF Anti-Metal Electronic Tag

3B UHF Anti-Tear Electronic Tag

Automatic Vehicle Recognition

(With UHF Reader and UHF Tag)

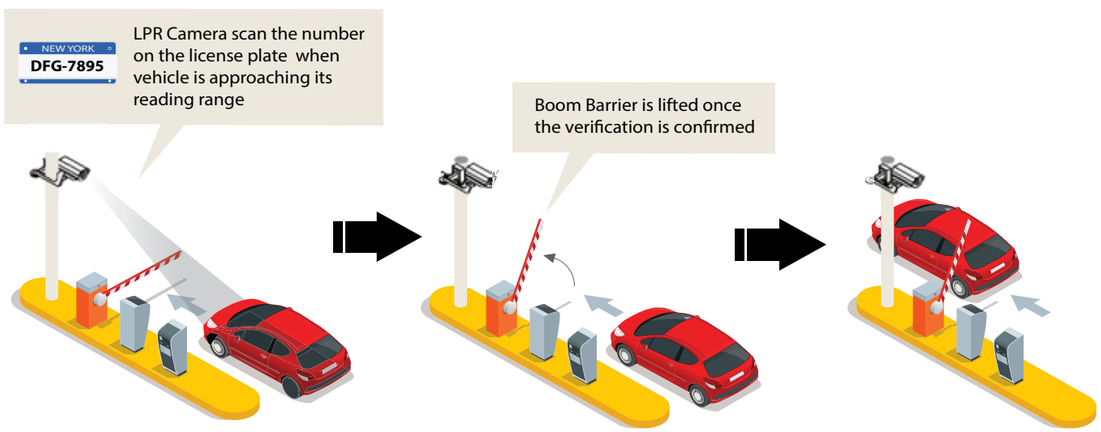
Its operation starts when a user with the passive tag drive through the UHF reader located at the entrance of the parking lot. The UHF reader will recognize the tag. The carpark barrier will lift up for access upon valid recognition. If not, access will be denied.



Automatic Number Plates Verification

(With LPR Camera)

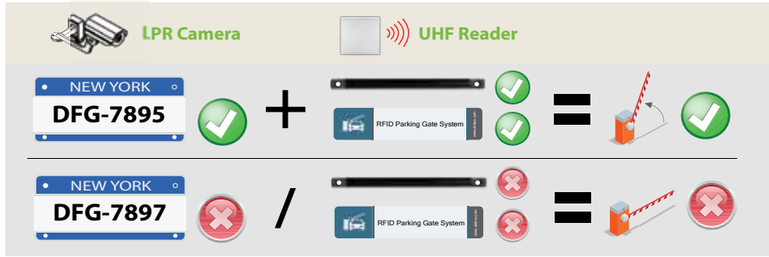
LPR technology is an application of computer video image recognition technology in license plate identification area. Its operation starts when the vehicle is located at the entrance of the parking lot, the LPR Camera will scan on the license plate character, and its recognition technology will identify the license plate number, color and other information. If the number on the license plate is valid, the car park barrier will lift for access, otherwise, no access will be allowed.

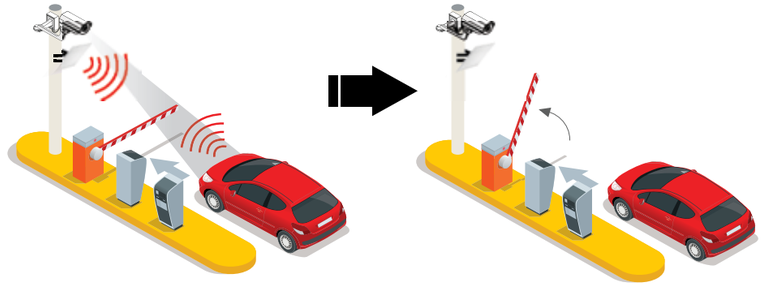


Dual Number Plate Authentication

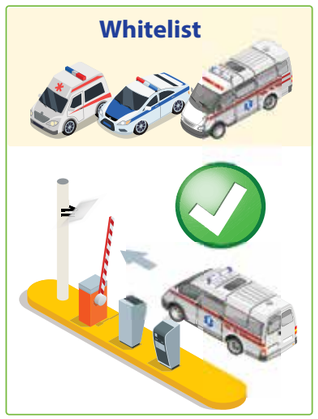
(UHF and LPR Based Two Level Authentication System for Vehicles)

Dual number plate authentication is a Multi-factor authentication to use of several authentication techniques together. Once the vehicle is located at the entrance of the carpark lot, both of the UHF reader and LPR Camera will start to recognise the UHF Tag and the number plate on the vehicle. If the verification of the number plate and the UHF tag is valid, the car park barrier will lift for access, otherwise no access will be allowed.





Blacklist and Whitelist Lists Management



Car Park System management Software includes Role and Black and White Lists. If the cars is preset on the white list, including fire trucks, police cars, and privileged cars, can enter and exit the parking lot free of charge. Otherwise, cars on the black list are not allowed to enter or exit the parking lot.

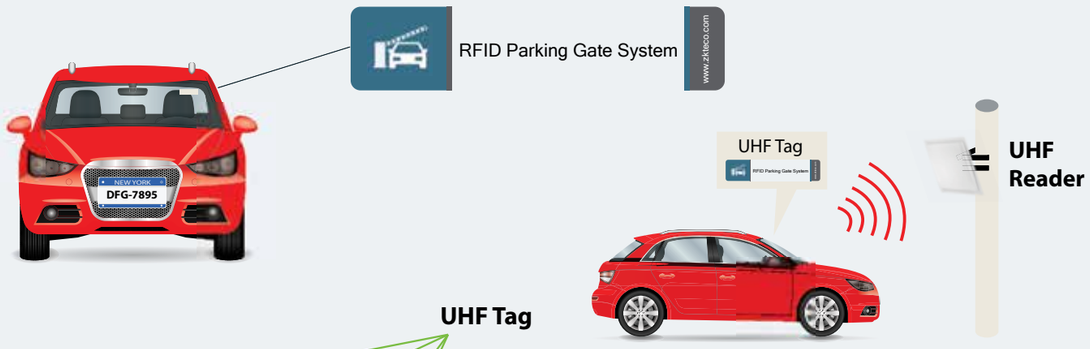
UHF Tag

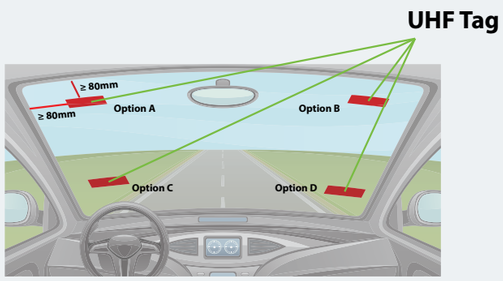
There are two kinds of UHF tags in this long distance fixed vehicle access management application.

Option 1	**UHF Anti-Metal Electronic Tag**	Fixed on the car plate

UHF anti-metal electronic tag can be fixed on the upper and lower edges of the license plate.

Option 2	**UHF Anti-Tear Electronic Tag**	Fixed on the windshield





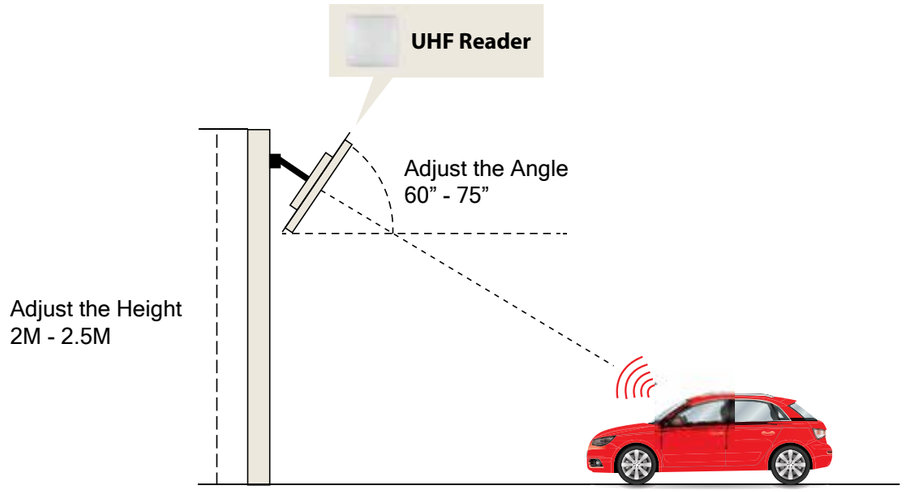
The distance between the UHF tag and the metal frame shall be 80 mm at least, the checked options in the figure above are recommended.

UHF Anti-Tear Electronic Tag is an electronic label which is pasted on the windshield of the car. This tag should be installed in an appropriate place on the windshield inside the car.

For vehicles covered with metal tempered glass protection film, an area of the film equal to the size of the related UHF is required to be removed, for the prevention of the interference to the verification.

