Algorithms of walking and stability for an anthropomorphic robot

Sirazetdinov R., Devaev V., Nikitina D., Fadeev A., Kamalov A. Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© Published under licence by IOP Publishing Ltd. Autonomous movement of an anthropomorphic robot is considered as a superposition of a set of typical elements of movement - so-called patterns, each of which can be considered as an agent of some multi-agent system [1]. To control the AP-601 robot, an information and communication infrastructure has been created that represents some multi-agent system that allows the development of algorithms for individual patterns of moving and run them in the system as a set of independently executed and interacting agents. The algorithms of lateral movement of the anthropomorphic robot AP-601 series with active stability due to the stability pattern are presented.

http://dx.doi.org/10.1088/1757-899X/240/1/012065

References

- Devaev V M, Nikitina D V and Fadeev A Y 2016 Balancing of the anthropomorphous robot walking IOP Conference Series: Materials Science and Engineering 22-26 Past 2
- [2] Sirazetdinov R, Kamalov A, Nikitina D and Katsevman E 2016 AR-601 anthropomorphic robot modeling and virtualization toolset for research and education purposes IOP Conference Series: Materials Science and Engineering 134 012048
- [3] NPO Androidnaya technika: http://npo-at.com/products/ar-600e/ ref-separator -
- [4] ROS documentation: http://wiki.ros.org ref-separator -
- [5] Ponarin Ya P 2004 Theorema cosinusov: Elementary geometry 2 (Moscow: MCNMO) 84-85
- [6] Bogdanov A, Kutlubaev I, Permyakov A and Sichkov V 2015 Building an anthropomorphic robot including interaction control. Irreversible processes in nature and technology Digest of Eighth-Russian Conference 228-29
- [7] Kashapov N F, Saifutdinov A I and Fadeev S A 2014 The model of the positive column of a glow discharge with the influence of the acoustic oscillations Journal of Physics: Conference Series 567 012004
- [8] Saifutdinov A I, Saifutdinova A A and Kashapov N F 2016 Modeling the dielectric barrier micro-discharge in argon at atmospheric pressure Journal of Physics: Conference Series 669 012044
- [9] Sirazetdinov R, Devaev V, Kamalov A and Katsevman E 2015 Program complex of modeling and virtualization anthropomorphic robot AR-601 bases on ROS and GAZEBO systems IMMOD-2015 328-31