



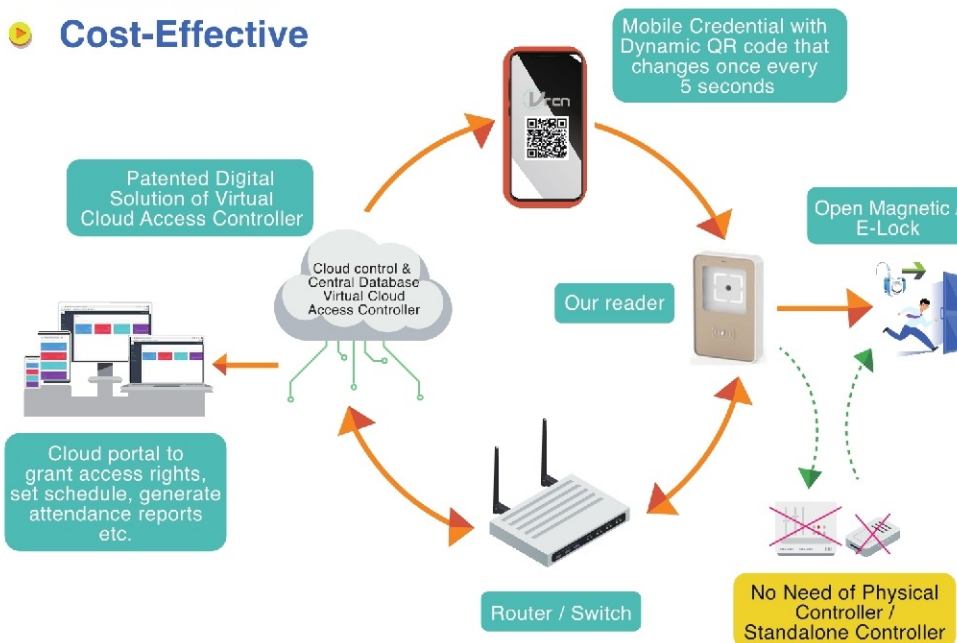
# The Patented Access Control System that Fits into the Future Connected World



Digital migration is nowadays the major topic many corporations are facing. How to enhance customer's experience by providing more **handy and interactive digital solutions** will enable an enterprise to outperform competitors and build sustainable business in the long run. There's no exception in the access control and identity industries.

## idLink - Patented Digital Door-Lock Opening Access Control Solution

- Simple
- More Secure
- Cost-Effective



1. User **access right & device set** through **idLink cloud portal**, anytime & anywhere.
2. User obtains virtual card through idLink App on Mobile with **encrypted ID credential info**.
3. Virtual card as a Dynamic QR Code changing once every 5 sec to **prevent copying / tampering**.
4. Real time **proximity door access granted & opened** by presenting Dynamic QR code to the reader.
5. Access / Attendance **log records generated** via idLink cloud portal **anytime & anywhere**.
6. Solution **works on both PC & Mac**.



## How idLink Works

**idLink has only THREE system components:**

1. A **Cloud Administration Portal** for a user to log-in, set up access control schedules and output necessary log and / or time-attendance reports.
2. A **Virtual Card** appeared on idLink mobile app developed to incorporate a virtual credential encrypted in the form of dynamic QR code, changing once every 5 seconds; and
3. A **QR code reader** specially tuned to read the dynamic QR code, authenticate the identity and open the door lock, yet Mifare card compatible.

Conventional access control relies heavily on physical **door controllers** which are the most expensive items in the system but **not required in idLink**.



## Secure Cloud Access Control Solution Working on Both PC & MAC

VRCN Ltd is dedicated to render connected security and identity engagement solutions on the cloud platform. One of them is the patented digital door-opening security solution named, idLink.

