

Underwater collaborative robotics review

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Abstract

The paper represents a state-of-the-art contribution to the field of underwater collaborative robotics. A discussion of the existing technologies, methodologies, and approaches within underwater collaborative robotics is presented. The contributions, strengths, and limitations of the research are critically assessed. Furthermore, it addresses how various studies handle challenges such as underwater communication, localization, energy efficiency, and multi coordination. Different approaches of technologies, their advantages and disadvantages, are compared and contrasted.

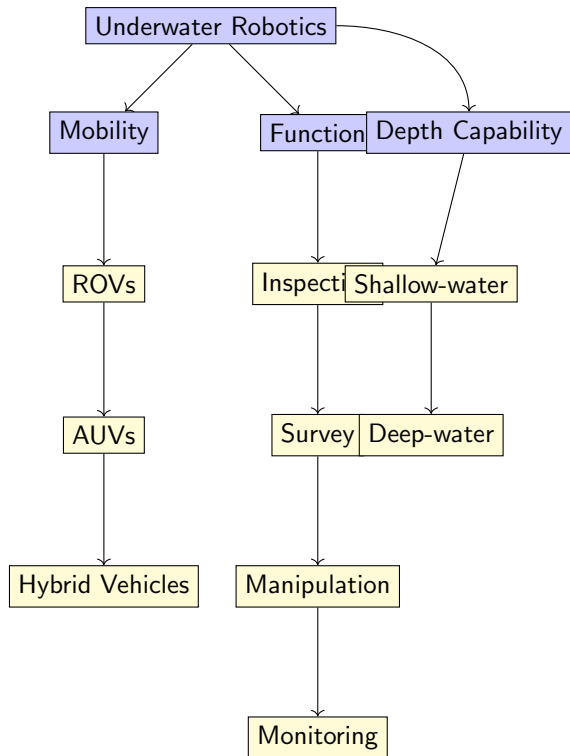
1 Introduction

Underwater robotics, particularly unmanned underwater vehicles (UUVs), play a vital role in ocean exploration and research, offering significant advantages in safety, efficiency, and accessibility. These robots can operate in hazardous underwater environments, perform long-duration missions, and reach inaccessible areas, making them invaluable for scientific research, industrial applications, military and defense tasks, environmental monitoring, and archaeology. Their ability to collect data, map underwater terrains, inspect and maintain infrastructure, and assist in search and recovery operations highlights their versatility and importance in oceanology.

1.1 Classification

The review from [1] divides underwater vehicles into remote operated (ROV) and autonomous ones (AUV). Another point of the classification can be by the hull shape – open and closed. All the components of the underwater vehicle are covered by a hermetic hull, such as in case of a submarine. Instead, open shape allows some of the components be outside of the shell. These components are held together on the durable frame.

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2 Methodology

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3 Results and Discussion

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4 Conclusion

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Acknowledgments

Here you can acknowledge people who contributed but are not listed as co-authors.

References

- [1] Javier Neira et al. “Review on Unmanned Underwater Robotics, Structure Designs, Materials, Sensors, Actuators, and Navigation Control”. In: *Journal of Robotics* 2021.1 (2021). .eprint: <https://onlinelibrary.wiley.com/doi/abs/10.1155/2021/5542920>. ISSN: 1687-9619. DOI: 10.1155/2021/5542920. URL: <https://onlinelibrary.wiley.com/doi/abs/10.1155/2021/5542920> (visited on 07/12/2024).