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Select-Low and Select-High Methods for the Wheeled Robot Dynamic States Control

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Abstract : The paper enquires on the two methods of the wheeled robot braking torque control. Those two methods are applied when the adhesion coefficient under left side wheels is different from the adhesion coefficient under the right side wheels. In case of the select-low (SL) method the braking torque on both wheels is controlled by the signals originating from the wheels on the side of the lower adhesion. In the select-high (SH) method the torque is controlled by the signals originating from the wheels on the side of the higher adhesion. The SL method is securing stable and secure robot behaviors during the braking process. However, the efficiency of this method is relatively low. The SH method is more efficient in terms of time and braking distance but in some situations may cause wheels blocking. It is important to monitor the velocity of all wheels and then take a decision about the braking torque distribution accordingly. In case of the SH method the braking torque slope may require significant decrease in order to avoid wheel blocking.

Keywords : select-high, select-low, torque distribution, wheeled robots
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