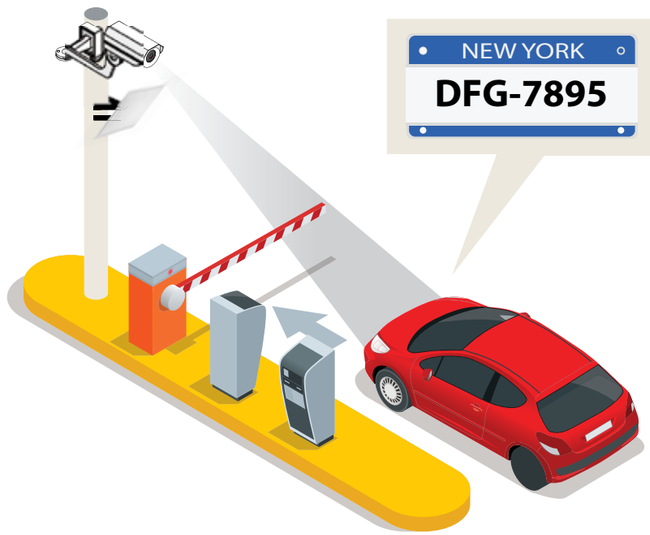
UHF Reader

The UHF RFID reader is an RFID long-range proximity card reader which can simultaneously read multiple passive UHF tags at ranges up to 12m. The reader is waterproof and is suitable for use in a wide range of RFID applications, such as transport management, vehicle management, car parking, production process control, and access control.



License Plate Recognition (LPR) Camera

LPR technology is an application of computer video image recognition technology in license plate identification area. This technology through the license plate crawling, image pre-processing, feature extraction, license plate character recognition technology to identify the license plate number, color and other information.



LAW ENFORCEMENT AGENCY SOLUTION ONE TOUCH TO ACCESS ALL AREAS

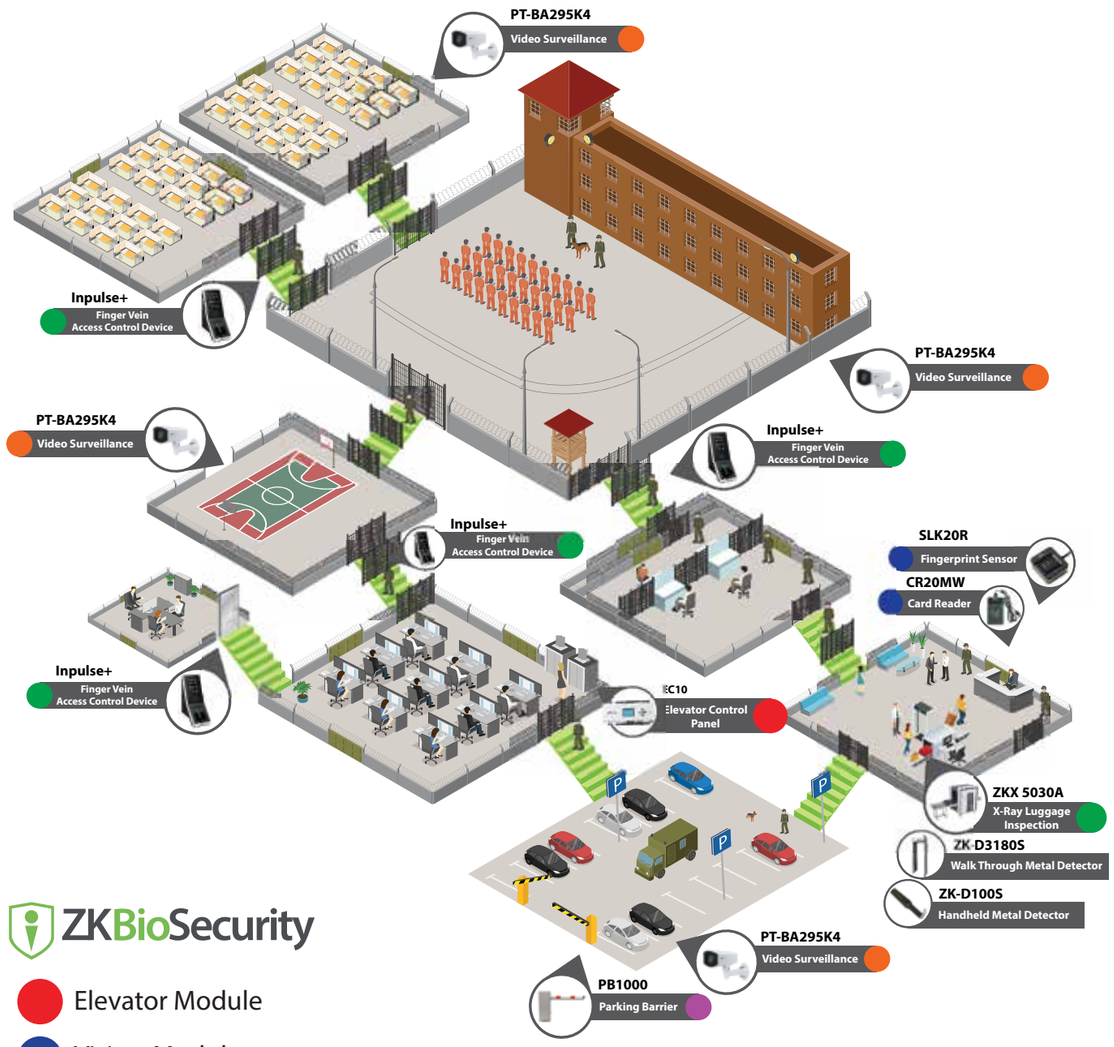
Any organization with relevance to law enforcement requires extra high level of security as they perform special duties involving public safety. Rather than just securing the main gate, they need complementary security in every single point for every single action of everyone in their premises, while maintaining high operation efficiency. ZKTeco All In One Security Management Solution centralizes access control, entrance control, video surveillance elevator control, with highly precise hybrid biometric verification technologies, it allows One-Touch to access all areas. With Global Anti-Passback and Global Interlock functions, all corners are secured with strict and effective means.

Features

- Unlimited Guards & Admin Accounts
- Web Based Solution
- One Touch To Access All Areas
- Full Functioned Visitor Module
- Anti-Passback and Global Interlock
- Multi Card Technologies: Support HID Proximity, HID iClass, Mifare Classic, Mifare Plus, DESFire EV1/ EV2, LEGIC, ID Proximity
- Support Biometric Technology: Fingerprint & Finger Vein & Palm & Face Recognition

ZKBioSecurity Law Enforcement Agency Solution

All In One Web Based Security Management Solution



ZKBioSecurity

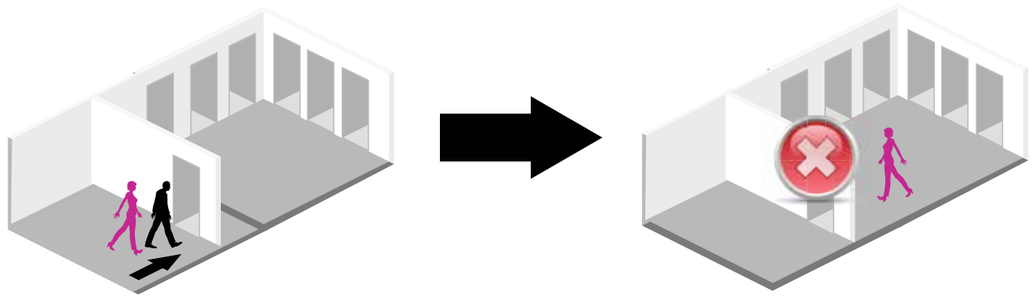
- Elevator Module
- Visitor Module
- Access Control Module
- Video Surveillance Module
- Car Park Module