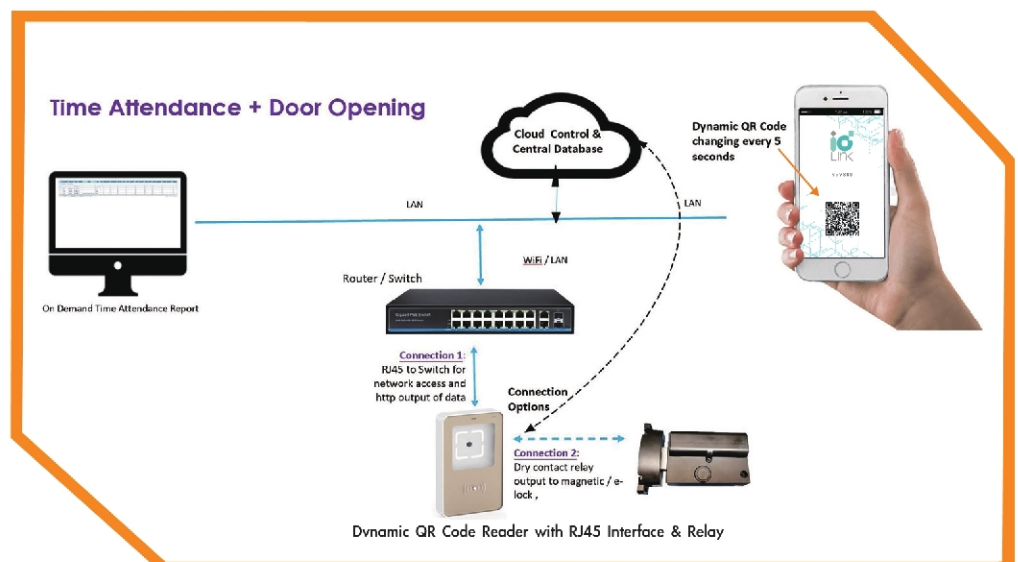
It is a novel invention of access control system working on true cloud platform with a virtual access controller and use of a digital card on mobile, which incorporates a mobile credential encrypted and appeared in the form of dynamic QR code changing once every 5 seconds.

**The solution has obtained a 10-year new invention patent in the Greater China (China, Hong Kong and Taiwan) and start getting overseas patent approval.**

Unlike conventional access control practice, there is no need to install any access control software which primarily works on PC workstation only. **idLink is a true cloud-based system where users simply log-onto their dedicated cloud administration portals to perform physical access control operations**, including virtual card issuance, configuring

access readers, setting up door-opening time zones, establishing time attendance schedule, generating reports, etc.

VRCN does not offer a basic cloud solution by putting just Windows based software on cloud which works only in PCs. Instead, the idLink solution is built upon common cloud language and http protocol, a true e-platform working perfectly in both PC and MAC environment. While idLink prevents tampering and copying an identity by adopting Dynamic QR Code, traditional and **expensive physical access controllers could also be skipped in this innovative solution.**







## Key Benefits over Conventional Technologies

### SIMPLE ARCHITECTURE SAVES COST

- idLink access control system works perfectly **without use of expensive physical access controllers** & installation of software at local sites.
- **Simple system architecture** and minimum wiring makes installation more flexible, saving manpower & cabling costs.
- **BYOD** (virtual ID on mobile) eliminates physical card lost, corresponding card replenishment and card stock management costs.

### EASY DIGITAL MIGRATION

- Upon request of customers, the system **supports hybrid usages of Mifare RFID Card and Dynamic QR Code**. That enables a gradual digital migration from RFID card operation to mobile application.
- For existing users of standalone keypad controller, they can switch to mobile applications easily with **low investment threshold** but enjoy extra benefits of generating handy access log report on cloud.

For more details of how idLink combats issues of conventional access control technologies, please refer to the Comparison Table of idLink vs Conventional Technologies.



### SECURE & EASY TO OPERATE

- **Convenient** to users, no more physical key or card (RFID card retained for temporary users or digital migration only).
- Dynamic QR code changing once every 5 seconds **makes copying practically impossible** (while majority of the industry can only do 10 seconds to one minute)
- In conventional access control usage, the secure element is usually a UID (unique card ID) protected by a secret key written on a physical ID card but easy to crack. **VRCN applies more stringent practice by using proprietary algorithm and self-defined blinding objects to formulate the secure element**. The virtual card on mobile is thus more difficult to crack and compromise.
- Majority of access control systems use Wiegand signal; the data communications between readers to the host computer are not encrypted and easy to tap. However, idLink applies **AES256 encryption in all bi-directional data communications amongst cloud, mobile app and readers**, making the system less vulnerable of being compromised.
- **Over-the-air scanning** of idLink Dynamic QR Code against the reader is easy and **hygienic**.
- Users are able to **log-on anytime & anywhere in PC and MAC** to perform all access control configuration, e.g. assigning the right readers to the necessary doors, time attendance scheduling, guest registration and reports generation, etc.



