

Performance Evaluation of a Reduction Vibration in Robotic Arm Controller by Tuning Gain

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Abstract:

In this paper, the challenges that a designer has while attempting to create a variable structure controller for a robotic arm controller that exhibits vibration rattling are examined. This challenge is made more difficult by a number of characteristics, including oscillation, a limited frequency range, and amplitude. The outcomes of this research make it very evident that these challenges must be selected. The majority of the time, this is because the gain setting on the controller was left at an inappropriately high level. A solution that has been referred to as a Modified Variable Structure Controller (MVSC) has been suggested for this issue. In addition, a brand-new technique for managing variable structure controller proportional gain has been developed, which has made it feasible to cut down on rattles. You can find a comprehensive description of this approach further down below. The suggested approach provides both a high level of accuracy and a quick response time in the event that an external disruption or a change in the variables of the process occurs. Previous approaches, some of which are discussed in this article, can be found at this situation. In order to carry out the pre-programmed simulations, MATLAB/SIMULINK was the tool of choice.