ZKBioSecurity Law Enforcement Agency Solution

All In One Web Based Security Management Solution

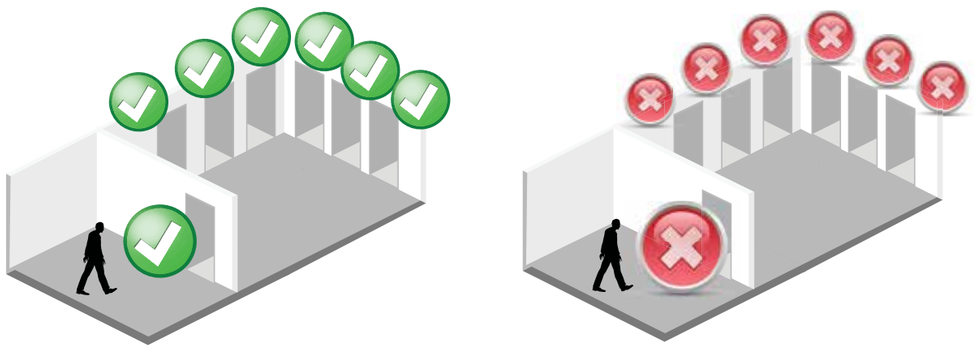
Global Anti-Passback

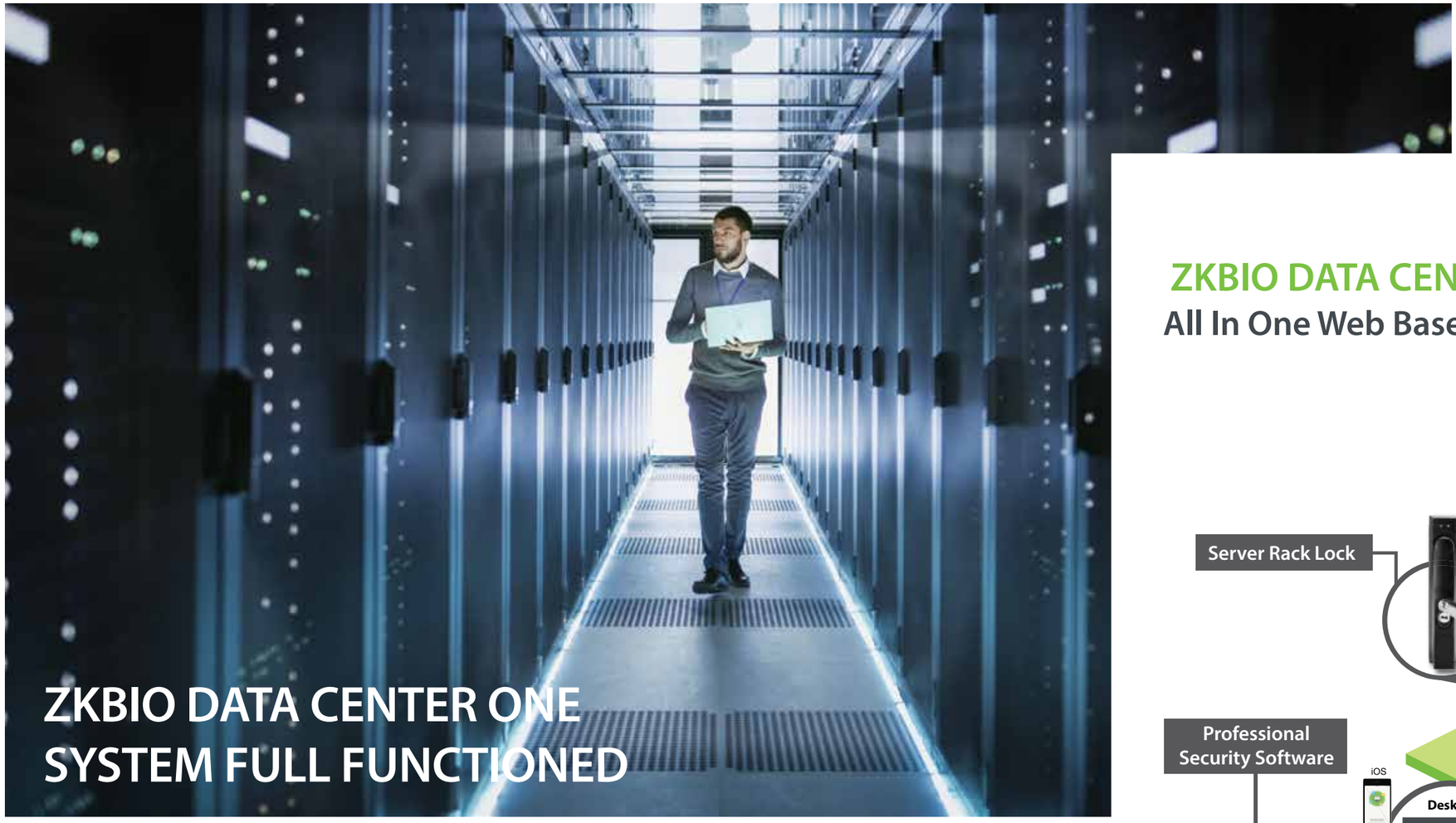
Global Anti-Passback is an advanced security function extending security level towards unregistered access, if any persons enter to the security area without authentication such as sneaking in by follow other persons, as red person in the chart below, then that person will be locked up in the security area, even that persons have the access right.



Global Interlock

Global Interlock is another advance security function extending security level by interacting with different security areas. It prevents persons open more than one door at a time, even that persons have multi door access authority, moreover, it can precisely appointed the access authority, such as activating specific doors access authority, when only the correlated doors locked up properly.





ZKBIO DATA CENTER ONE SYSTEM FULL FUNCTIONED

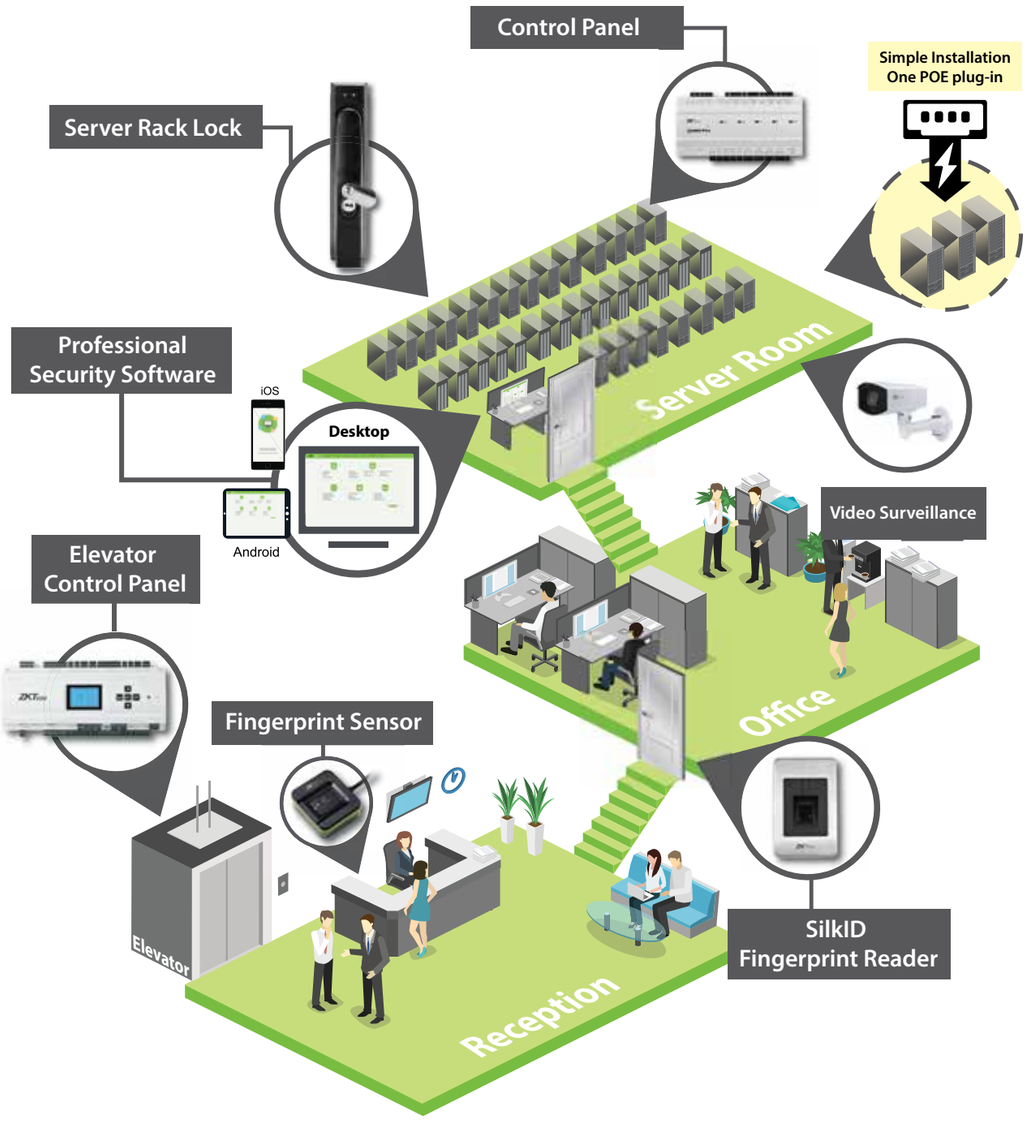
Data centers are like brains to enterprises as they store countless crucial and confidential data which are critical to business success, which with no hesitation need advanced safety. However they as the core component of enterprises' daily operation are accessed frequently. ZKTeco All In One Security Management Solution centralizes accesses with web-based technique and highly precise hybrid biometric verification and multi-card technologies, it allows One-Touch to access all areas. With Global Anti-Passback and Global Interlock functions, all corners are secured with strict and effective means.

Features

- Unlimited Guards & Admin Accounts
- Web Based Solution
- One Touch To Access All Areas
- Full Functioned Visitor Module
- Anti-Passback and Global Interlock
- Multi Card Technologies: Support HID Proximity, HID iClass, Mifare Classic, Mifare Plus, DESFire EV1/ EV2, LEGIC, ID Proximity
- Support Biometric Technology: Fingerprint & Finger Vein & Palm & Face Recognition

ZKBIO DATA CENTER

All In One Web Based Security Management Solution



ZKBioSecurity ELEVATOR CONTROL SOLUTION ONE TOUCH TO ACCESS ALL AREAS

Times are always changing. A nation could not secure itself with only more horses and bayonets. An architecture could not secure itself with only safeguarding its main gate. How do you know if your staffs or visitors are going to the right place? How do you ensure there is no unauthorized entry behind the entrance? ZKTeco All In One Elevator Control Management Solution ensures proper access of persons to only authorized floors with highly precise hybrid biometric verification technologies, it allows One-Touch to access to all authorized floors and areas. With Global Anti-Passback and Global Interlock functions, every single zone is secured with strict and effective means.

