



CRACKING THE CODE

Derek Wang explains why QR codes hold the key to access control

Physical access control systems (PACS) are crucial for any organisation that wishes to secure access to its premises. While some small organisations may still opt for a traditional lock and key approach, the vast majority have decided to steer more towards keyless, contactless door entry for additional security and ease of use. This, of course, requires some level of identification measures in place to control and monitor access to company buildings, such as a plastic identification card or key fob.

Relying on these more traditional authentication options, however, doesn't come without its challenges. Whether that's the risk of losing an identification card or struggles with storing data, organisations are increasingly looking to digital solutions for access control. This is where the QR ('Quick Response') code comes in.

A QR code is a type of two-dimensional barcode that stores data that can be read and processed by the camera in a smartphone or a dedicated reader. QR codes are by no means new, having first appeared in the mid-Nineties. Despite this, it is only in recent

years that they have become notably prominent, largely due to the rise in smartphone use.

More recently, their integral role in the global pandemic has brought the QR code offering much more to the fore, as organisations across all industries have been in search of low-touch solutions through contactless technology.

For organisations that wish to up-level their access control measures, they ought to consider the QR code as a more efficient way to control access to their businesses and premises than traditional counterparts.

When looking at existing access control systems, traditional plastic access cards or key fob-based access solutions remain the most common methods for controlling access to an organisation's premises. These traditional credentials, albeit simple, aren't necessarily the most effective form of access control today.

Plastic identification cards are powered by radio frequency signals emitted from the card reader, which has a limited range and relies on close proximity to function successfully, and key fob-controlled access operates in a similar way, utilising short-range electric signals to unlock a door in close proximity to the key fob.

KEEP IT SIMPLE

Compared with traditional access solutions, managing a QR code as a credential in an access control system is fairly straightforward. A unique, one-time entry QR code can be generated in a matter of seconds for any visitor, which can be sent directly to them via email or mobile app. At the entrance to a building or room, the visitor can display the code on their mobile device to be scanned by a QR code reader. The data within the code is shared with the access control system to confirm access rights in real-time, and the door is then unlocked automatically. Intercoms at the door can also double up to serve as a QR code reader, which further simplifies the access control process.

QR-controlled access is particularly useful for organisations looking to manage different visitor groups and zones with various access requirements, such as a university or a block of offices. QR codes can easily be set up with additional controls, such as allowing site access for a limited time period and number of uses, or restricting entry to specific doors or areas of a building, depending on who the visitor is and why they need to be granted access. This allows for more flexibility when it comes to visitor management than traditional credentials.

Though traditional access control methods provide some level of security, one of the main challenges that comes with using physical credentials is that it's difficult to control and monitor who is accessing premises, as cards or key fobs can often be misplaced, stolen or shared between visitors.

Integrating a dynamic QR code into access control solutions provides an extra layer of security for organisations. While a traditional QR code is static and cannot be changed or updated once created and distributed, a dynamic QR code can be updated and changed even after its creation and distribution. This is an important development as a static code is easy to copy, making it less ideal for high-security demands. Dynamic QR codes provide options to be changed and updated, even after distribution, while at the same

time keeping all the aforementioned benefits of a QR code-based access control solution.

From a security standpoint, dynamic QR codes can more accurately monitor and track building access, providing a better overview of who is visiting an organisation's premises and when. This uplevels security measures for an organisation, as it not only enables security operators to keep track of who has entered a building and at what time, but it minimises the risk of credentials being obtained and used by another individual.

Dynamic QR code-based solutions also remove the risk of credential copy that some more traditional methods may be more susceptible to, since a screen copy, photocopy or video recording of the dynamic QR code will not be registered by the reader. Organisations can further enhance the security of the QR code-based solution by combining a dynamic QR code with a multi-factor authentication

A QR CODE CAN BE GENERATED, DISTRIBUTED, UPDATED AND REVOKED RELATIVELY EASILY

solution, such as a PIN entered at the same time as the code is scanned.

This is not to lessen the role of network video cameras and audio in building security and access control. Combining QR codes with video and audio analytics is an effective strategy for organisations to further enhance their security measures. For example, in cases where physical identification may be needed, the network surveillance cameras on-site can enable security teams to monitor footage as an additional source of information and compare this with QR code access data.

A further use case in combining audio and video with QR-powered access is in a vehicle access system. License plate recognition can be used in combination with QR codes to control visitor access. When booking a hotel room, for instance, a guest can provide their car license plate number and receive a QR code which will securely grant access to the hotel parking garage. With the right systems in place, guests can then gain access when a camera picks up their license plate.

Adding network speakers can be useful to inform the driver that the access is denied, or that a QR code has expired. An alert can be triggered if necessary, allowing security personnel to intervene directly. If surveillance cameras are integrated into the system, a denied access or an alarm caused by a door that was forced open can also trigger the recording of the area, capturing relevant video evidence.

There are a number of additional benefits to using QR codes for access control outside of security measures, and one of the most notable is improving overall organisational efficiency.

The digital nature of a QR code means it is a cost-effective solution, particularly when comparing them with physical cards or key fobs. A QR code minimises the costs of purchasing, handling, printing, distributing and disposing of physical credentials.

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Not only this, but digital credentials save the cost of installation since organisations can utilise existing video intercoms or cameras as the QR code reader. By installing a QR code scanning application, which requires few components, organisations can reduce overall costs. This form of access control is easy to manage and maintain, and so has long-term cost benefits for organisations.

Carbon efficiency is also important for organisations to consider. Removing any requirement of plastic cards or key fobs, or even printed paper, also has a positive

A QR CODE STORES DATA THAT CAN BE PROCESSED BY A SMARTPHONE CAMERA OR READER

impact on the environment and plays a part in reducing company carbon emissions.

An additional benefit of using a QR code as the credential is it can be helpful for improving the efficiency of managing access control systems. A QR code can be generated, distributed, updated and revoked, providing a highly efficient system management solution. It is also very convenient to use, suiting the priorities of the mobile-first workforce.

Typically, an external visitor can use a QR code to access a facility or parking area without having to stop at the front desk. This reduces dependency on building staff to check visitors in and so enables faster entry as well as a more reliable way to track those that enter.

Another typical use case involves the management of late deliveries when there is no staff present. When a supplier already has a QR code on their mobile device, they can simply display it in front of a code reader to gain access to specific areas at a facility. The use of dynamic codes is ideal in these situations, where security is ensured through the use of multi-factor authentication and ensuring against static codes being copied and used by others beyond those intended.

Advanced access control using dynamic QR codes and integrated QR code readers is providing organisations with the long-term solutions they need to address the challenges of managing access to facilities. Dynamic QR code-based access control is capable of addressing some of the core limitations and downfalls of traditional solutions such as physical cards and key fobs, and also brings a number of benefits – from enhanced security to organisational efficiency.

By implementing dynamic QR codes into an existing access control system, and combining this with building intercoms, network cameras and audio, organisations can look to a more efficient, frictionless and secure future for optimal access control. ●

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