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TRENDS AND PROSPECTS OF TECHNOLOGIES FOR CREATING MARINE ROBOTIC SYSTEMS FOR COMBAT OPERATIONS AT SEA ABROAD

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The article clarifies the term marine robotics and, on this basis, it is determined that the creation of military-grade marine robotic systems (MRS) requires significant study of the core of the most important technologies necessary to create the entire range of promising robotic tools. At the same time, a typical military-purpose MRS can be presented as a set of functionally related elements and specialized equipment. This representation of a typical MRS makes it possible to identify technologies that are critical for the development of basic elements. The possession of such technologies is the key to success in ensuring the necessary degree of autonomy and intelligence of the MRS. The importance of the development of artificial neural networks, which have already learned to recognize individual objects, was emphasized. However, there are well-founded concerns that autonomous MRS, no matter how advanced artificial intelligence they may possess, will not be able to analyze the behavior of people in front of them like a human. In this regard, increasing the speed and miniaturization of the developed microprocessors is of fundamental importance. In addition, in the interests of creating an MRS, serious attention is being paid to promising means of communication, which, in fact, are critical elements of the successful application of MRS. The military leadership of leading foreign countries is pursuing a focused, long-term policy in the field of developing promising measures of armed struggle, hoping in the future to develop innovative and effective means to ensure national security, combat terrorism and regular threats, as well as the effective conduct of modern and future operations. The factors are substantiated and the reasons for the rapid development and widespread use of MRS in the US Navy are given. The key technologies that make it possible to compensate for the absence of an operator in the cockpit are technologies for creating microprocessor technology and advanced communication tools. Both types of technologies came from the civilian sphere — the computer industry, which allowed the use of modern microprocessors, radio communication and data transmission systems, as well as special methods of information compression and protection for MRS.

Keywords: Unmanned vessel, Marine robotics, Sensory information processing, Software and hardware complexes, Combat robots, Neural networks.

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