Features

- Unlimited Guards & Admin Accounts
- Web Based Solution
- One Touch To Access All Areas
- Full Functioned Visitor Module
- Anti-Passback and Global Interlock
- Multi Card Technologies: Support HID Proximity, HID iClass, Mifare Classic, Mifare Plus, DESFire EV1/ EV2, LEGIC, ID Proximity
- Support Biometric Technology: Fingerprint & Finger Vein & Palm & Face Recognition

PRODUCT OVERVIEW

① Elevator Control Panel - EC10

The EC10 Elevator Control Panel can restrict access up to ten floors. Floor access can be restricted based on various user credentials, including fingerprint, proximity card and/or password. During normal visits/business hours, unrestricted floor access can also be permitted

② Elevator Expansion Board - EX16

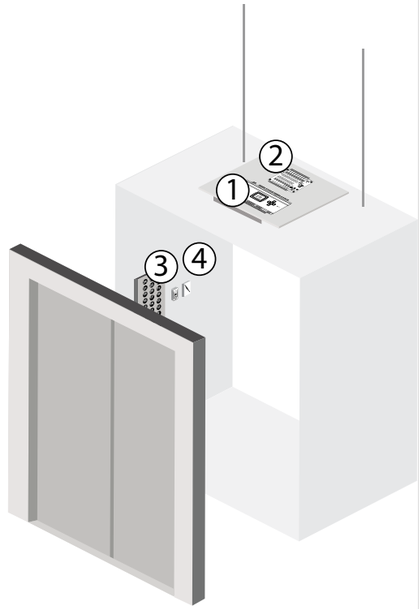
The EX16 is the Elevator Floor Extension Boards which is the support of EC10, it restricts access up to an additional sixteen floors. Each EC10 can support up to three EX16 boards. When combined, a total fifty eight (58) floors can be controlled with a single US10 bundle.

③ Fingerprint Reader - FR1500

FR1500-WP is a waterproof fingerprint reader with a flush-mounted design for neat installation. It can be connected by RS-485 and has a SilkID sensor.

④ RFID Reader with Keypad - ProID30

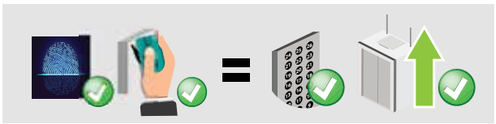
The KR Series is the mifare card reader, which is the main accessories line of external wiegand readers for all our access control devices.



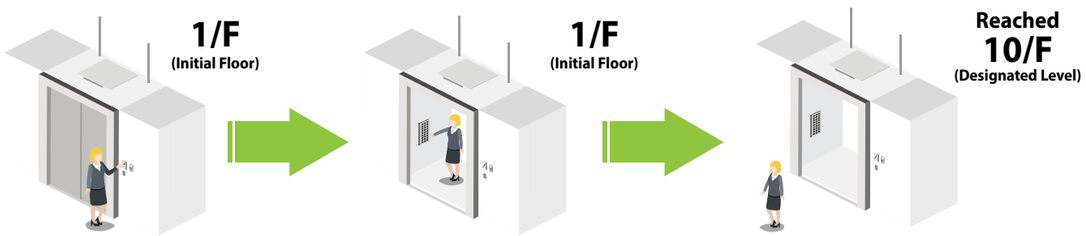
Elevator Control with Designated Level

Levels Assigned by Users

ZKTeco elevator control allows different user to access floors, it can be assigned with different floor access rights, and unauthorized users are not allowed to access those important floors. In the actual implementation, users have to present card on the elevator, and the elevator will allow user to reach to the assigned level. This will enable the security management of the whole building elevator access control using the elevator controller installed on each elevator car.



Users have to present card on the elevator, if the users has the access right, they will be allowed to go to the designated level, otherwise, the elevator will stay at the present floor.



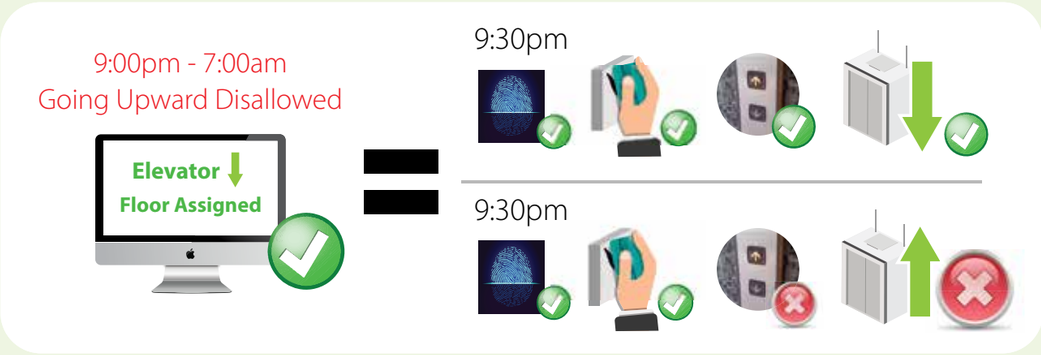
Present card on the elevator

Users will be allow to select the desired floor if they have the access right to the designated level.

Reach the desired floor

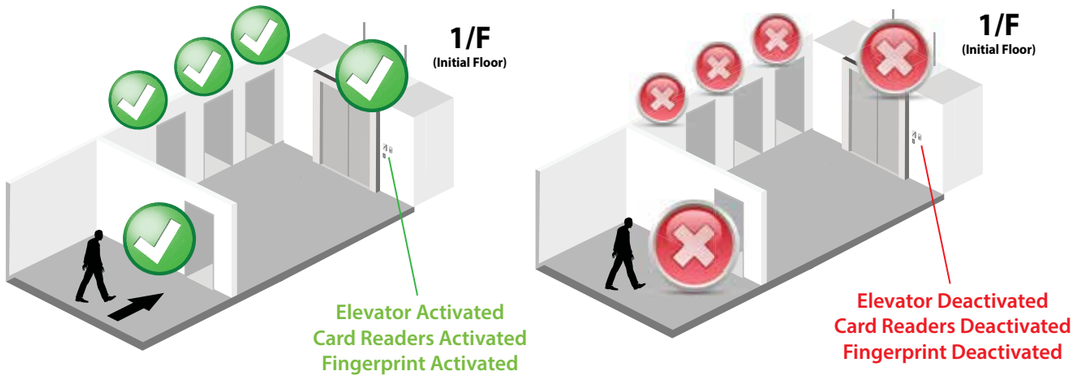
Elevator Operation Limitation by Timeslots

ZKTeco Elevator Control is able to limit elevators' operation in specific time. For actual implementation, if the elevator control was set to stop operating to go upward between 9:00 p.m. to 7:00 a.m., Unauthorized persons will only be allowed to go downward even with cards for floor access.



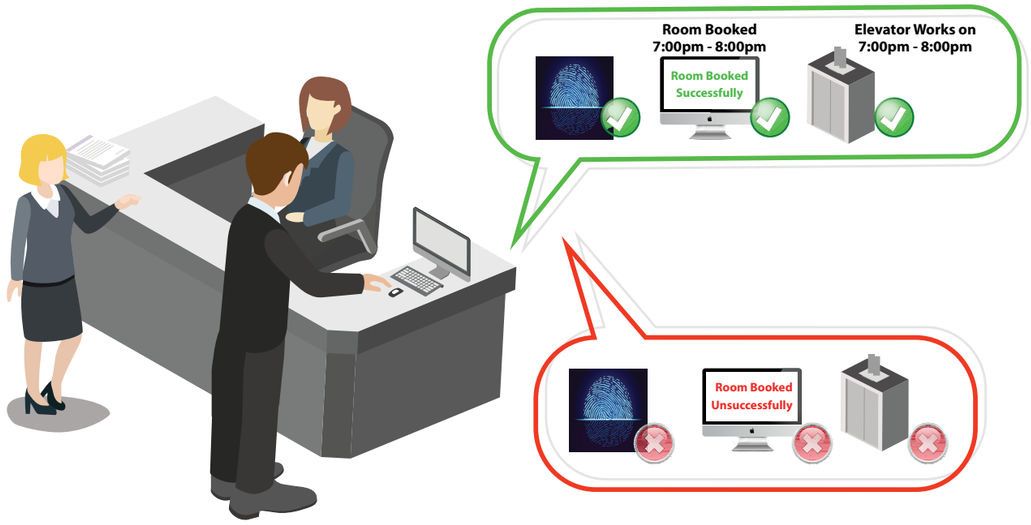
Global Interlock

Global Interlock is another advanced security function that enhances security level by interacting with different security areas. It prevents persons opening more than one door at a single time even the persons have multiple door access authorities. It also is able to precisely appoint access authorities including activations of access authorities of specific doors only when the correlated doors are locked up properly.

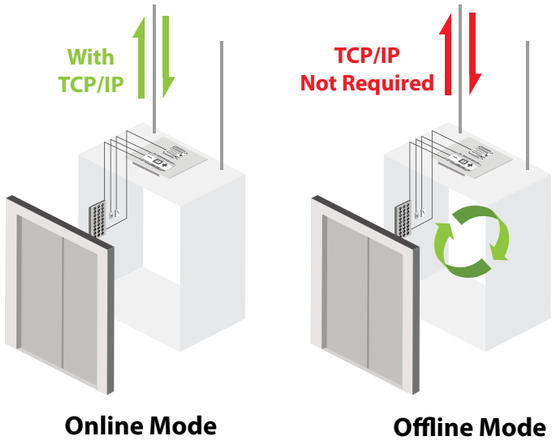


Registration

Elevator control allows users to stop the elevator on the specific time, and grants elevator to operate if the elevator to work if there is a booking for the other location. For example, to book the classrooms for teaching and the elevator, the users just simply click out the corresponding date and time via ZKBiosecurity software web based platform and get approval by pressing a hand or finger to a scanner. This proven and recognized biometric procedure ensures that the person is authorised and has a right to book a room and working time of the elevator.



