Control of Contact Force between Pantograph and Catenary Using Impedance Control Technique

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The authors are working on the project regarding application of active control technique to pantographs to suppress contact force fluctuation between pantograph and catenary. In this report, we introduce the application of impedance control technique to the pantograph as one of the effective contact force fluctuation reduction methods. In this method, the actuator equipped on a pantograph imitates mechanical elements such as springs, dampers or their combinations and make the pantograph have desired dynamic characteristics by varying the parameters of these virtual mechanical elements. This report proposes the contact force controlling method applying the impedance control technique, and indicates the experimental results, which support the effectiveness of the proposed method.