

عنوان مقاله:

Flexible Foot/ Ankle Based on PKM with Force/Torque Sensor for Humanoid Robot

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خلاصه مقاله:

This paper describes the development of a novel humanoid robot foot/ankle based on an orientation Parallel Kinematic Mechanism for intelligent and flexible control. With three identical Universal-Prismatic-Spherical prismatic-actuated limbs and a central Universal-Revolute passive limb, the PKM can perform three degrees of freedom rotation motions. In order to enable the humanoid robot safely to walk stably on the irregular environment, the control system should possess intelligence and flexibility. As the force information is one of the most important inputs for the control system, a novel integrated force sensor is designed to measure the action force and moment at the foot when humanoid robot maintains balance or moves. The design possesses some interesting features such as high stiffness and compactness and is helpful for both reliable architecture design and performance improvement of the humanoid robot foot/ankle.

کلمات کلیدی:

humanoid robot foot/ankle, parallel kinematic mechanism, flexible manipulation, force/torque sensor

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