

Case Study



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Intelligent 3D Reversing Assistance System

The owa450 Linux Gateway becomes the centrepiece of Visy's vehicle safety system

Project	Replacement of the telematics unit currently in use. Previous functionality was to be expanded and the compact and robust design was to be retained.	
Product Used	owa450A with 4G antenna connection.	
System Benefits	Permanent real-time monitoring. Increased safety and productivity, reduction of risk situations and creation of transparency in processes.	
Solutions Partner	M2M Germany	

The Initial Situation

ViSy GmbH focuses on the **safe reversing of special vehicles**, such as waste collection vehicles, which is particularly dangerous because drivers don't have enough visibility of the space behind their vehicle. In the past, this situation has repeatedly **led to serious accidents** involving not only the drivers, but also uninvolved third parties.

ViSy already used Owasys' owa3X telematics platform based on Linux Oper-ative System for this purpose.

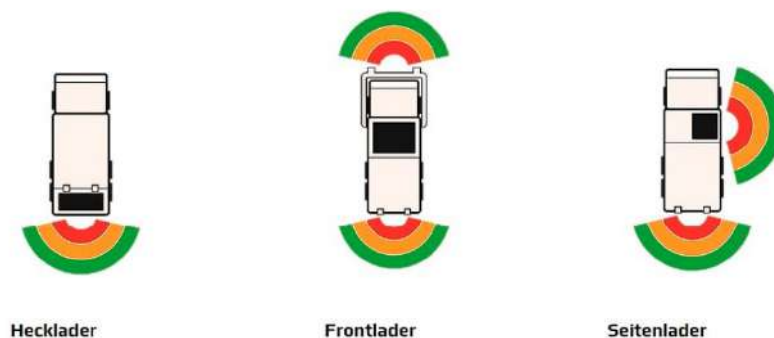
The **telematics unit plays a central role in driver assistance systems**. It is, so to speak, the brain of the assistance system: the centre where all data converge, are coordinated and analysed. Therefore, each assistance system can only be as powerful as the installed unit allows.

ViSy has set itself the task of increasing safety around special vehicles, such as refuse lorries, for citizens and employees in order to guarantee maximum safety. In the course of this, the existing assistance system is constantly being further developed and adapted to new requirements and newly available technologies.

In the course of further development, it became clear that the features of the **owa3X currently in use were no longer sufficient** for additional requirements.

The Expansion of the System

ViSy decided to **expand their assistant system** solution with further development, to make it so precise and safe that there is no need for a signaller, without running the risk of endangering other road users or passers-by. This requires a **large number of monitoring sensors** and cameras: From distance and proximity sensors to motion sensors, from rear view cameras to side view cameras. If possible, the special vehicle should have **100% monitoring** of the entire operational radius around the vehicle. The new system should be more than just an assistance system. In addition to collision protection, area monitoring and positioning, it should guarantee the vehicle driver absolute safety control of his working environment thanks to **3D technology**.



Camera monitoring of various applications around the vehicle

The safety and logistics assistant is a state-of-the-art assistance system that offers the driver active support in monitoring the surroundings.

State-of-the-art 3D technology makes it possible for the first time to capture scenes and objects in a single shot under the harshest environmental conditions. Based on the revolutionising method of **time-of-flight measurement**, recorded scenes or objects are stored with evaluable distance information, which is then used for **active reactions on the systems**, such as an emergency stop function within a motion sequence.

However, this functionality is only available if **the central unit of the system – in this case the owa platform – is able to transfer all stored data very quickly and reliably**. Based on this information, differentiated warning levels up to automatic intervention of the safety system can be realised.

The Requirements

ViSy was looking for an extended platform that offered more freedom in programming, **more CAN interfaces** and a generally higher performance capacity. In addition, the new platform solution had to be just as compact as the owa3X, be approved for installation in vehicles, and, if possible, have the remaining features of the owa3X, such as 3G (or more), Radio, GNSS, Bluetooth / WiFi, programmable sensors, etc.

The Selected Gateway: owa450

To overcome all these challenges, the previous driver assistance system was expanded to include a diagnostic function that is handled entirely via the **owa450**.

With the changeover to the owa450, a **reversing register function** could also be added to the system, for which the GPS of the owa450 is required, because without GPS there is no reversing register. The owa450 records the entire vehicle telemetry and transfers it to the corresponding cloud application, where the reversing register is created.

The advantage here is that the owa450 contains a standard Linux distribution, so that existing tools could be used.



The Result

When Owasys launched the new owa450, ViSy immediately started the first tests. The corresponding software customisation of the owa450 did not take long due to the system proximity to the owa3X previously used.

The **upgrade path from the owa3X to the owa450 was very straightforward** and the first results of the new driver assistance system were available after just a few weeks. Installation of the owa450 units in the special vehicles began after just 4 months.

The new owa450 system is flexible enough and the possibilities are not yet exhausted.