EFFORTS WP 1.2 Precise Navigation and Manoeuvring in Ports

The ports need to increase safety and efficiency on the one hand by introducing new tools in order to lower the human error factor introduced by verbal communication, and on the other hand by high precision positioning giving the pilot aid in safe maneuvering and docking. Tug operations safety needs to be strengthened to make sure that the tug master follows the pilots commands. The tug master/pilot needs better situation awareness.

The aim is to develop a portable pilot unit and software tools to improve situation awareness for pilot/tug master/VTS, including visualization of information exchange.

The remaining barriers hindering the broad break-through of PPU systems (Portable Pilot Unit) on board will be removed. This means in particular reducing the weight and implementing the PPU into the coming infrastructure in the individual harbour and an easy-to-use reliable technology in setting the system up and for operation so that the pilot is not distracted from his vital conning task. For navigation in restricted areas (coastal, fairway and port), being piloted or under tug assistance, and for berthing ports an advanced technology is required that is reliable and not dependent on the vessels' equipment which can be of quite distinct quality and performance features. Thus safety as well as efficiency needs to be addressed.

The Portable Pilot Unit (PPU) is not only a tool to assist the pilot in his efforts to provide the ships the best advise and highest possible security during its navigation, port approach and maneuvers.

The PPU also serves to enhance the efficiency and safety of the port. From an economical point of view, the ports ability to make a profit is dependent on the down time of the plants and the turnaround time of the vessels.

A casualty resulting in damage to a pier or plant is not just a matter of the loss. It can also be very costly in down time, not mentioning the possible environmental consequences. From the ports point of view it will always be of the highest of interest to avoid incidents, big or small, resulting in down time.

With the close monitoring of the speed, Rate -Of-Turn and tendency the Pilot gets an early indication / warning thus providing him with time and room to react in case of a dangerous situation arising.

Having the TUG boat performance integrated to the PPU further minimize the need for radio communication and provide all the involved parties (TUG boats, pilots, port office) with an overall picture of the situation, thus reducing the risk of misunderstandings in a hectic situation.

With a PPU’s integrated to the port office, the port is not just able to monitor the ongoing ship operations. All operations can be recorded and stored thus having a good card on the hand to identify a Vessel having caused a loss, or it case of evidence in a legal claim.
Having a complete independent back-up solution to the ships instrumentation, with the option for integration of radar overlay from port VTS, AIS-targets, tide, current, wind and weather provided to the Pilot real time via his PPU, moves the limit on which the pilot no longer consider it safe to take a ship in or out of port during difficult conditions.

Turnaround time is also essential for the ports profit. The PPU has proven to minimize the maneuvering time for regular users, due to the pilots having precise position, distance and prediction information displayed. This enables the pilot to optimize his maneuvers radically when a safe distance not has to be obtained by eye ball alone.

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