Online Mode/ Offline Mode



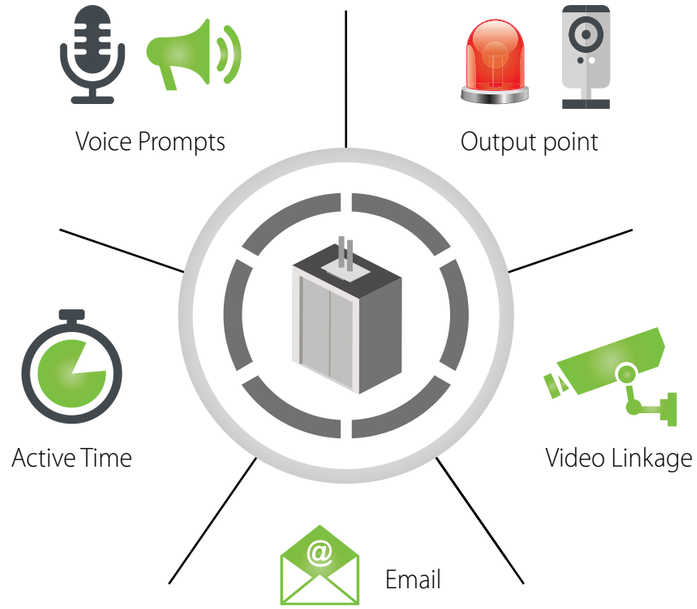
ZKTeco elevator control can either operate in online or offline mode.

Online Mode: Require TCP/IP, and all elevator access transaction is stored locally in elevator controller and automatically upload to back end server.

Offline Mode: Offline data can be read with current Mifare which will not require the TCP/IP. The advantage of using offline mode is the old elevator will also be able to install the elevator control with the low installation cost.

One Touch To Access All Areas

Global Linkage



ZKBiosecurity provides the Global Linkage Service to the user. It is able to automate system functions and notifications system wide.

There are multiple tiers to the alert process including Output point, Video Linkage, Active Time, Email Notification and Linkage Voice Prompts.

Output point

With Global I/O, Output point allows administrators to configure linkages where various events can be linked to any other input/ output/ events in the system. These linkages can be actived by various events with different access level, invalid card, unrecognized finger-print read and motion detection might trigger such outputs (Alarm, IP Camera...etc).

Video Linkage

Photo Capture and Pop-up video to warn administrator when exceptional events take place. Video could include footage before the events happened. Video length could be up to 180 seconds.

Active Time

Administrator can set an active time for the linkage by pre-defined time zones or date range.

Email Notification

Email notification allows an operator to send a message via email automatically whenever a specific trigger occurs.

Linkage Voice Prompts

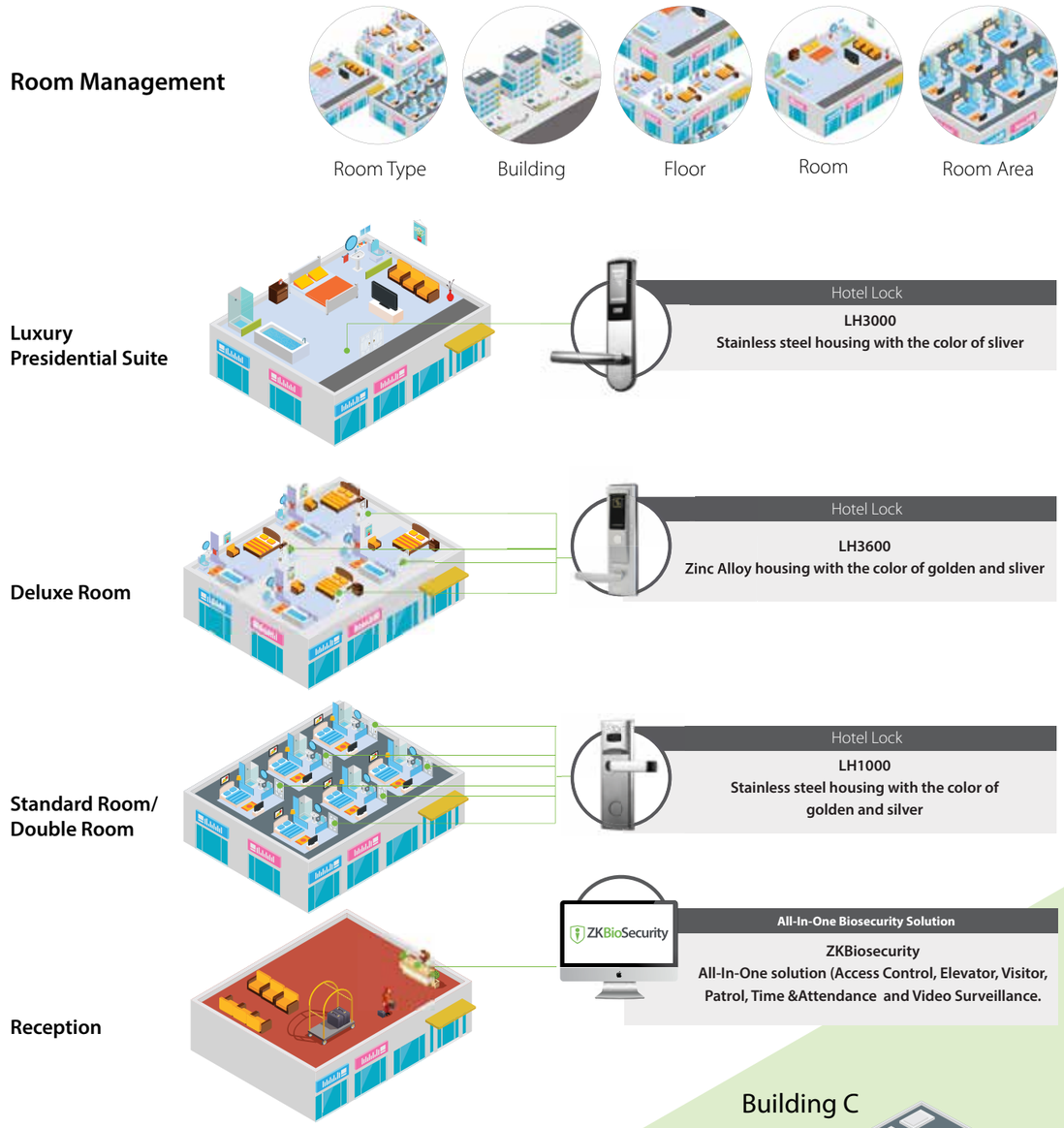
Voice linkage will announce series of warning messages which are accompanied by siren sounds. These linkage the announcements will be caused by particular action.

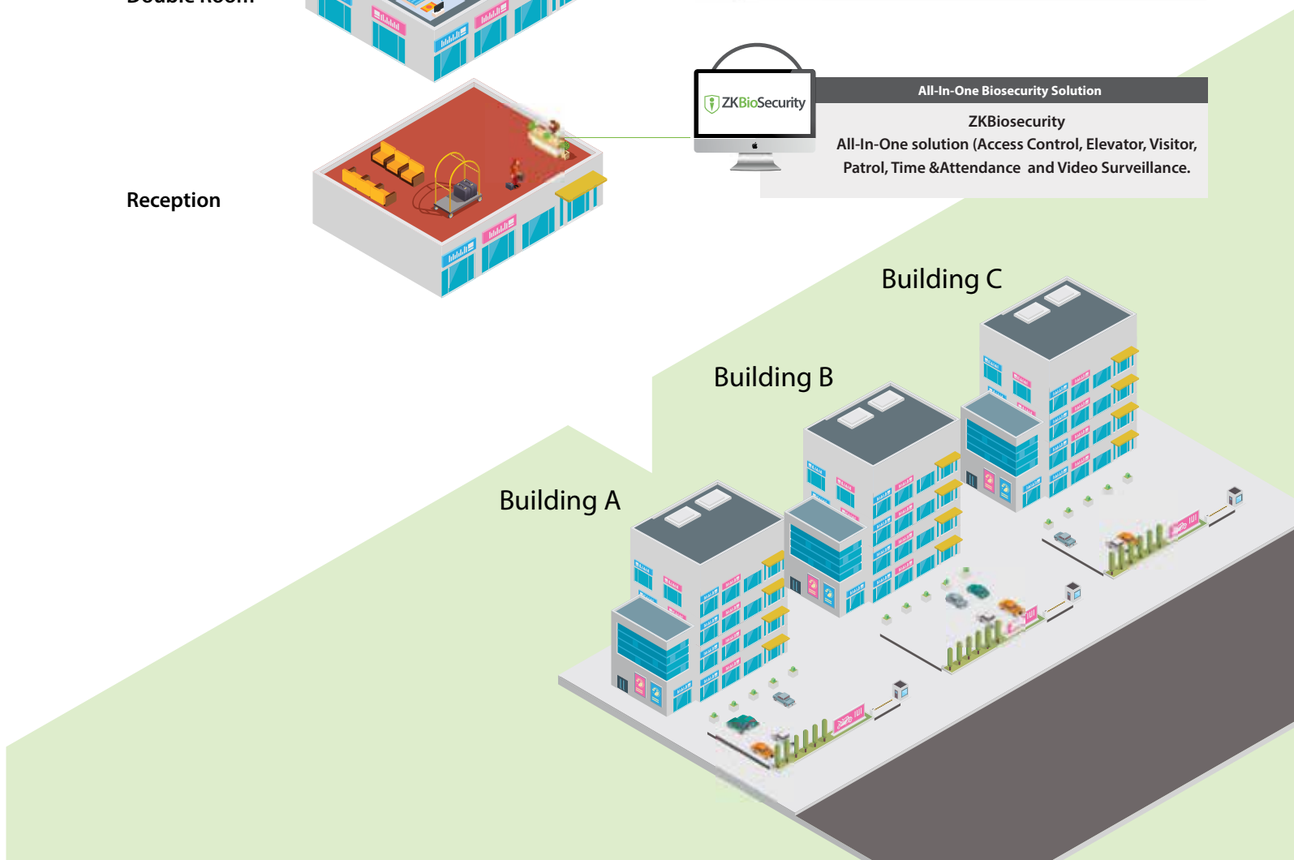
ZKBioSecurity HOTEL MANAGEMENT SOLUTION

ZKBioSecurity Hotel Management System is specially designed to meet the needs of small-medium hotels, maximum security, individual style and low operation costs. It is allowing for comprehensive access control and system management, but offers you an easy "one-click" installation.

