

THE USE OF THE AUTONOMOUS UNDERWATER VEHICLE FOR NAVIGATING A SHIP THROUGH A MINED AREA

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The article describes the algorithms for maneuvering an Autonomous underwater vehicle (AUV) when passing through a mined area and when ensuring the passage of a vessel through a mined area. Both tasks are solved by detecting different types of mines using hydroacoustic and magnetometric means of searching and classifying underwater objects and bypassing of the mines at a safe distance. To reduce the time required to solve both tasks, the detected underwater objects are classified into the "mine-like object" and "other objects" classes. The use of the "mine-like object" class, which includes both the actual mines and objects that are indistinguishable from mines at the distances of their detection by means of mine search, allows you to avoid approaching detected underwater objects at a distance of their confident classification using high-frequency sonar and television equipment, and thereby increase the safety of the AUV and reduce the time of passage through the mined area. The algorithm ensuring the passage of a vessel through the mined area takes into account the fact that the minimum safe distance between vessel and mine greatly exceeds the range of detection of mines of different types that does not allow AUV to find a safe vessel passage through the mined area by a single crossing and requires complex maneuvering of the AUV. Algorithms are intended for implementation in the AUV control system.

Keywords: Autonomous underwater vehicle, sea mine, means of searching for sea mines, maneuvering AUV when passing through a mined area.

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