



University of Rijeka, Faculty of Maritime studies

PROJECT ACRONYM AND TITLE: Integrated approach to static and dynamic obstacle avoidance in maritime environment

FUNDING PROGRAMME: Scientific-Research Project Initiatives of The University of Rijeka (ZIP UNIRI)

PERSON RESPONSIBLE: Igor Rudan, Ph.D., Full Professor

FINANCIAL DATA

Project total cost	Overall funding assigned to PFRI
12.475,94 €	12.475,94 €

SUMMARY

Present-day maritime navigation relies on several foundations: regulatory, education, training and the technology to facilitate planning, making and executing decisions in all the various parts of navigational process. However, with recent technological advances, the foundations have been extended encompassing approaches coming from other domains outside of still primary human-centred navigational context. Upcoming changes, challenges and relations of humans and technology reflect in usage of integrated navigational environments, development of new standards incorporating various levels of vessel automation and ever-increasing usage of advanced informational technologies. Despite the changes, the near and mid-term progress inclusion of various mixes of manned and automated vessel types, the imperative of safe navigation must remain.

Safe navigation relies both on thorough preparation before the start of—and adaptation to changing conditions throughout—the voyage. Although a four-stage process, planning process can be further simplified and divided in just two phases, prior and after the voyage commencement. The first phase—which includes voyage appraisal and planning—emphasises determination of static maritime environment, obstacles, time-varying objects and expected dynamic conditions. After departure—in the execution and monitoring phases—the focus shifts more towards adaptation to the prevailing or upcoming conditions. Therefore, consideration of the surrounding dynamic obstacles such as other vessels, navigational dangers, wrecks or vicinity to the coast is essential. Consequently, it is important to investigate the integration of well-developed human oriented planning methods and navigational techniques with state-of-the art and forthcoming navigational technologies for both static and dynamic avoidance.

With such perspective, the objective is integrated research approach regarding static and dynamic obstacle avoidance. For the static environment representations, appropriate methods and algorithms applicable for safe route creation before the voyage commencement will be investigated. Further, the evasion of dynamic objects as enhancement of planning and decision-making possibilities for the human navigator throughout the voyage will be assessed as well.

Start date	End date
01.06.2023.	31.05.2026.



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ADDITIONAL INFORMATION:

Members of the project team:

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