



Autonomous Outdoor Cargo Transport

The development of automated and autonomous driving is progressing rapidly. There are not only more and more research projects, but also industrial applications. Transports are an elementary component of the air cargo transport chain, especially on the apron. The size of the airports often results in long distances to be driven resulting in a high staff commitment time. At the same time, this leads to large buffer times at the process interfaces. The automation of cargo transport is an opportunity to reduce some of these difficulties.



Goals & Opportunities

The goal of the sub-project is to demonstrate the feasibility of partial automation of apron transports on a limited section, using the current state of the art. The use of automated vehicles increases the plannability in the process chain, reduces personnel commitment and improves the resource management of the equipment. A fragmented chain of several individual transports is thus transformed into a resource-optimised just-in-time process.



Desired Outcomes

With the help of the demonstrated deployment scenarios at Stuttgart Airport, the potential for automated or autonomous transports is shown. In addition to reducing the use of the scarce resource of personnel, process stability is increased. Peaks in traffic can be equalised.



Challenges

Based on the requirements definition, a suitable vehicle must be found for use in the apron area. In addition to mandatory safety aspects - in particular the exclusion of hazards for aircraft and passengers - the vehicle must be able to cope with mixed operation with manually operated vehicles. Crossing a security checkpoint is another challenge of the selected use cases.

