HIGHLANDER

i-COMMANDER V2

HLD-SCC600

INTELLIGENT SHORE-BASED COMMAND CENTER SYSTEM

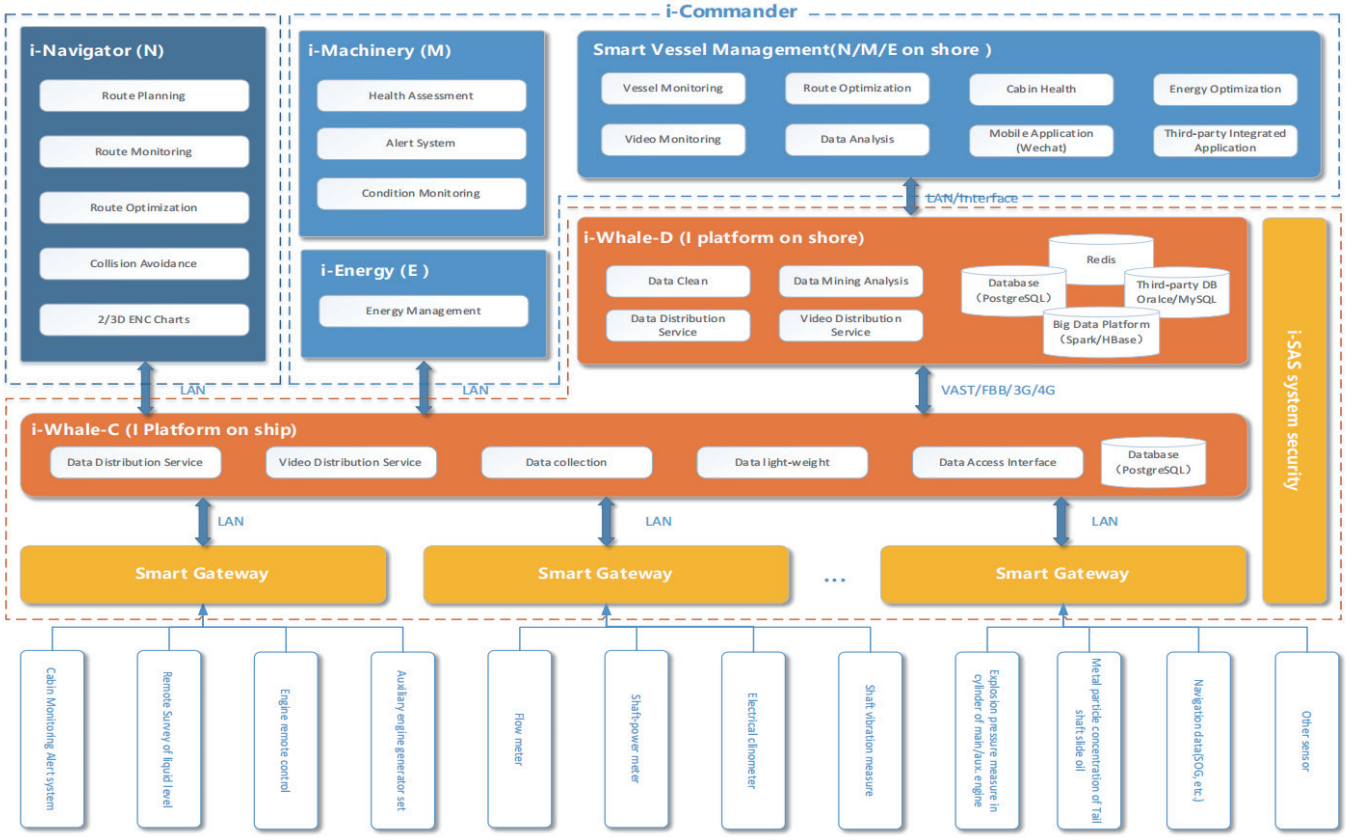
INTELLIGENT SHORE-BASED COMMAND

A.ARCHITECTURE

The intelligent shore-based command center system provides shore-based managers with such functions as fleet management, operation dashboard, remote monitoring, operation and maintenance support and customized reports.