Features

- Check-in, check-out and reservation for hotel guest
- Set card expiration date/time
- Create master, building, floor and other employee cards
- Create lost card to remove lost/stolen cards from the system
- Create record card to get the unlock logs from the hotel lock
- Matrix design allows you to see the room status
- Extendable hotel management functions



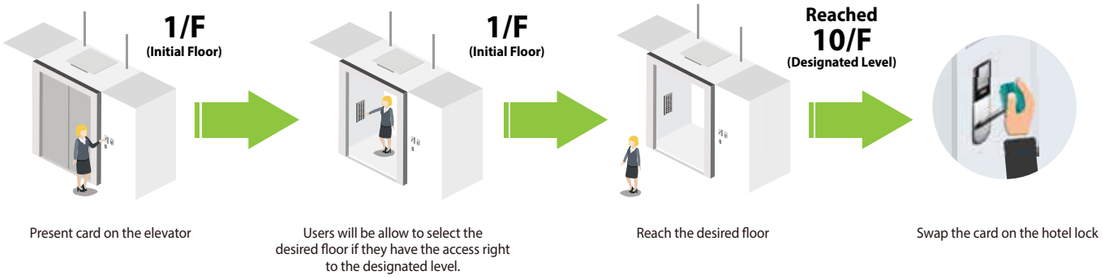


Elevator Control With Designated Level

Levels Assigned by Users

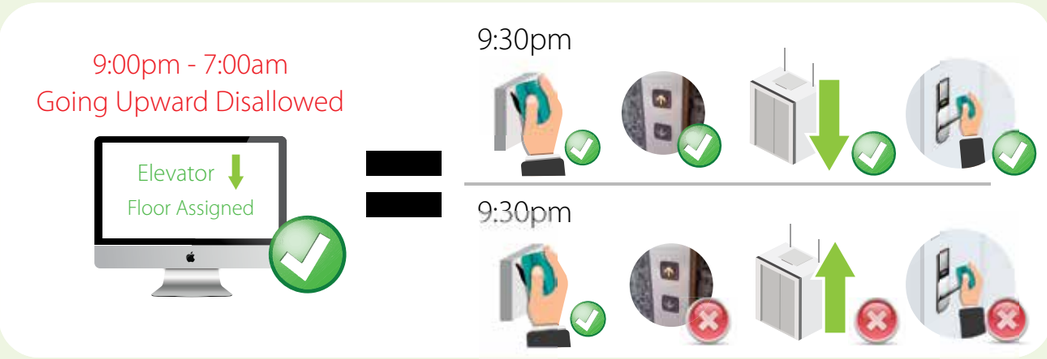
Once the hotel lock is connected to the elevator and access control module, the ZKTeco elevator control will allow different user to access floors, it can be assigned with different rights, and unauthorized users are not allowed to access those important floors. In the actual implementation, users have to present card on the elevator, and the elevator will allow user to reach to the assigned level. This will enable the security management of the whole building elevator access control using the elevator controller installed on each elevator car.

Users have to present card on the elevator, if the users has the access right, they will be allowed to go to the designated level, otherwise, the elevator will stay at the present floor.



Elevator Operation Limitation by Timeslots

ZKTeco Elevator Control is able to limit elevators' operation in specific time. For actual implementation, if the elevator control was set to stop operating to go upward between 9:00 p.m. to 7:00 a.m., Unauthorized persons will only be allowed to go downward even with cards for floor access.

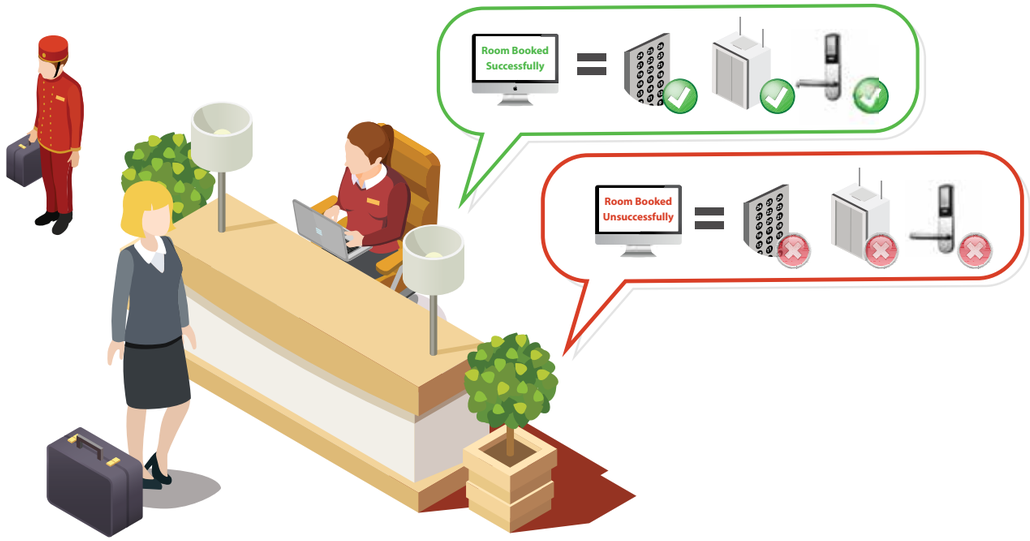


Intuitive Design - Web Based Reservation Management

Hotel Module has an intuitive design which is easy to understand without explanation. It combines RFID lock technology with the freedom to choose the door access right for the guest. Just simply click in the room no. that people would like to stay on the ZKBiosucurity, Hotel guests will gain access to the assigned rooms with the card within the corresponding date and time.

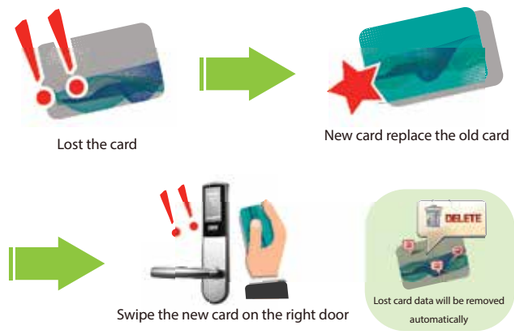
Web Based Registration Management

Elevator control allows the guest to stop the elevator on the specific time, and grants elevator to operate if the elevator to work if there is a booking for the other location. For example, to reserve the hotel room for and the elevator, the hotel staff just simply click out the corresponding date and time via ZKBiosecurity software web based platform. This proven and recognized procedure can prevent the guest re-enter the hotel room and the elevator with the lost card.



Report Lost Card

Guests are given the hotel card upon registration at the reception, if the guests lose their hotel room, hotel staff just simply adopt the "Report Lost Card" function and make a new card to replace the lost card.
Swipe the new card on the right door lock which will therefore activate the new card and remove lost/ stolen cards' data from the system.



Smartphone

CLOUD BASED TIME ATTENDANCE SOLUTIONS

Cloud Based Service

Timecube is a cloud platform specialized for professional service, it combines the smart attendance terminal and Timecube's HR management system to perfectly generate an enterprise management cloud platform. With Timecube, users are able to solve various problems of enterprises' attendance, personnel management and collaborative office, and quickly achieve informatized management.

Mobile Attendance
Take Time Attendance anytime and anywhere

Field Duties
Instant positioning of field duties and photo-capturing attendance

Zone Management
Real-time manage all attendance of all branches

For more information
Please visit our company website
www.zkteco.com or **www.gotimecube.com**

Download on the App Store

ANDROID APP ON Google play

iPhone/ Android Application Download

IOS QR Code

Android QR Code

ZM100

WORLD'S FIRST LOCK WITH BOTH FACE AND FINGERPRINT VERIFCATION

Features

- The world's 1st smart lock with multi-biometric recognition technology
- Supports multi unlocking modes, including face/ fingerprint/password/card/key
- Capacitive touch screen with icon menu display
- With rechargeable lithium battery
- Capacity:Face/Fingerprint/Card/Password - 100

HKTV Mall–
Online Shopping Platform Access Control Management

Hong Kong Television Network Limited (HKTV)

Hong Kong Television Network Limited (HKTV) is a Hong Kong television station. HKTV provides an over-the-top shopping and entertainment platform named HKTV Mall. It aims to provide a variety of programmes to cater and entertain customers, and commenced broadcasting on 19 November 2014 through live broadcasting and video on demand. HKTV Mall is a one-stop online shopping platform of Hong Kong. Television Network Limited ("HKTV"), With over 500 overseas & local brands and stores, and beyond 6,000.000 products including direct Japan & Korea imported fashion and accessories, food and grocery, beauty & health, household & lifestyle, electronics, baby & kid, etc., it aims to serve every aspect of customers' daily lives.

