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A study on the individual control method comparing the lateral displacement control of front wheel and rear wheel of IRWs system

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This paper proposes an algorithm to obtain better results in the integrated control by reflecting the characteristics of the individual control of the front wheel and the rear wheel of shallow-depth subway systems. In the case of the surface transportation, which has recently been introduced, severely curved driving performance is required for the downtown. It is possible to decrease the curve radius and to improve the performance of the straight running with the individual torque control. Therefore, the individual torque control performance of the motor is the most important point of the surface transportation. The front and rear wheels have different torque characteristics, and the length of the bogie during curve travel also affects these results. This system is more controllable than the system with 1C4M (1 Controller 4 Motor) in the form of 2C4M with the front and rear wheels being individually controlled, allowing more precise control because of its higher degree of freedom. Because of this individually controlled characteristic, it is possible to control more precisely in the integrated control considering the characteristics of the front wheel and the characteristics of the rear wheel. The validity and usefulness of the proposed control algorithm is verified by experimental results using a small-scale bogie system.

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