## Secure Identity Engagement Applications

idLink offers a unique but secure identity to a user. This attributes to the foundation critical to further integration into other digital applications such as IoT, Smart Building and Smart City, etc.

Lately, on top of the Dynamic QR Code, **the idLink system is able to issue a Personalized Virtual Card on mobile, another patent obtained by VRCN Ltd**. A Personalized Photo of the user stored at backend on cloud can be added to the Mobile ID for easy visual security check.



**These two unique security features of Dynamic QR Code and personalized photo are able to formulate an easy TWO-FACTOR authentication.** First, this Personalized Virtual Card on mobile renders easy visual security check by local security staff. Second, the Dynamic QR Code enables an effective authentication by an access reader. Visitor or identity accreditation is securely processed, not to mention all communications amongst idLink system components are AES256 encrypted.

Conventional access control systems are using Wiegand signal as the communication standard and system integration usually go through low-level SDK language. That makes integration to nowadays connected applications / systems inconvenient and costly. **Using idLink will equip an enterprise with better integration power into future Smart City and IoT applications** because the http and cloud protocols idLink is adopting well facilitates system integration to the connected digital world.

**API support to more versatile digital applications**, for e.g. visitor pass issuance and secure venue admission at co-work space, facilities booking, visitor accreditation at conferences / expos, one-stop-platform from e-ticket purchase and corresponding e-voucher accreditation, etc. are available on demand

Contact us today for product demonstration or send your project requests for further system discussion.

## About VRCN Ltd.

**We are experienced professional in the business of Electronic Security, Guarding & Identification solutions for more than 20 years.**

Major projects handled included:

- Government IDs, driving licenses & event accreditation systems of various countries, e.g. Australia, China, Malaysia, Myanmar, Philippines, Singapore, Thailand, etc.
- Security projects such as video over fiber / IP, access control, facial recognition + temperature & mask detection
- Event security consultancy, for incidence, 2018 World A.I. Conference in Shanghai, etc.

Our current business covers Hong Kong, Taiwan, ASEAN and Europe.

Lately, **VRCN Ltd. has invested more in R&D and developed our own cloud platform for security applications.** That includes our patented door opening security solution by means of a virtual cloud controller and dynamic QR code changing once every 5 seconds. It puts through to



a new business area of AccessControl-as-a-Service (ACaaS) and enables VRCN to render Subscription Based access control services to the general security market on top of traditional one-off equipment sales.

Furthermore, **VRCN has collaborated with Eagle Eye Networks from USA and launches CCTV cloud platform based video surveillance subscription services in Hong Kong.** Versatile service modules are offered, such as Cloud VMS (Video Monitoring System), Cloud Video Recording & Storage and AI Analytics, etc.

Website



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## One Time Purchase or Yearly Subscription Based ACaaS, More Flexible Offer



idLink is offered as **one-time equipment sales** like in usual normal security practice, yet on top VRCN Ltd. is also pleased to render an **alternate yearly subscription contracting services** called ACaaS (AccessControl-as-a-Service). Various packages to meet different application scenarios are available.

