PASS

Portal Access Security System

Product Whitepaper

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Introduction

Security. Every organization is looking for ways to make their environments as secure as possible. Every opportunity to improve in this area needs to be considered.

This whitepaper will discuss one such opportunity; access to ambulance bays. There are a significant number of authorized personnel that require access to ambulance bays. First responders, like medical transport and law enforcement, need access to these areas.

The Problem

Once these personnel are granted access, they often need to leave their vehicles unattended to accompany patients into the hospital.

These vehicles have valuable, and even dangerous, assets that need to be protected from theft and damage by unauthorized individuals.

Controlling access to these vehicles is accomplished using a variety of methods.

Door Access Systems

Badge systems
Many of the doors in a hospital require a badge to gain access. The doors between the ambulance bay and the hospital proper are no different. First responders are typically issued a badge to allow them access to some of the controlled areas of the hospital. Therefore, it would seem to make sense to leverage that technology to also open the garage doors.

The challenge is that these badges typically have read ranges of just a few inches.

Ambulances come in a variety of sizes and law enforcement vehicles have a completely different form factor than any of the ambulances. Finding a way to position the reader to allow all personnel easy, reliable, and quick access is a major issue and may simply not be possible

It is not practical to ask drivers to dismount so they can present their badge to open the door to the ambulance bays. Time is often of the essence.

Cameras

Camera technology is inexpensive, reliable, and easy to deploy. Wiring the garage door openers to a remote panel is also a straightforward task.

The downside to this approach is that it requires someone to monitor the cameras and to manually grant access to the facility. This is not ideal for that reason. Timeliness is at risk. In all but the busiest scenarios, it would be hard to justify the cost of having someone assigned to do nothing but monitor those cameras.

Communications by radio or phone, Photo eyes, and buzzers can be used to draw attention to the arrival of a vehicle but that also requires someone to hear it, react to it, visually confirm the vehicle is authorized, and to grant access.

Pressure tubes

Pressure sensing devices can be used to determine that a vehicle has arrived. These often take the form of tubes that are neatly installed under the concrete of the apron leading to the ambulance bay doors.

These are tried and true. They are quite reliable but somewhat expensive to install even if done at the time the concrete is being poured. Retrofitting this technology to an existing site is more difficult and costly.

Unfortunately, these tubes can't tell the difference between an authorized and an unauthorized vehicle. They react to the amount of weight applied to the tube.

This is a major drawback. An individual could drive over the tubes, open the door, steal items from the ambulance, load them into the vehicle, and be gone in a very short period of time.

Photoelectric Sensors (Photo Eyes)

Like pressure tubes, photo eyes can be used to determine that a vehicle has arrived. These are low cost and are quite reliable. Retrofitting this technology to an existing site is straightforward.

Like pressure tubes, these sensors can't tell the difference between an authorized and an unauthorized vehicle. In general, they react to anything that blocks the beam of light between the emitter and the reflector.

This is less secure than pressure tubes. An individual could simply cover the emitter with their hand which would open the door to the bay. Once inside, they would have access to contents of the ambulances and other vehicles parked in the bays.

Passive Radio Frequency Identification (RFID)

Passive RFID has been around for decades but reemerged in the early 2000s. Passive RFID tags do not require batteries. The RFID chips are energized by the readers. When this occurs, the "tag" sends the data that has been pre-encoded on the tag, to the reader.

The read distance can be readily controlled by the program on the reader, the sensitivity (gain) of the antennae, and the antenna on the tag. Typically, with special glass mounted tags, the read distance is between two and four meters. Read range needs to be set to be long enough to accurately capture tags from a variety of vehicle profiles but not so long as to read tags on vehicles attempting to access adjacent bays.

The cost is moderate and it is easy to retrofit this technology to an existing site.

Each tag has a unique serial number that is associated with an authorized vehicle. By placing an RFID tag on the windshield of an authorized vehicle, you have an unattended process to grant access to only the vehicles that are a part of the system.

Comparison Chart

The following chart recaps the issues that need to be resolved:

	Badge Systems	Cameras	Pressure Tubes	Photo Eyes	RFID
Cost of Implementation	Moderate	Low	Varies	Low	Moderate
Read Range	Short	NA	NA	NA	2 - 4 M
Unattended	Yes	No	Yes	Yes	Yes
System Authorized	Yes	No	No	No	Yes

Conclusions

Based on the comparison chart, RFID based systems should receive strong consideration for this task. They are moderately priced and have sufficient read range to allow for unattended verified access to your ambulance bays. This technology is also reasonably easy to use in a retrofit situation.

As an example, here is a brief description of our RFID based portal access security system, PASS. PASS uses state-of-the-art windshield tags, RFID readers, antennae and software to validate that specific doors should open for authorized vehicles and it does so without requiring supervisory attention.

For more information on RFID based systems, please contact:

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