Project Requirements

The construction work of the E-commerce Distribution Centre of HKTV with over 31,000 sq. meters area commenced in 2015, including a 6-level building and a single level building. They have appointed ZKTeco HK as their access control solution provider. Here below are their major requirements.

All-in-one Security Platform

HKTV desired to have a high level security covering all areas of its E-commerce Distribution Centre. However, as a premise for e-commerce operation, there are multiple floors and a wide surface area with complex and rapid logistics and distribution processes. If a plenty of access control systems are deployed separately in different areas, the difficulty of personnel management would be severely increased. Thus, a completely all-in-one access control system instead of installing different systems are their needs in order to conveniently and centrally manage the entire site anytime and anywhere.

Specific Permission and Duration of Access

Due to the nature of the projected site, it involves a lot of logistics process, clients' goods and their personal information including contacts and delivery address are stored, HKTV also required that they would be able to flexibly set different permissions and durations of access according to the actual needs. Some levels with confidential information or storage are only open to a group of permitted staffs in a certain duration.

Access Control Report

A scale enterprise as HKTV is, they have a well-established management method. Thus, they required an access control system that is able to automatically generate access control reports with detailed information including names, locations and access status etc.

Technical Features

• The applied access control solution involves 20 units of InBioPro460 access control panels, 35 units of InBioPro260 access control panels, 55 units of ProID20BM card reader and 45 units of ProID30BM card reader. They are deployed in all accesses in the buildings, including the existing swing barriers installed by our client, they are embedded with ZKTeco's controllers to form a complete access control system.

• All staffs or any other person who needs to have entry to the buildings are required to be issued cards for access. Guests are also given cards upon successful visitor registrations.

• All access control panels and readers of the buildings are connected to and are centrally managed by the ZKBioSecurity access control software. This web-based security platform enables central remote control of access and real-time remote monitoring of all access control status.

• Management staffs are able to make specific permissions for certain levels in specific timeslots with different verification methods. For example, a certain group of staffs are permitted to have access to a certain floor in a specific timeslot with their cards. They are allowed to have access to the floor anytime if they have successful password verification.

Function Description

• ZKBioSecurity is an access control system management platform based on the browser/server architecture. Users can access and log in to the platform directly from browsers and view the verification conditions of all connected devices in real time on the browsers. Automatic generation of access reports are also available.

• ZKBioSecurity is an all-in-one web-based security platform developed by ZKTeco. The version applied in this project is an 3.0.3 ver. with superb security functions such as HTTPS encrypted communication, doors emergency lockdown, up to 66 bits flexible card format, personnel multi-card support, smart data analysis and the latest add on - the Patrol Module - to efficiently manage security guards patrol tours using the existing access control readers, reducing costs and ensuring patrol tasks.

Nipponham Group – Japanese Food Production Enterprise in Thailand Entrance Control Management

Nipponham Group Inc. (日本ハム株式会社, Nippon Meat Packers) is a food processing enterprise headquartered in Hommachi, Chūō-ku, Osaka, Japan. Founded in 1949, the company is commonly known as Nippon Ham. As a multinational corporation, Nippon Ham operates subsidiaries around the world, including China and the United States. In addition to its main business of meat packing and other food processing, the company owns the Hokkaido Nippon-Ham Fighters, a professional baseball team in Japan's Pacific League, and owns part of the J-League soccer team, Cerezo Osaka. Nipponham Group has been at present the largest meat manufacturer in Japan, and owns its processing plants, retail shops and laboratories, with well-developed processing, logistics, sales and merchandizing channels. Its logistics systems especially is unparalleled in the meat processing industry in Japan, which brings the enterprise significant business performance and the leading role in the industry. Nipponham Group emphasizes on the development and exploration of the Asian market, it has established cofounded factories and OEN processing plants with partners in the field in China, Taiwan, Vietnam and Thailand etc. The access control project is right deployed in the manufacturing site of Nipponham Group in Phra Nakhon Si Ayutthaya, Thailand.

Project Requirements

Fast and Reliable Car Entrance Management System

As a labor-intensive industry, he manufacturing site located in Phra Nakhon Si Ayutthaya is daily accessed by a large quantity of staffs of various levels, the enterprise requires identity verification of persons, and also access authorities of persons to certain areas and the use of facilities. Here are their requirements:

Large log storage capacity

The manufacturing site of the enterprise is daily accessed by a large number of employees. For security reason, to secure that the safety and privacy are not threatened, a reliable authentication method which prevents illegal and improper access must be deployed, and employees of the manufacturing site shall be authorized their access only to the related uses of specific areas. However, it would be difficult to manually monitor all access verification and effectively prevent illegal access. Thus, a system that is able to provide multi-authorization access control with users' customized access rights is important.

Reliable Verification Methods

The manufacturing processes the enterprise's confidential information and privacies. To secure that the safety and privacy are not threatened, a reliable authentication method which prevents illegal and improper access must be deployed. Conventional verification methods including password and card could hardly verify the authenticity of the password or card holders' identities. Since our client highly concerns the security if the manufacturing site, a truly reliable verification method of a person's identity thus become the critical point of the security. Thus it requires a biometric verification method with unique authentication of a person's identity.

Real-time Monitoring of Access

Our client also requires that they would be able to centrally the monitor the entire entrance control operation of all employees in the entire site, and all access logs are able to be reviewed anytime.

Technical Features

- The manufacturing site is deployed with a total number of 7 FB100 Series flap barriers, in particular 2 FB1011, 3 FB1022 and 3 FB1222 flap barriers with different functions.
- All residents' identities are registered and some are issued with cards for access to specific areas with specific purposes. Cards are loaded with particular staffs' personal information and their specific access rights to certain areas.
- All cards and fingerprints are read by the readers of flap barriers. They are only eligible to access to the areas they are authorized to after successful verification.
- All flap barriers are centrally controlled and managed by the ZKBioSecurity 3.0 software.

Schematic Diagram

Function Description

- The FBL1000 Series is a single lane flap barrier turnstile series designed for smooth and silent operation and draws very little power. I Stainless steel enables their high durability. The Series offers different verification methods, FB1011 is a barrier with RFID card reading function and FB1022 is a barrier with the integration of RFID and fingerprint functions.
- ZKTeco's flap barriers are designed for an extendable entrance control system. FB1011 and FB1022 are two single-lane flap barriers, and FB1222 is a flap barrier for additional lanes to expand to multi-entrance barrier systems that is designed for large traffic use.
- ZKBioSecurity 3.0 is deployed as the central management software of the entrance control system. It is an access control system management platform based on the browser/server architecture. Users can access and log in to the platform directly from browsers and view the verification conditions of all connected devices in real time on the browsers.

Li & Fung
Warehouse Access Control Management

Li & Fung is a renowned mega-size and multinational corporation that manages complex supply chains for brands and retailers around the world. They offer end-to-end supply chain solutions from product design and development, raw material sourcing, factory selection, production management and quality control, to in-country logistics, global freight management and e-logistics. Li & Fung employs about 22,000 people worldwide. It does product design and development, raw materials and factory sourcing and capacity building, vendor compliance and distribution. It has over 250 offices in 40 markets. It works with 15,000 suppliers to service 8,000 customers. In Hong Kong, Li & Fung owns 5 listed companies and with a total asset of over USD 50 billion. And they chose ZKTeco as their provider of access control solution for their warehouse business in Hong Kong.

Hong Kong Li & Fung Warehouse

Project Requirements

Fast and Reliable Car Entrance Management System

As one of the major providers of logistics and storage services in Hong Kong, Li & Fung warehouses receive large freight flow daily. Manual access control consumes unnecessary manpower and less efficiency, while general electronic car labels which is generally used in carparks are not able to truly identify the authenticity of vehicles. A fast and reliable car entrance & exit management system thus is critical to ensure proper operation of logistics.

Safety highly prioritized

Safety is also Li & Fung's main concern regarding the car access control management. Due to the large logistics flow which leads to the busy traffic of warehouses, any strike or crash of car boom barrier with vehicle may, apart from damaging clients' goods, cause serious jam of car entrance and exit. Li & Fung is a logistics and storage provider with reputation. Thus, a car entrance system which prevents incidents caused by error or malfunctioning of devices and eliminates the possible risks is what Li & Fung requires.

Security and Privacy

Apart from efficiency and safety, security has also been our client's major requirement. To ensure their clients' good are prevented from intervention, it should be guaranteed that no irrelevant persons other than warehouse staffs and clients are allowed entry to the warehouses. Thus, a reliable access control system is essential.

Function Description

• FB1000 is a single-lane flap barrier consisting of a master device and a slave device to form an entrance. FB1200 is a double-wing flap barrier to be equipped with FB1000 to form multi-entrances.

• The Flap Barriers provide 2-way traffic function for both entrance and exit which significant saves up space and installation costs. With low failure rate, it ensures smooth operation with high stability and reliability.

• The Flap Barriers are anti-pinch functioned which automatically suspends door closure when human is detected to avoid possible accidents.

• Apart from HID card swiping entry, the barriers can also be flexibly assembled with various biometric verification devices including fingerprint, face recognition and finger etc. methods to enhance security level.

• PB2000 is an own-developed product by ZKTeco which performs vehicle entrance management, it prevents entry of unauthorized vehicles to restricted area. With compact design and simple installation, it significantly saves space and costs of installation.