### idLink ACaaS (AccessControl-as-a-Service) Packages

	Primary Edition (One off 3-year contract deal)	Business Edition (Yearly Subscription Service)	Enterprise Edition (Professional Access Control Management)
<b>Cloud Admin. Portal + Hardware + Mobile App</b>	To be Advised		
- Yearly fee for the first 3-year Subscription		To be Advised	Quote On Demand
- Yearly subscription fee starting from Year 4		To be Advised	Quote On Demand
<b>Virtual Card Per User Per Year</b>	To be Advised	To be Advised	Quote On Demand
<b>Access Right to idLink ACaaS Admin. Portal</b>			
<b>Independent Merchant Account Opened for Log-in by the Corresponding Customer</b>			
Log in by PC or Mac any time any where for setting up	✓	✓	✓
Assign readers to specific doors	✓	✓	✓
Issue Virtual Cards to users or staff	✓	✓	✓
Set up Access Control time schedules for staff		✓	✓
Set up Time Attendance time schedules for staff		✓	✓
Set up access time schedules for general users		✓	✓
Generate access control time log report	✓	✓	✓
Generate time attendance report (down to individual level)		✓	✓
Anti-passback enabled			✓
<b>Door-Opening Set with Access Control</b>			
Specially tuned iDX-Q84CRN QR Code Reader with RJ45 for connecting to router, and I/O to sensors or door lock	✓	✓	✓
Reader supporting reading of Dynamic QR Code and RFID Mifare Card	✓	✓	✓
Smart Power Control Unit	✓	✓	✓
Door-Release Button	✓	✓	✓
Electric Lock / EM Magnetic Lock		✓	✓
<b>Optional Hardware Items</b>			
Additional iDX-Q84CRN Reader (Each)	To be Advised	To be Advised	✓
24-hour Chargable Battery	To be Advised	To be Advised	✓
Un-interrupted network connection (Every month)*	To be Advised	To be Advised	✓
Installation and supply of un-interrupted network connection device (One off)*	To be Advised	To be Advised	✓
<b>idLink Virtual Card</b>			
Android / iOS idLink App	✓	✓	✓
Mobile Credential under AES256 encryption in the form of Dynamic QR Code, changing once every 5 sec. to prevent copying	✓	✓	✓
Display of Personalized Photo		✓	✓
<b>Optional Virtual Card Function</b>			
RFID Mifare Card	To be Advised	To be Advised	✓
Display of additional information on top of Dynamic QR Code and Personalized Photo			Quote On Demand
API Dvelopment / Support		Quote On Demand	Quote On Demand

