Modern authentication solutions for fleet management

Safe on the road thanks to driver identification and access control

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Protect people, data and vehicles and optimize costs and processes while keeping an eye on regulatory compliance: vehicle fleet operators face a number of requirements. Modern authentication solutions based on radio frequency identification (RFID) and mobile technologies for driver identification and access control help to meet these challenges. They can significantly improve the utility of telematics and other fleet management solutions. To make the implementation a success, there are important aspects to consider.

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Whether it's a tradesman's business, a logistics group, a transport company or a municipality, numerous companies, organizations and public institutions depend on their fleets running as smoothly, safely and cost-effectively as possible. Accordingly, demand and supply are growing steadily in terms of hardware and software solutions for optimizing fleet management. According to estimates, the total market volume for such intelligent fleet management solutions will be around 500 billion euros[1] by 2025.

Telematics and other fleet management solutions offer a wide range of functions to support fleet managers. For example, they help managers view vehicle positions and routes in real time. This facilitates planning and makes it possible to give employees direct feedback on their driving behavior. In addition, managers can easily monitor whether operating times and regulations are being adhered to. To exploit the potential of such fleet management solutions, it is important to know who is behind which wheel. In addition, it must be ensured that only authorized persons who have the necessary qualifications use the company vehicles. This calls for an intelligent authentication solution that can be linked to telematics systems. It not only allows unique driver identification, but also enables reliable access control, while protecting the drivers' personal data at all times (*figure 1*).

Figure 1: For fleet managers it is important to know who is behind which wheel.
Image: Elatec / Shutterstock

Reliable authentication with RFID and mobile technologies

A modern authentication solution based on RFID or digital credentials, also called mobile credentials, is ideally suited for fleet management. A simple and inexpensive option for implementing user authentication and access control is a badge equipped with an RFID tag, which most employees already carry in the form of an ID card. When the card is held up to the reader, the identification process is automatic and the authorized driver is given immediate access to the vehicle.

It is also possible to use digital credentials based on NFC (Near Field Communication) or BLE (Bluetooth Low Energy) technologies, with which a large proportion of all mobile devices such as smartphones are equipped.

The readers required for the authentication process are installed in the dashboard; either they are already integrated on site, or they can be easily retrofitted.

Benefits for fleet management: Improve safety, transparency and efficiency

For the operation and management of a fleet of vehicles, modern authentication solutions offer a number of advantages.

Security

Access control with a authentication solution increases the level of security. It protects against theft and misuse – both in terms of data and the valuable fleet vehicles. The risk of traffic hazards, personal injury and vehicle damage is significantly reduced. This is because only authorized drivers who have the necessary qualifications, such as the appropriate driver's license, are given access to fleet vehicles with their ID card. Authorizations can be assigned individually for each employee and thus restricted to specific vehicles.

Compared to vehicle keys, RFID- and smartphone-based solutions for access control have a decisive advantage: an ID card with a picture or a smartphone is much less likely to be passed on. In addition, RFID- and smartphone-based solutions are harder to clone than physical keys.

Transparency

Process and cost optimization play a central role in fleet management. Here, driver identification provides important services. The ability to track drivers and routes in real time allows optimization potential to be identified and implemented. Deployment planning, productivity analyses, and the creation and evaluation of safety statistics are simplified. It is also possible to monitor driver behavior and check compliance with operating hours. The drivers' personal data is protected at all times.

Efficiency

Access to fleet vehicles can be via cards, key fobs or mobile credentials, which can be quickly deactivated via a central system in the event of loss or revocation of authorization. This reduces the cost and effort of key management (see *figure 2*). An authentication solution also reduces administrative effort in the area of personnel management; for accounting purposes, driver authentication data can be easily fed into the time recording system and payroll accounting.

How to achieve successful implementation

To ensure that the introduction of an authentication solution based on RFID, NFC and BLE is a success, three aspects require special attention during implementation.

Figure 2: Drivers can get access to fleet vehicles via cards, key fobs or mobile credentials.
Image: Elatec

Flexibility through universal readers

In many companies and organizations, employee badges are already used for applications such as access control or the time and attendance system. The fleet management application should integrate seamlessly with the company's existing systems. This is the only way to ensure uniform and time-saving administration and maximum user convenience at the same time.

The challenge: a variety of card technologies are available on the international market, each with its own data formats, communication frequencies and security functions. Different technologies may therefore be in use within a company or facility – especially if multiple locations are maintained, possibly even in different countries. However, most readers are only capable of reading a few card technologies. One solution is offered by multi-frequency readers, which are compatible with up to 60 transponder technologies commonly used worldwide. The universal devices, which for example the solution provider Elatec has in its portfolio, use both RFID for authentication and access as well as the technologies NFC or BLE. This means that mobile devices can also be integrated into the system, providing the greatest possible flexibility.

Reliable protection of people, inventory and data

The readers used must be equipped against both physical tampering and hacker attacks and support advanced encryption. Only then will they provide the level of security required to control access to fleet vehicles and support a secure authentication process. Last but not least, this protects sensitive data – such as the personal details of employees or drivers and internal information such as route plans or driver behavior – from misuse. However, to effectively and holistically secure an RFID-based authentication solution, it is not enough to look at the reader alone. It is necessary to include the entire system in the company's security concepts.

A must: remote updates for widely dispersed fleet vehicles

Requirements and IT infrastructures change over time, making adjustments necessary. Only with a flexible system that provides for optimization, adaptation and upgrades will companies and organizations be on the safe side in the future. For fleets in particular, the option of mobile remote configuration is extremely important. After all, vehicles are often widely scattered and must also be available for use. If remote updates are possible, all installed readers in a fleet can be easily updated, regardless of their location, without incurring downtime for the vehicles or cost-intensive for technicians. ■

[1] www.grandviewresearch.com/press-release/global-smart-fleet-management-market

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