

Mobile Robot Motion Stability and Optimal Chassis Construction

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Abstract

The paper presents the results of dynamical modeling, simulation and stability analysis of mobile robot, which makes it possible to explain some dynamic effects that lead to instability of the straight-line robot's movement and skidding at bends at high speeds. This model is used to analyze the stable motion of wheeled robot in accordance to mutual placement of the wheels and the center of mass during its movement along the straight line. The appropriate recommendations are given on the optimal chassis design to avoid the phenomenon of instability motion. © 2021 IEEE.

Author keywords

aircraft stability; mobile robot; simulation of the system; software Matlab