

Control Law Design of a Wheeled Robot Mobile

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Abstract : In this paper, we focus on the study for path tracking control of unicycle-type Wheeled Mobile Robots (WMR), by applying the Backstepping technic. The latter is a relatively new technic for nonlinear systems. To solve the problem of constraints nonholonomics met in the path tracking of such robots, an adaptive Backstepping based nonlinear controller is developed. The stability of the controller is guaranteed, using the Lyapunov theory. Simulation results show that the proposed controller achieves the objective and ensures good path tracking.

Keywords : Backstepping control, kinematic and dynamic controllers, Lyapunov methods, nonlinear control systems, Wheeled Mobile Robot (WMR).

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