

Impedance control approach in robot's leg dragging velocity variations

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ABSTRACT

One of the challenging areas in developing bio-inspired legged robot is dynamic control, especially in environment interaction. Impedance control is widely used by researchers for dynamic interaction, but the majority only focus on adapting uneven terrain structure. This idea may not be suitable for pick-and-place task robot that has different weight due to its body weight and payload as well as locomotion on flat terrain. Thus, this paper presents leg velocity control through impedance control approach with the aim to increase the energy of the legged robot especially during leg dragging based on force on contact. The results show that proposed controller is applicable since it increases the energy and velocity of leg motion due to increase in force on contact while maintaining the shape of the leg motion.

KEYWORDS:

impedance control; kinetic energy; legged robot