The system integrates ship-shore and fleet ships for real-time communication, synchronizing ship navigation information, equipment operating status information, video monitoring information, ship loading and other business information; it can monitor and evaluate shipping speed, equipment health, energy consumption emissions and personnel behavior, and assist ship operation management; can integrate large screen system for command and scheduling.

The system adopts open platform architecture, microservice technology, is compatible with a variety of databases (Oracle, MySQL, PostgreSQL), combined with Docker container technology, can well support function expansion and distributed deployment, and can meet the business expansion of ship management.



- The system supports cloud server deployment and independent server deployment.
- The system supports large screen mode, which can display different functional modules at the same time to assist in command and scheduling.
- The system supports single sign-on (SSO), which is more secure.
- The system supports operations in both Chinese and English to meet the user's usage habits.
- The system supports encrypted transmission and sharing of data, supports integration with 3rd-party systems, and is compatible with multiple data interface protocols:

MODBUS RTU/TCP
IEC 61162-1 NMEA0183
IEC 61162-450
OPC-UA
Webservice
other network protocols

B.FUNCTIONS

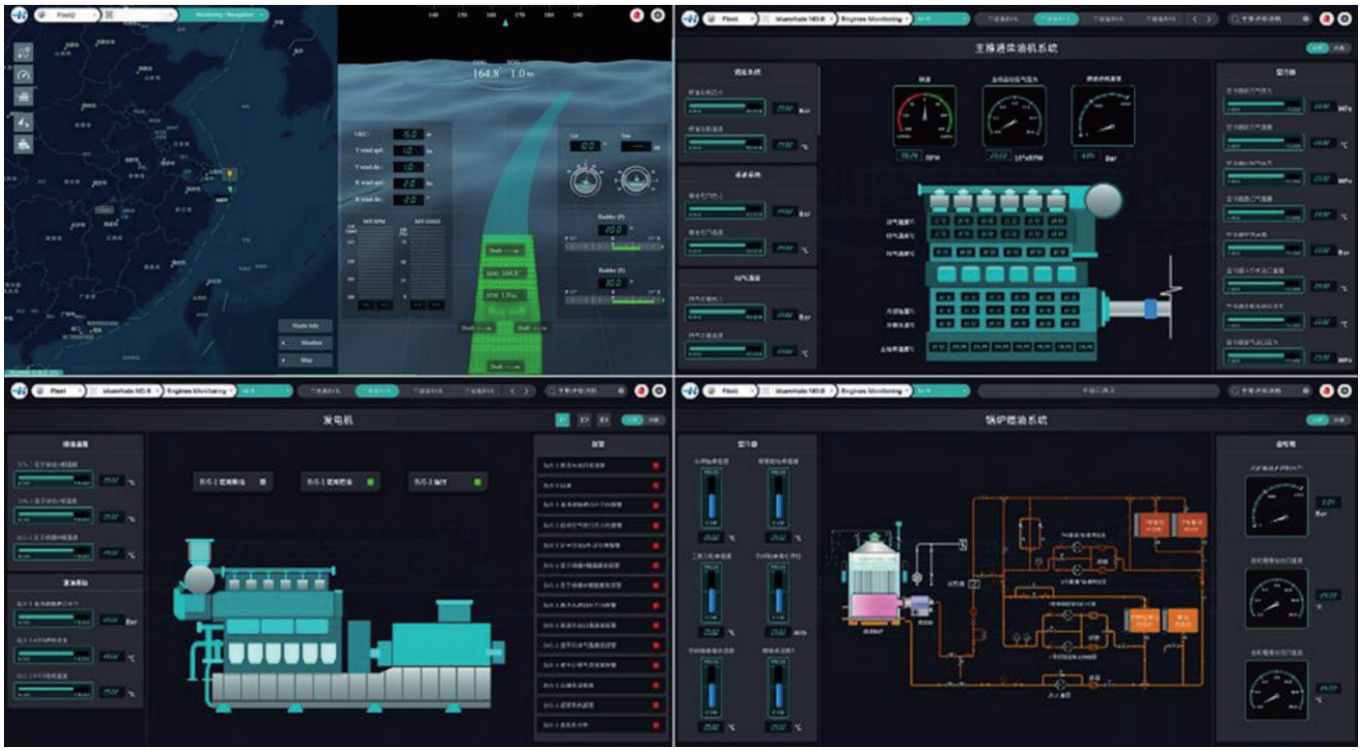
Dashboard

The system can centrally display the overall operation data of the fleet, such as the sailing status of the fleet ships, energy consumption and emissions, and the accident rate of lost working hours, and flexibly customize the content and display mode of the operation dashboard according to the business needs of users.

The system can integrate the large screen system of the command center, display different data modules of the comprehensive operation of the fleet, support a variety of function combinations, and meet the daily monitoring, command and dispatch, emergency response, video conference and other usage scenarios.

Monitoring

The system uses MIMIC, dashboard and other visual display forms, supports real-time monitoring of the ship's navigation conditions, as well as equipment operating conditions, and provide customized display pages approved by customers.



Equipments O&M

