

RESEARCH OF THE VIDEONAVIGATION SYSTEM AS A PART OF UNDERWATER VEHICLE'S CONTROL SYSTEM CIRCUIT

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ABSTRACT

The need for precise positioning of underwater vehicle near seabed or object site arises in wide variety of underwater robotics problems under present day conditions. One possible way of solving this problem is the use of local visual navigation system. From control system standpoint, stability, performance and quality of transient process must be taken into consideration in addition to precession parameters. The paper analyses these parameters on the basis of numerical and seminatural modeling. A comparison has been made between different visual navigation algorithms based on optical flow estimations and SURF and BRISK descriptors matching. Based on modeling results, proposal has been made for range of applicability of the methods.

Keywords: local navigation, video processing, underwater vehicle, system of control, computer vision, image fitting, dynamic positioning

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