

InTrade IAV Prototype to Revolutionise Port Operations?

In its 'Freight Transport Logistics Action Plan' [COM(2007)607] the European Commission asserts that "the deployment of Intelligent Transport Systems (ITS) which help better manage infrastructure and transport operations is slow". However, automation and the adoption of Automated Guided Vehicles (AGVs) in ports have become increasingly popular in recent years.

Because of the spatial and financial constraints involved, the demand has come predominantly from major ports to haul containers within terminals (Hamburg, Rotterdam). These unmanned transport vehicles have proved their ability to improve traffic management and have evolved in their operational efficiency, presenting numerous ecological benefits. Though, they also require large scale infrastructure investments and costly works in case of route modifications.

The InTraDE (Intelligent Transportation for Dynamic Environment) project,

co-financed by European Regional Development Fund under the Interreg IVB North West Europe Programme, is proposing a revolutionary new concept of Intelligent Autonomous Vehicle (IAV) which could potentially have a significant impact on modern port logistics. Such vehicle can adapt to any existing port environment.

The six participating partners (Lille Polytechnic, Institut National de Recherche en Informatique et Automatique (LAGIS), Centre Régional d'Innovation et de Transfert de Technologie (CRITT^o, Port of Oostende, Dublin Institute of Technology (DIT) and Liverpool John Moores University (LOOM)) have developed a state-of-the-art vehicle prototype which is currently being tested in a number of sites. The results of the pilot tests will help refine its technological specifications and analyse the feasibility of its adaptation to different usages and modes of transport, in particular multi-modal transport systems.

With a hybrid drive option and battery powered, the InTrade RobuTAINeR can be guided by a remote control computing in a virtual environment. It does not have to follow designated paths but can operate unmanned without rails or other similar expensive infrastructures set into the ground. This makes it not only environmentally effective, but also extremely flexible.

The possibility to adopt the IAV for the conveyance of diverse types of commodities and freight types is a feature that could appeal, in the future, to small and medium size ports where different kinds of goods are handled, thus improving their competitiveness through enhanced efficiency.

The economic studies that InTraDE has been conducting demonstrate that this type of solution is relevant for several industrial applications. It is believed that the technology could be transferred to

other environments such as airports, rail freight yards, bus routes, campuses, museums, even farms.

According to Rochdi Merzouki, InTraDE Project Manager and Professor at the Ecole Polytechnique Universitaire de Lille, "our transnational team of experts has been able to create a well integrated simulation and supervision system in support of the RobuTAINeR. We trust that the validation trials we are carrying out in the ports of Le Havre, Dublin, Rouen and Oostende will allow us to fully assess the functionality and viability of the IAV, as well as evidence its superiority to the AGVs".

InTraDE is developing not only the IAV prototype but an integrated Intelligent Transport System (ITS) which consists of a supervision system to monitor the IAV operations, and a virtual simulator which reproduces the port environment for simulations of traffic scenarios.

Mohamed Benmerikhi & Simona Margarino