• ZKTeco rolling pressure spring technology provides extended product durability.

• The floor sensor detects vehicles and avoids possible strikes to prevent damages to vehicles, persons and goods. If there is any hindrance during the boom lowering, the boom will be automatically raised to prevent it from striking vehicles or persons, which enhances safety level.

• Number plate recognition can be deployed to automatically record passing-by vehicles.

• All the above devices are connected to and managed by ZKAccess 3.5 Access Control Software. ZKAccess3.5 is a customer service based access control software. With highly user friendly UI, it is able to control access points. All vehicle accesses and staff access are recorded and delivered to the software.

Access Control and Visitor Management Solution for **National-Scale Stock Exchange**

Our client is a national-scale stock exchange based in Asia. At the end of 2012, the stock exchange had 462 listed companies with a combined market capitalization of $426.78 billion. It has a group of employees of up to 40,000.

Project Requirements

- The access control system needs to accommodate the large flow of 40,000 employees and 5,000 visitors every day.
- The global access anti-passback needs to be supported. Blacklist and Alarm Functions
- The blacklist is supported and alarms will be generated for blacklisted users.
- The system supports high-speed scanners and Optical Character Recognition (OCR), and automatically reads the card number.
- The system management software adopts the browser/server architecture.
- The access status needs to be monitored in real time.
- Different reports can be customized and exported.

Function Description

The comprehensive access control platform is highly expandable and strongly compatible.

The access control system management software ZKBioSecurity supports the access of third-party IPCs, including Hikvision and Dahua devices. This management platform integrates the access control, elevator control, visitor management, and video and time attendance modules and easily meets requirements for elevator management and control and other access control aspects in Phase II.

The global anti-passback is supported

When a user swipes a card to enter the building from any entrance, the system automatically detects whether the previous record of the card is a check-out record. If not, the system forbids the card holder to go inside. Likewise, when a user swipes a card to go outside, the system automatically detects whether the previous record of the card is a check-in record. If not, the system forbids the card holder to go outside.

The OCR function is available.

The system supports high-speed scanners of different models. When visitor information is registered, the system automatically reads card number and other information through the high-speed scanners.

The blacklist function is incorporated into the visitor function

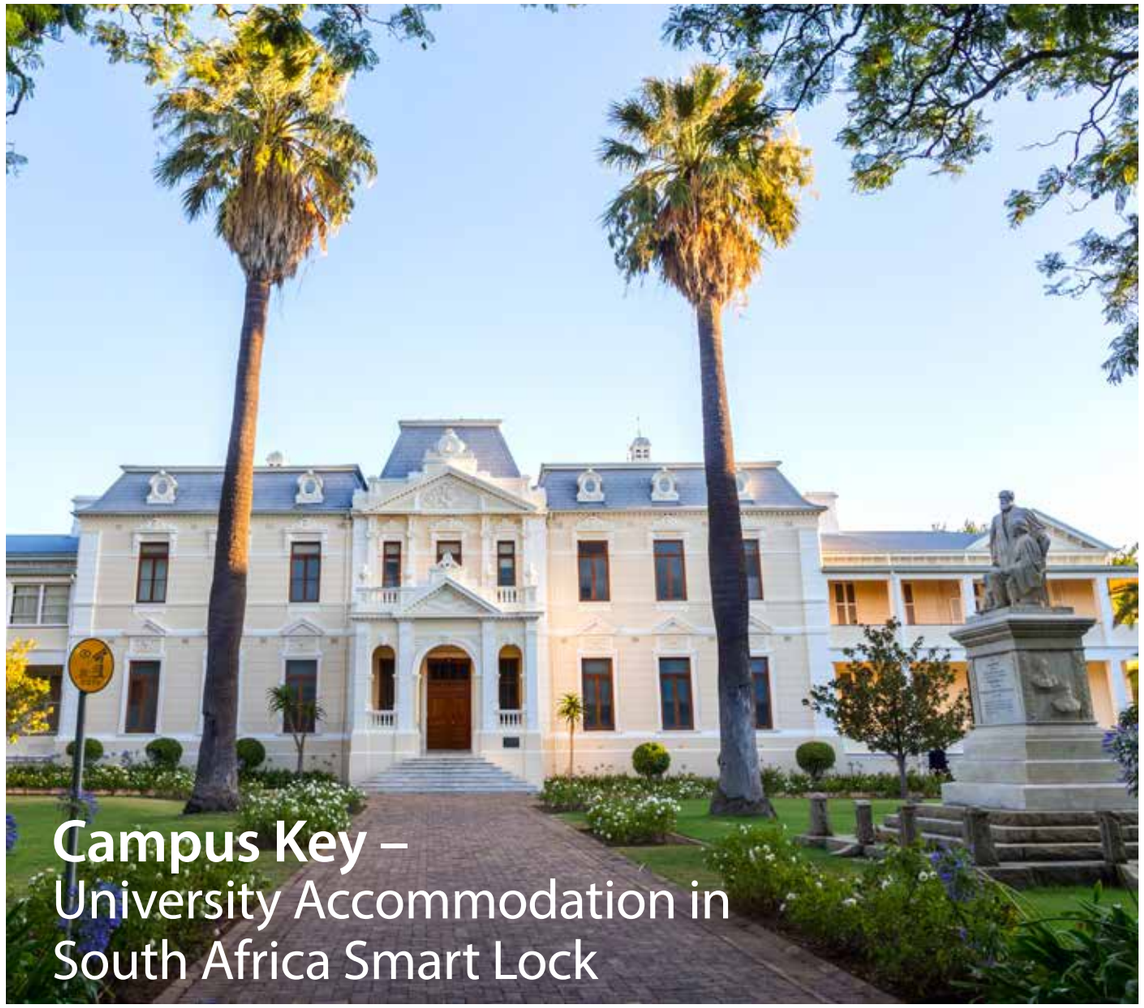
All visitors need to have their information registered with the registration personnel. The registered information is compared with the blacklist library. After a visitor passes comparison, the registration personnel issue a temporary card. The visitor can swipe the temporary card to enter the office area. If a visitor fails to pass comparison, the system directly displays information about the blacklisted user and automatically calls the security guard, and the registration personnel reject to issue a temporary card.

Reports can be exported as required

Access control reports or visitor reports can be exported as required.

The software uses the browser/server architecture and displays monitoring information in real time

ZKBioSecurity is an access control system management platform based on the browser/server architecture. The client can be any PC, where the program does not need to be installed. Users can access and log in to the platform directly from browsers and view the verification conditions of all connected InBio Pros in real time on the browsers.



Campus Key – University Accommodation in South Africa Smart Lock

Campus Key, one of our most treasured long-term partners in South Africa, is the leading provider of luxury secure student accommodation. With properties in prime locations and a dedicated, personalized management style, it is committed to providing students with an excellent service. Campus Key's accommodation serves renowned universities in South Africa including Stellenbosch University, Cape Town University, Nelson Mandela Metropolitan University, North-West University, University of the Free State, University of Pretoria and others.

Technical Features

• There are 2 multi-level buildings with various suites. Each suite has a shared door, 2 independent rooms with own amenities, and a shared pantry.

• Each door is equipped with a L5000 Fingerprint Door Lock. Approximately 1,500 units have been deployed.

• All residents' identities of the building are registered, and are eligible to access the gate of the building. Each resident is authorized to have access right of their own suite and pantry. Only residents of their own rooms are eligible to have access to the rooms.

• Management cards are issued to the maintenance staffs with limited access.

• All resident are biometrically verified by fingerprint methods to ensure the authenticity of the identity.

Project Requirements

Campus Key regards convenience and security are the most highly prioritized elements for students' accommodation. Providing the best environment for students with no annoyance and security threats, it requires extra-high security level of access control. Here are the special requirements:

Reliable Verification Methods

To secure the safety and privacy of an accommodation, a reliable authentication method which prevents illegal and improper access, must be deployed. Conventional verification methods including password and card could hardly verify the authenticity of the password or card holders' identities. Truly reliable verification method of a person's identity thus become the critical point of the security. Thus it requires a biometric verification method with unique authentication of a person's identity.

Different Authorities for Different Access

Each building consists of various multi-level suites, each suite has 2 individual student rooms with their own amenities and a shared pantry. Thus students who live in the building shall be authorized with their own biometric identity for access of the building, and authorized with specific rights of their own suite and rooms. - a system that is able to provide multi-door, multi-level access control with students' customized access rights.

Flexible Registration Setting

The accommodation is designed for university students' non-permanent living. Each academic semester students move in and out, therefore a system which enables flexible and easy registration and deregistration assists the management of the accommodation.

Function Description

• L5000 is a fingerprint door lock access control with the new generation of ZKTeco fingerprint verification algorithm. It takes easy installation with no wiring needed. It offers fingerprint, password, RFID card and mechanical key verification methods. It verifies fingerprint with an extreme fast speed of less than 1 second, and with extra -large storage capacity to 500 fingerprints.

• Each lock is operated with 4 AA alkaline batteries with no wired power supply needed. With a project that needs a large quantity of locks in fast-track build environment, it is essential to have ease of installation and cost effectiveness. Alarm and status function for low battery and illegal operation are included.

• All access data history can be extracted via USB port and flash disk.

• Registration, deregistration and any change of residents' authority of access can easily be made by a customized central management software. All locks are managed by the software. No particular changes of setting are necessary to be made on any lock.

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