

Cotrolling the Dynamic Positioning of a ROV

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Abstract: Due to the great technological improvement obtained in the last decades, it became possible to use robotic vehicles for underwater exploration. These vehicles, often called ROV (Remotely Operated underwater Vehicle), have been substituting the divers in the accomplishment of tasks that result in risks to the human life. In this respect, ROVs have been used throughly in the research of subsea phenomena and in the assembly, inspection and repair of offshore structures.

During the execution of a certain task with the robotic vehicle, the operator needs to monitor and control a number of parameters. If some of these parameters, as for instance the position and the orientation of the vehicle, could be controlled automatically, the teleoperation of the ROV can be enormously facilitated.

This work describes the development of a control strategy for an experimental ROV used in laboratory tests. An algorithm based on the fuzzy logic is used and the sensor system, a Passive Arm for position and orientation measurement in the proximity of an underwater structure, is described. Experimental results are presented to demonstrate the control system performance.