



DOCKINGMONITOR – DRIFT MONITORING SYSTEM FOR LARGE SHIPS

Task

To monitor the berthing and cargo transfer process from large ships, particularly from oil and gas tankers, systems are needed that automatically monitor the position and velocity, e.g. the drift of the ship, relative to jetty structures and unloading systems. In contrast to existing products, a portable measurement system has been developed which eliminates the need for stationary distance sensors to be arranged at port facilities.

Method

The berthing and drift monitoring system, »DockingMonitor«, consists of two different measurement systems:

- Transversal Movement Monitor (TMM) and
- Longitudinal Movement Monitor (LMM).

The TMM is based on a laser scanning measurement system and is responsible for measuring the transversal movement of the ship as it approaches the jetty. The LMM uses an innovative machine vision system to detect and measure the longitudinal drift of the ship during the mooring phase. Control electronics have been developed to control and integrate the data from the two sensor systems. Ex-proof housings were chosen and dimensioned according to current regulations for oil and gas terminals.

1 DockingMonitor prototype.

Result

The DockingMonitor prototype is a portable system, mounted on a wheeled carriage for fast positioning parallel to the jetty. Corresponding switches allow the systems to be easily switched on and off on site. The compact system does not require distributed sensors and enables precise measurement of the longitudinal movement of ships through »feature tracking« algorithms, a function that is not available in current systems. When the project was completed, the developed system was tested and validated at a port facility under industrial conditions.

Applications

The portable system is suitable for a variety of different terminals. In addition to oil and gas terminals, it can also be used in container as well as in bulk solids ports.

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