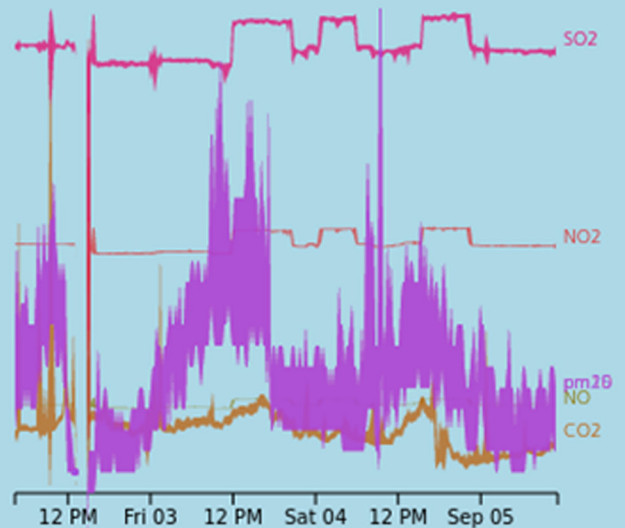
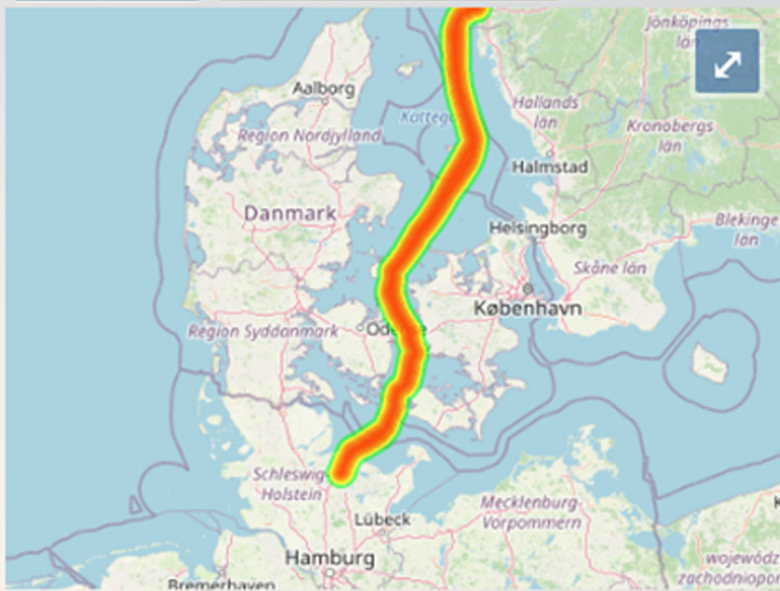


# SeaML:WebUI

Making Robotic Service End-User Ready

heatmap layer

Inverse Density Weight layer



Multi Plot

All

NO

CO2

NO2

SO2

pm10

pm25

Humidity

Latitude

Pressure

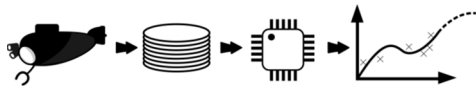
Longitude

AltitudeBME

# A Web-Based Service Layer Combining Latest Technologies for User-Specific Needs

**Web, 6G, IoT, cloud computing, big data, autonomous robotics, machine learning... they are heard over and over again. Although they seem complicated and mysterious at first sight, we strive to deliver their benefits to end-users in a human-friendly and natural way.**

The Web Service Layer provided by Fraunhofer CML is designed to deal with complex robotic systems. Even when there are multiple operators simultaneously controlling multiple robotic systems remotely, the integrity and traceability of data are guaranteed through the authentication and access control mechanism. For safety critical components such as unmanned vehicles, our live monitoring and control overriding capabilities provide managers with more options in handling potentially hazardous situations.



## WebUI Features

A client-server architecture being originally developed to control and monitor robotic vessels and sensors as well as job management and user interface of our robotic on-demand Robot As-a-Service concepts the WebUI offers an extensive range of modules and services, such as:

- Data Processing and Analytics
- Media Streaming and Content Delivery
- Traffic Monitoring System
- End-to-End Encryption
- Web-based Remote Control
- Browser-oriented Interface
- Mission System
- User Management System

It leverages mature open-source software, providing long term stability and excellent support with the following tech stack:

- Janus Gateway

- ReactJS
- Linux
- Gstreamer
- HTML5
- Selenium
- RabbitMQ
- PostgreSQL
- NodeJS
- Nginx

## Application Examples

Within the RoboVaaS project ([www.martera.eu/projects/robovaas](http://www.martera.eu/projects/robovaas)), that utilizes underwater and surface vehicles for surveying operations, the WebUI provides a user management system and mission management for the interconnected SeaML:UXV fleet.

Within the RAPID project ([www.rapid-project.eu](http://www.rapid-project.eu)), that deploys aerial drones carried by surface vessels in remote areas for port inspections, the WebUI provides a mission control centre and traffic management system.

In SeaClear ([www.seaclear-project.eu](http://www.seaclear-project.eu)), a project aiming at collecting debris from oceans through collaborative efforts of underwater, surface, and aerial robots, the service layer provides live monitoring, mission and robotic remote control.

The SCIPPER project ([www.scipperproject.eu](http://www.scipperproject.eu)) focuses on air emissions data collection, monitoring, and detection system. We provide live monitoring, emission violation detection system, and data analytics.

## Your data, your fate

Sensoric data is a key aspect of any system. Besides the traceability and integrity during data generation and transmission, we also support the visualization and postprocessing of your valuable data.

For example, interactive maps and mission replay help users intuitively understand the big picture of an ongoing mission instantly; graph

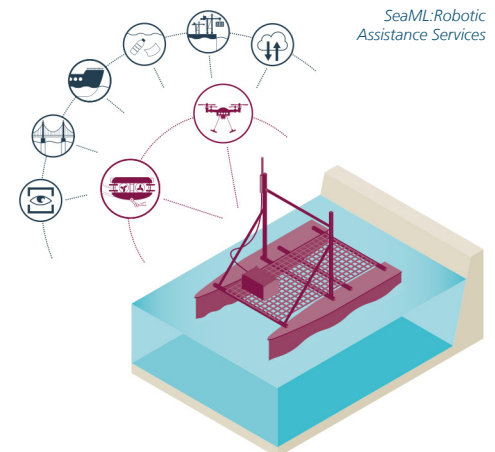
and report generators help managers to communicate the results in a succinct and informative manner.

## Your Benefit

The next generation digital frontier: We offer a highly modular and scalable web-oriented service layer with concrete application management able to gather, store, visualize and process robotic and sensor data in real-time that can be tailor-made and customized to suit any needs.



Anywhere, anytime. Being web-oriented implies the Web Service Layer is accessible by virtually any device. Save yourself the future hassle and contact us for a more comprehensive view today!



## SeaML:Robotic Assistance Services

Our on-demand Robotic Assistance Services for the maritime sector are enabled through SeaML:SeaLion, SeaML:UXV and SeaML:WebUI. To learn more, see:



Linked project sheets:  
• UXV  
• SeaLion

