

Design of a Self-Contained Active Split Offset Castor Wheel Pod for Use in Omnidirectional Robotic Vehicles

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Abstract

This paper introduces the mechanical design for a self-contained powered wheeled pod design based on Active Split Offset Castor (ASOC) model. These pods can be attached at any available and suitable location on a mobile frame rendering it, in effect, an omnidirectional vehicle. With a minimum of three such pods attached, any frame can become a mobile robot that can be “driven” around with a basic controller. The paper describes the mechanical design of these pods, particularly related to issues of packaging, stability, power requirement and controllability.