

APPARATUS AND METHOD FOR PERFORMING SURFACE TRANSITION ON MAGNETIC SURFACES USING MOBILE ROBOT WITH THREE OR MORE WHEEL SETS

Abstract

Embodiments of the invention disclose a mobile robot capable of performing surface transition on ferromagnetic surfaces, the robot comprises: a chassis; at least one driven wheel rotatably mounted to the chassis and operative to drive the chassis to transit from a first ferromagnetic surface to a second ferromagnetic surface which is non-parallel thereto; and at least a first and a second non-driven wheel rotatably mounted to the chassis, wherein rotation axes of the driven wheel and the first non-driven wheel are mutually spaced apart in a lengthwise direction, wherein rotation axes of the first and the second non-driven wheel are mutually spaced apart in an elevation direction which is orthogonal to the lengthwise direction, and wherein a distance, along the lengthwise direction, between an outer edge of the second non-driven wheel and the rotation axis of the driven wheel is greater than a distance, along the lengthwise direction, between an outer edge of the first non-driven wheel and the rotation axis of the driven wheel, such that the second non-driven wheel is arranged to be in magnetic adhesion contact with the first ferromagnetic surface when the driven wheel and the first non-driven wheel are arranged to be in concurrent magnetic adhesion contact with the second ferromagnetic surface.

(Figure 3)