Automation sailing on the high seas

Today's automation has innovated solutions for the nautical sector: a great example can be seen with the Dolphin control system, an embedded HMI and Control system for yachts and super-yachts.

In the last few years the "pleasure Shipping" sector has undergone a 'face lift' by drastically developing its technical side which today is still blooming its buds and growing to such an extent that it can support modern and innovative solutions capable of taking onboard the best technology for automation.

Included in this context is the proposal made by M.R. Automation, a Ravenna based company which not only has over 10 years of operating experience in automation in general but also in the naval automation sector as well. The experience accumulated in this field by its technical staff, makes M.R Automation Srl a flexible reality, open to new opportunities in the technology market, especially involving the navel sector.

The company actually operates in applied automation for the offshore sectors (offshore oil rigs and special transport craft used for building deep sea pipelines), merchant ships, (oil tankers, passenger ships, ferries), and nautical (yachts and super-yachts).

The Dolphin system

Sailing is becoming increasingly more comfortable and safe for which the Dolphin system designed by M.R. Automation is highly responsible for when it comes to functionality, performances and flexibility. The system involves a entirely PC-based command and control architecture and is completely standard ready in the automation market.

The architecture provides a main Touch Panel with TFT from 12 or 15 inches, and any secondary Touch Panel stations from TFT 5.7 inches or wireless PDA, all based on the Windows CE operating system, without hard-disk and fans, IP65, capable to ensure the maximum sturdiness and reliability. The system-controlled peripherals are connected to a remote I/O based on Modbus protocol. Due to the heterogeneity of the controlled tools, the Modbus protocol permits communication on the same network with the tools onboard. The set bus speed at 115kb ensures good performances, being sufficient for guaranteeing optimum answering times.   In addition to this Modbus network, the meteorology station sensors and the GPS localizing by satellite (Global Positioning System) are connected to the Touch Panel. All information is controlled by the embedded software system. The Dolphin solution designed by M.R. Automation is based on Scada/HMI software standards, in versions for Windows CE. Movicon has been chosen from those evaluated, not only for its simplicity and powerfulness but also for the fact that is the only system for
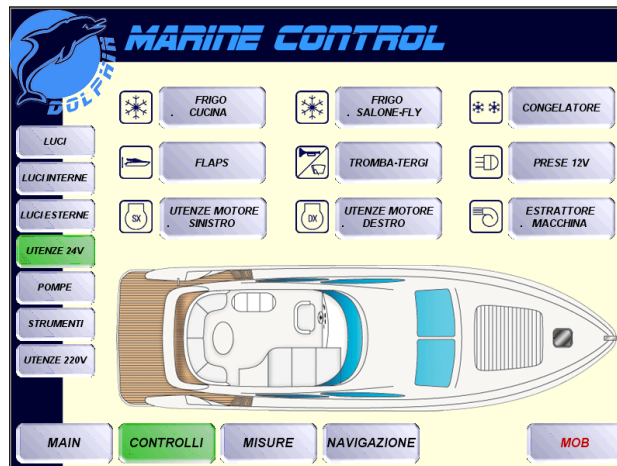
Domotics onboard

The most varied type of functions can be used with Dolphin, starting from the normal domotics system types (light control, air-conditioning and users) to the more sophisticated ones used in central control rooms of complex ships, all orientated at the "non-expert" user for their user-friendliness which is also guaranteed in critical and emergency situations.

By using the preset screen the user can control all the lights onboard (inside and outside, navigation) and all the other necessary items (pumps and fuel levels, fresh water, sea water, supplies).
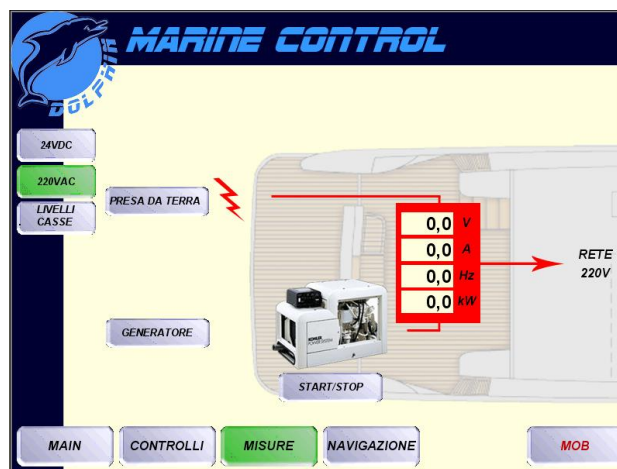
The system displays electric parameters of the DC (batteries) and AC network (generators or connection cables), from the command deck as well as managing all the central electric multi-generators with cargo divisions and automatic parallel (super-yachts). All the information is displayed intuitively, and can be recorded on archive files.

Security

Dolphin has integrated interfacing with the marine device NMEA standard (GPS, depth

WinCE capable to guarantee I/O logic control (PLC type) and has the kind of graphics quality just right for pleasure shipping applications, where the clientele are more attracted to user-friendly interfaces with captivating graphical impact. A system capable in providing complete control and joining power to the aesthetic appeal of yacht sailing has sprang forth from the union between the powerful functions provided by the Movicon software and the specific know-how from M.R. Automation.

sounder, plotters), and supports marine engine controller serial communication (Caterpillar, Volvo...) for displaying data relating to speed, temperature, and propeller device pressures. M. R. Automation is directly responsible for realizing this strictly naval linked device typology interfacing with the help of Movicon system openness, which allows the use of basic script functions for managing serial ports. In this way the system provides real integration, concentrating on all the functionalities on the Onboard Computer, which contribute to simplifying navigation management.

Dolphin also manages meteorological data, tank and bilge water levels, anchor control and mooring devices, flaps, alarm and message displays to user and historical logging of events. The embedded password system permits protected access to critical functions. Information deriving from meteorological sensors is represented on trend charts with a historical on the preceding 12 hours. To compliment the security functions, Dolphin has also integrated the very handy MOD (Man Over Board) which allows the historical of the GPS coordinates (Latitude and Longitude) to be traced in order to indicate the captain the precise course to follow to retrieve any persons fallen overboard.

Remote control and PocketPC

The Dolphin system has also been designed to provide complete marine management via telephone, by using SMS: it is in fact possible to send text messages to command items (air conditioning, lights, pumps...) and be informed with SMS responding on the status of items, electric network conditions or receive geographic coordinates (GPS coordinates). Thanks to this interesting functionality, the owner can set his boat to sail by using the remote control to activate lights pumps, heating, air conditioning, etc) or receive the yacht's coordinates by telephone when needed. Thanks to the Windows CE support, Dolphin can be installed on PocketPCs, which permit the owner to get hold of all the items used in sailing straight from his own pocket through a wireless network. This option has been very appreciated by the yacht owner clientele.

The new Movicon version of Movicon also supports remote control via internet and IP camera integration for displaying images of the sailing vessel remotely.

The system has already been installed with success on a series of Yachts belonging to a shipyard on the Adriatic Riviera. The very positive response to using this system to sail at sea has prompted M.R. Automation to industrialize its project by proposing it as the first innovative system for pleasure sailing. Dolphin has become a household name in the nautical world as system architecture with flexibility guaranteed. This has been all achieved thanks to the particular features, performances and potentiality of Movicon CE the only one of its kind.

Maurizio Raimondi
M.R. Automation
Ravenna