

URPL – UNIVERSAL LANGUAGE FOR AUV MISSION PROGRAMMING

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This article proposes a universal language for developing autonomous underwater vehicle (AUV) missions. The main features of the proposed language are: the presence of high-level commands to describe the main tasks of underwater research, the use of commands in Russian, the readability of the created missions and their understandability for personnel involved in the use of underwater robotics, the lack of strict typing and parameterization of commands, the possibility of expanding the language by creating new commands based on the old ones. The article describes the main parameters of the language, syntax, semantics and basic commands, as well as language tools - a parameter refinement module, which interactively allows you to resolve uncertainty arising due to non-strict parameterization, low-level command module that implements more complex commands based on basic ones, a language extension module responsible for adding new commands, and a translator. The language translator allows you to translate created missions into task program codes for various AUVs. The created language is called URPL – Underwater Research Programming Language and at the current stage of research it is being tested and debugged on the AUVs of the IPMT FEB RAS, taking into account the experience accumulated at the institute.

Keywords: AUV, mission, task program, AUV mission programming language, URPL

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