

KALI

Force-assisted, mobile systems for cargo handling and logistic chain

Motivation

Automation processes and technological support systems have already reached a high level of usage in production and fabrication. However, in some industrial areas, complex heterogeneous operations still need to be done by human hands. This is particularly true in logistics and also in port logistics, as robotics and permanently installed conveyor systems can hardly be used here due to the lack of homogeneity of the goods and the variety of processes. In addition, the used auxiliary systems quickly reach their limits, so that manual work steps are currently inevitable.

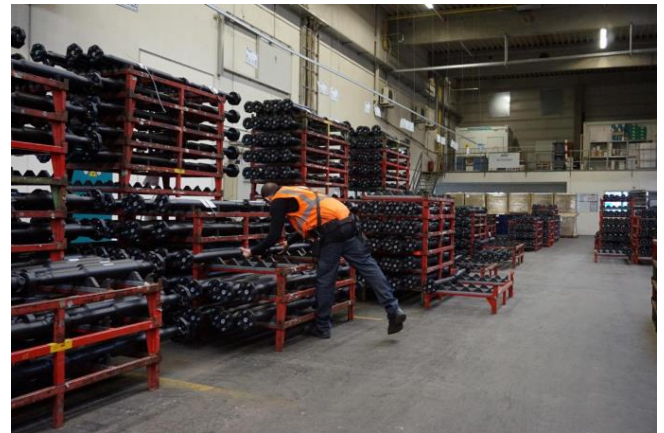
Project Details

In order to optimize manual handling conditions in logistics, reduce physical stress and make logistics processes more efficient and effective, the project KALI aims to design mobile support systems for port-related logistics. Not only the technical feasibility, mobility and modularity of the identified solutions, taking into account the framework conditions, but also the security and acceptance as well as related ethical, social and legal issues are at the forefront.

Approach

On the basis of specific applications in various areas of port logistics – such as the emptying of groupage containers – and in the entire upstream and downstream logistics chain, manual activities and work steps are identified, analyzed and evaluated. At the end of the user-centered process, there is a concept that ensures load-oriented support for humans through close human-robot cooperation in heterogeneous logistical activities through a technical system. The system is intended to minimize the physiological and informative burden in daily work, to improve the working environment and enable sustainable work. For this purpose, a modular concept will be developed that meets these requirements. At the same time,

measures are being developed to increase the acceptance by the potential users. An economic analysis completes the project. The concept is depicted as a design in a CAD system and the application potential is clarified in an animation.



Manual handling at heterogeneous logistical activities
(photo: BLG 2017)

Duration: 09/2017 – 02/2019

Partners:



Sponsored by:



The joint project KALI is funded by the Federal Ministry of Transport and Digital Infrastructure (BMVI) as part of the funding program for Innovative Port Technologies (IHATEC), grant number 19H17014B.



Contact:

DFKI GmbH & University of Bremen
Robotics Innovation Center

Director: Prof. Dr. Frank Kirchner

Phone: +49 421 - 17845 - 4100

E-mail: robotics@dfki.de

Website: www.dfki.de/robotics