# Distributed fuzzy fixed-time consensus control for multiple manipulators system with input deadzone

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***Abstract*—The multiple manipulator system (MMS) has strong coupling properties and nonlinearities, which is used to accomplish complex cooperation tasks. In this study, a distributed consensus control algorithm is proposed for uncertain MMS with input deadzone under a directed communication graph.To solve the problem of the network congestion exisits in MMS, an event-triggered mechanism (ETM) is proposed to reduce the control update frequency and to save communication resource. Futhermore, a fuzzy logic system is designed to approximate uncertain dynamics for controller compensation. Based on backstepping iteration technique, a fixed-time convergent controller is presented to guarantee the system state errors convergence to zero neighborhood in finite time irrelevant to initial state. Finally, the effectiveness of the proposed control scheme is verified by sufficient comparative simulation and experimental results.**

***Index Terms*—Multiple manipulator system, consensus control, input deadzone, fixed-time controller**

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