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Motion Control Design of UNUSAITS AUV Using Sliding PID

T. Herlambang [1], S. Subchan [2*], H. Nurhadi [3,4] and D. Adzkiya [2,4]

[1] *Department of Information Systems, University of Nahdlatul Ulama Surabaya, Indonesia*
[2] *Department of Mathematics, Sepuluh Nopember Institute of Technology, Indonesia*
[3] *Department of Industrial Mechanical Engineering, Sepuluh Nopember Institute of Technology, Indonesia*
[4] *Center of Excellence for Mechatronics and Industrial Automation Research Center, Sepuluh Nopember Institute of Technology, Indonesia*

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Abstract: An unmanned submarine commonly called an Autonomous Underwater Vehicle (AUV) is one type of underwater robots used for underwater mapping. The AUV is an underwater vehicle capable of automatically moving in the water, controlled by humans on a vessel. Building an AUV is not easy as many components play important roles in the operation of the AUV. One of them is the motion control system. This paper develops the motion control system of the UNUSAITS AUV by applying a Sliding PID (SPID) control to a linear model with 6-DOF. The linear model is obtained through linearization of the nonlinear model with 6-DOF. The SPID is a combination of the Sliding Mode Control (SMC) and PID. The results of the study indicate that the SPID method can be effectively used as the motion control system of the linear model with an error of 0.2% - 4.2%.

Keywords: *autonomous underwater vehicle; control systems; sliding PID; 6-DOF; linear model.*

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* Corresponding author: mailto:subchan@matematika.its.ac.id

