NEWSLETTER

ISOLA

FIRST PROJECT YEAR

In September 2020, the ISOLA project embarked on its journey as a part of the esteemed Horizon 2020 initiative, amidst the unprecedented challenges of the COVID-19 pandemic.

ISOLA

Despite potential setbacks from travel restrictions and the shift to remote operations, ISOLA's first year was marked by significant adaptability and progress. Under the guidance of CERTH, the project's technical managers, the foundational stages of the ISOLA system's technical development began. Utilising digital communication tools, the project team effectively conducted a series of virtual meetings. These sessions ranged from in-depth requirements analysis to extensive project planning, ensuring ISOLA stayed on course. This early phase of strategic planning not only kept the project aligned with its goals but also showcased the team's resilience and collaborative strength. The ability to advance positively in such times underscored ISOLA's solid foundation, setting a promising path for its role in enhancing maritime security solutions.

PIRACY: ATTACKS OFF THE COAST OF SOMALIA

Somali piracy has posed significant challenges to global shipping, intertwining economic, security, and legal complexities. The threat escalated insurance costs and forced costly detours, impacting the efficiency of maritime trade routes. In response, ships have fortified defences, adopting rigorous security measures like onboard armed guards and anti-piracy protocols, marking a significant shift in maritime security practices.

The legal battles against piracy highlighted the gaps in international maritime law, underscoring the need for cohesive legal frameworks and international cooperation. This crisis catalysed unparalleled naval collaboration, with international forces joining hands to patrol affected waters, a testament to the power of collective security efforts.

Beyond the financial implications, the human dimension of piracy from the trauma experienced by hostages to the broader implications for crew safety remains a pressing concern. The global shipping community continues to evolve, drawing lessons from the Somali piracy phenomenon to enhance maritime security and ensure the safe passage of goods and personnel across our oceans.

ISOLA's Potential Impact on Shipping Piracy

As the maritime industry grapples with evolving security threats, the horizon holds promise with the conceptualisation of the ISOLA system.

Envisioned as a sophisticated defense system against the persistent challenge of piracy, especially in regions such as the Gulf of Aden and the Red Sea (where the bulk of these activities takes place), ISOLA represents a significant leap in innovation for future maritime security.

Central to the proposed ISOLA system is the integration of cutting-edge monitoring and threat detection technologies. The system could potentially incorporate Automatic Identification Systems (AIS) alongside advanced identification methods, aiming to offer an unprecedented overview of maritime dynamics. This synergy of technologies would be designed to facilitate the early detection of threats, arming vessels with crucial information to navigate through perilous territories.

The anticipated capabilities of ISOLA extend into the realm of visual analysis, where deep learning algorithms may be deployed to identify suspicious objects and activities from a distance. These proposed features represent a multi-layered approach to mitigating the risks associated with piracy.

The prospective impact of the ISOLA system on the shipping community is vast. By potentially enhancing situational awareness and fostering rapid, informed decision-making, ISOLA aims to safeguard not only the lives of those at sea but also the precious cargo they carry. Moreover, the system's capacity for advanced evidence collection could support more effective legal pursuits against piracy, possibly deterring future incidents.

As we look toward the future of maritime security, the ISOLA system embodies the spirit of innovation and collaboration needed to tackle the complex challenges of modern-day piracy. While still in the development stage, ISOLA offers a glimpse into a future where shipping lanes are safer, and the threat of piracy is significantly diminished.

ISOLA TOOL SPOTLIGHT:
Toxic Gas Dispersion Modelling

In maritime safety, integrating HAVAC and MORTAL systems developed by ISOLA project partner Prometech is a practical step towards improving ship security by focusing on air quality and health risks.
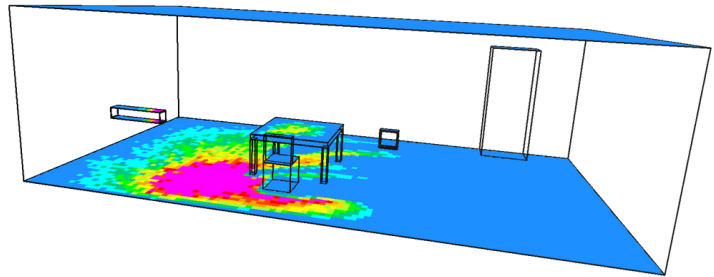
These systems, adapted for the unique conditions of maritime environments, offer tools for better managing indoor air on ships. It creates a model of air movement within the ship, and can classify the areas with dangerous concentrations of a chemical. This is crucial for maintaining safety for passengers and crew members. HAVAC also accounts for how outdoor conditions, like wind, can affect indoor air, which is essential for ships that face changing environmental conditions.

MORTAL complements HAVAC by assessing the health impacts of various airborne agents. It uses a database to identify potential health risks from chemicals and helps in devising strategies to mitigate these risks. This is particularly useful on ships, where the spread of contaminants can be rapid and need to be confined.

To make the data from HAVAC and MORTAL useful for ship operators, communication and visualisation tools have been developed. These tools help in presenting air quality data in an accessible way, allowing for quick and informed decision-making. Real-time visualisation of air quality can help in identifying and addressing issues promptly.

Integrating chemical sensors from ISOLA project partner T4i with HAVAC enables continuous monitoring of air quality on ships. This real-time data is crucial for adjusting ventilation as needed and responding to changes in air quality quickly. The ability to integrate external data, such as weather conditions, into HAVAC further enhances its usefulness for maritime applications. By focusing on air quality and health impacts, HAVAC and MORTAL offer practical solutions for improving safety on ships. These technologies provide the tools needed for effective air management and health risk assessment, contributing to a safer maritime environment.