

Preventing fuel thefts with an infrared curtain guard in Europe

Challenge

The client, a company from Estonia, uses its fleet to ship goods across Europe. The company wanted to prevent fuel thefts during cargo delivery (and significant financial losses associated with it), and in particular, introduce enhanced security measures and features at nights when the driver was asleep.

The solution they had had before was not enough for fuel theft prevention. Once, they had their 1,400 liters of fuel stolen. Fuel gauges and tank caps no longer helped, as fuel thieves could drill a hole in the truck fuel tank, and then the company suffered losses both from the stolen fuel and the tank replacement.

Even a single fuel theft cost a lot of money for the client. They could face fuel theft costs of up to 3,800 euros per trip for the fuel stolen, broken fuel tank repair, and penalty payable as a result of the late delivery.

Therefore, the company searched for another fuel theft control system that could prevent the financial losses.

Solution

[CarCops OÜ](#), an Estonian Wialon partner, created a [fuel theft prevention solution](#) specifically for this client. On the client's five trucks, they installed infrared motion sensors that create an invisible curtain guard right in front of the fuel tank. If potential thieves try to approach the tank and enters the curtain area, an alarm goes off and wakes up the driver sleeping in the cab.

The partner spent some time and effort to create this solution: *"We had to overcome challenges with the choice of equipment for this solution. We tested a motion sensor first, but it was very sensitive to any movements. Then we settled on the choice of an infrared laser, which is absolutely invisible, and it's important for preventing fuel theft."*

After numerous tests, we were able to combine this solution with telematics. There were also issues during installation. The sensor did not have the possibility of manual adjustment, it could only look straight ahead, but we were able to find a solution to this problem and make it adjustable".



A 3D graphic simulation of the invisible infrared curtain: a truck fuel theft prevention solution

This is how CarCops' specialists built the solution:



An infrared motion sensor on the cab looking over on the fuel tank. Fuel theft alarm is activated by this sensor

- The infrared sensors are connected to a [Teltonika FMB130](#) GPS tracker, which sends data about the sensor activity to the Wialon platform. There, operators can conveniently monitor whether security is enabled and make sure the fuel theft detection solution is on.
- For the alarm module, the partner installed a standard 24V siren on the outside of the truck and inside the driver's cab.
- When a fuel thief comes close to the tank and the alarm is activated, Wialon sends a suspicious activity mobile notification to the driver and the logistics operator so that they can quickly react. In Wialon, you can also see if the security solution is turned on.
- The drivers were also provided with a remote control for the fuel theft prevention system. They can easily disarm it or turn it on at night.

To facilitate use of the solution, CarCops made an instructional manual and created a short video highlighting the functionality and capabilities of the system. Additionally, the partner's specialists trained the driver on how to operate the remote control.

Results

This solution helped the client protect and secure their fuel tanks almost immediately after the fuel theft prevention system had been installed. It managed to scare off the kidnappers during the first trip after the fuel theft alarm installation. The client considered it an excellent investment, as the solution paid off immediately.

Now that fuel is becoming more expensive, the partner plans to upgrade the solution with a security camera or a photo camera that would capture villains' faces: even if fuel theft prevention fails, it will be easier to find the fuel thieves.

✓ Fuel tanks security

The fuel theft detection and prevention system scares away villains before they do any harm and helps the driver react quickly.

✓ 1,400 liters of fuel potentially saved

per trip as no more fuel thefts occur thanks to monitoring the surroundings of the track fuel tank.

✓ No related financial losses

The client no longer has to pay penalties due to cargo delivery delays or replace tanks broken by the fuel thieves.

Company profile

🏆 **IoT project of the year nomination:** Long-haul shipping

Country: Estonia

Industry: Long-haul transportation

Solutions

 Wialon

Hardware

 Teltonika FMB130

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