The system can evaluate the health condition of ship equipment according to its operating condition. The system sets the benchmark for equipment health through the trial data. In the subsequent operation process, when the equipment in sub-health state is evaluated, the system can give the possible causes and provide equipment maintenance suggestions for each cause. The system can share the data with the PMS management system and provide the maintenance plan of the ship and equipment.

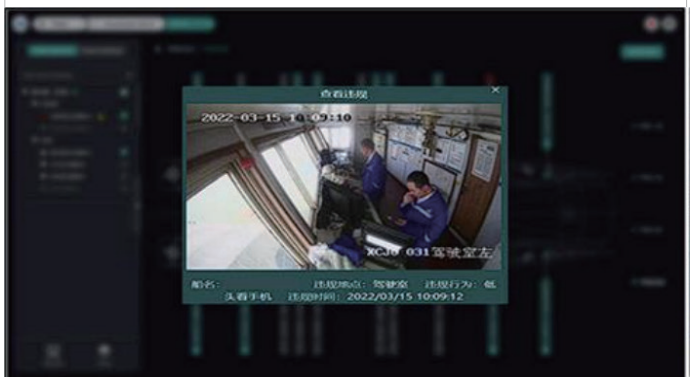
The system can analyze the use and performance of main equipment, such as: the system provides host power, fuel consumption, skid rate and other characteristics analysis, evaluation of host performance; the system provides statistics on the use of generators and evaluates whether the use of different generators is balanced.

Behavior recognition

The system synchronizes information with the shipside personnel behavior identification system, which can identify and supervise the actions and behaviors of the shipside personnel.

The system can recognize the behavior of different scenarios of navigation safety and personnel safety system.

Navigation safety	Personnel safety
• Combined with the duty plan, counted the number of people on duty in important places (mainly bridge and control room); • Support the identification of personnel immobility for a long time; • They can judge whether they are paying attention to mobile phones by their actions. • Can be combined with the action of personnel smoking identification;	• Support the identification of the wearing of crew members, such as work clothes, helmets, masks and other protective equipment; • It can recognize the behavior of people who enter a specific place without wearing gas masks and protective glasses; • Be able to alarm the intrusion of personnel in dangerous areas; • Support detection of personnel falling over the railings and other behaviors to identify and warn; • Support personnel fighting behavior identification and early warning;



■ C.CONFIGURATION

Device	Description
Hardware	
Shore-based data center server	Supports cloud server and physical server deployment modes
Software	
HLD-SCC600	Fleet management, operation dashboard, remote monitoring, operation and maintenance support, etc

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