## Comparison of idLink Patented Cloud Access Control with Conventional Access Technologies

Traditional Access Control Systems	Problems frequently occurred	Advantages of idLink and technical problems overcome
Conventional Access Control System	<p><b>Hardware cost is high</b> because the system must require 4 system components:</p> <ul style="list-style-type: none"> <li>• Card Reader / Biometric Reader</li> <li>• Single Door / Multi-Door Controller for linking the reader and PC</li> <li>• PC Computer; and</li> <li>• Access Control Software which runs primarily on PC.</li> </ul> <p><b>Cabling, piping and installation costs are high</b> because of the complicated system architecture.</p> <p>Need to install software at different work stations in order to operate. Usually, such software will <b>run on PC system</b> only.</p> <p>In a large network applications, different doors are linked first with different door-controllers, e.g. 4-door, 8-door, 16-door, etc. <b>Data synchronization among controllers will require more electronics on board with advanced chip computing power.</b> Eventually, this will become <b>a critical bottleneck which causes higher ownership costs and performance issues or even errors</b>, particularly during anti-passback application.</p>	<p><b>Hardware cost is lower</b> because the <b>system DOES NOT require a hardware controller</b> but the reader with a router. For comparison, it is 30% or more cheaper in a classic case of 4-door access control application.</p> <p><b>Cabling, piping and installation costs are lower</b>, contributed by the new simpler system architecture.</p> <p>Majority of the <b>operation is on cloud with only 3 system components</b>:</p> <ul style="list-style-type: none"> <li>• Dynamic QR Code Reader linked with router;</li> <li>• Virtual Controller on cloud with software on Administration Portal; and</li> <li>• Access via web Browser.</li> </ul> <p>Therefore, idLink can <b>operate perfectly both on PC and MAC</b>.</p> <p>All readers are <b>connected in ONE network and easy to manage</b>, especially when different anti-passback requirements are needed at different doors.</p>
Standalone Keypad	<p><b>Little control</b> of the user in <b>disseminating the door code to 3rd parties</b>.</p> <p>To keep the door code secure in operation, the administrator needs to <b>change the code from time to time and it is resources consuming</b>.</p> <p>Since everyone needs to key in the code with hand, the operation will <b>have hygienic issue, especially during pandemic</b>.</p> <p><b>Cannot generate Access Log Report</b> of Staff or Visitors.</p>	<p>Operation is <b>simple and secure</b>. There is no code being kept in the virtual card on mobile and the <b>secure credential cannot be transferred to any 3rd party</b>.</p> <p>Complete cloud based platform, <b>visitors / access rights can be issued, deleted and re-issued real time</b> through PC, MAC, tablets or smart phones; <b>no software installation is required</b>.</p> <p>Since the operation requires only scanning of the virtual card on mobile against the door reader, the identity <b>authentication is proximity base, without hygienic issue</b>.</p> <p>Able to <b>generate Access Log any time and anywhere</b>. <b>Time Attendance report down to individual level could also be exported</b> just by a few clicks.</p>
Static QR Code	<p>That Static QR Code represents <b>a fixed code behind and is easier to crack</b>.</p> <p>It is also easy to <b>copy and be transferred</b> to multiple parties.</p> <p>There is <b>no way to identify immediately whether the one who holds the fixed QR code is the authorized person for entry</b>; direct confrontation of security staff and the code holder such as questioning and even asking for further identity proof is inevitable in case of suspicion.</p>	<p>The Dynamic QR Code is not from <b>a static number but attributed to a binding of different secure elements chosen</b>. It represents <b>a unique identity but difficult to compromise</b>.</p> <p>idLink Dynamic QR Code also <b>changes once every 5 seconds to prevent copying</b>.</p> <p>The Code <b>cannot be transferred</b> too, it is a unique identity and only the holder with the corresponding authorized mobile credential will be granted access.</p> <p>On top of the Dynamic QR Code, the idLink Mobile App will <b>also show the personalized photo of the holder for immediate visual security check</b> by security staff. Since the photo is uploaded via cloud platform, <b>it cannot be altered or changed</b>.</p>
RFID Card	<p>The identity of a functional <b>RFID card comes from a static ID number</b>, which is prone to be cracked and compromised.</p> <p>The card holder is <b>able to pass easily the card to any 3rd party</b> for entry without notifying the card issuing body.</p> <p>It is <b>costly and resources consuming to stock cards</b>, especially for those smart card with large chip memories, <b>replacing lost cards is also time consuming and costly</b> too.</p> <p>Could <b>only issue or re-issue lost card at a particular place</b>.</p>	<p>The virtual credential on the mobile phone appears as a Dynamic QR Code changing once every 5 seconds. It is <b>difficult to copy and transfer to a 3rd party</b>.</p> <p><b>BYOD and no more physical card</b> is needed because the virtual card is on one's mobile phone.</p> <p>This will <b>save cost and resources in stocking, managing and replacing cards</b>.</p> <p>Virtual card <b>can be issued any time and any where</b>.</p>
Biometrics / Facial Recognition	<p><b>Biometrics equipment and operating software are the most expensive</b> among all the different door access solutions.</p> <p>Certain biometrics application will <b>still have the hygienic issue, for e.g. fingerprint recognition</b>.</p> <p>With more and <b>more advance of A.I. (Artificial Intelligence) technologies, biometrics data could be forged</b> and fake.</p> <p>Customers may not be willing to use biometrics due to <b>privacy issue</b>.</p>	<p>In standard access control usage, the secure element is usually the UID (unique card ID) written on a physical ID card and easy to crack. VRCN applies more stringent practice by using <b>AES256 encryption &amp; self-defined blinding objects in protecting the mobile credential in the mobile ID</b> making idLink mobile ID more difficult to crack and secure.</p> <p><b>idLink is able to offer ACaaS</b> (AccessControl-as-a-service). Customers are able to get a <b>better and secure access solution with just a small investment</b> threshold by entering our yearly subscription based contract.</p> <p>The <b>total ownership cost (TOC) is much lower</b> than biometrics applications when the <b>hardware, software and installation at multiple sites are reduced to minimum</b>.</p>