



AIUB DSpace Publication Details

Title: Oceanic Challenges to Technological Solutions: A Review of Autonomous Underwater Vehicle Path Technologies in Biomimicry, Control, Navigation and Sensing

Author(s) Name: Kayes Hasan, Shameem Ahmad, Abrar Fahim Liaf, Mazaher Karimi, Tofael Ahmed, Mehedi Azad Shawon, Saad Mekhilef

Contact Email(s): ahmad.shameem@aiub.edu

Published Journal Name: IEEE Access

Type of Publication: Journal

Volume: 12 Issue 1

Publisher: IEEE

Publication Date: 21/03/2024

ISSN: 2169-3536

DOI: 10.1109/ACCESS.2024.3380458

URL: <https://ieeexplore.ieee.org/abstract/document/10477402>

Other Related Info.: Page 46202 - 46231, ISI and Scopus indexed



AIUB DSpace Publication Details

Abstract:

Autonomous Underwater Vehicles (AUVs) epitomize a revolutionary stride in underwater exploration, seamlessly assuming tasks once exclusive to manned vehicles. Their collaborative prowess within joint missions has inaugurated a new epoch of intricate applications in underwater domains. This study's primary aim is to scrutinize recent technological advancements in AUVs and their role in navigating the complexities of underwater environments. Through a meticulous review of literature and empirical studies, this review synthesizes recent technological strides, spotlighting developments in biomimicry models, cutting-edge control systems, adaptive navigation algorithms, and pivotal sensor arrays crucial for exploring and mapping the ocean floor. The article meticulously delineates the profound impact of AUVs on underwater robotics, offering a comprehensive panorama of advancements and illustrating their far-reaching implications for underwater exploration and mapping. This review furnishes a holistic comprehension of the current landscape of AUV technology. This condensed overview furnishes a swift comparative analysis, aiding in discerning the focal points of each study while spotlighting gaps and intersections within the existing body of knowledge. It efficiently steers researchers toward complementary sources, enabling a focused examination and judicious allocation of time to the most pertinent studies. Furthermore, it functions as a blueprint for comprehensive studies within the AUV domain, pinpointing areas where amalgamating multiple sources would yield a more comprehensive understanding. By elucidating the purpose, employing a robust methodology, and anticipating comprehensive results, this study endeavors to serve as a cornerstone resource that not only encapsulates recent technological strides but also provides actionable insights and directions for advancing the field of underwater robotics.