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PEOPLE'S REPUBLIC OF CHINA**

GB/T 33261-2016

General specifications for the modular design of service robots

服务机器人模块化设计总则

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Table of Contents

1 Scope	
4 Service Robot Modular Architecture	2 5 service robot modular design process
6 Reference	8

Foreword

2 terms and definitions

Modular design principles for service robots

1 Scope

China's national standard setting out the general principles for designing service robots in modules. It specifies the terms and definitions, the modular design principles, the modular architecture and the modular design process for service robots, with an informative annex on the standards system that modular design requires. Service robots differ from industrial robots in a way that determines how they must be built. An industrial robot has a broadly fixed configuration, a single structural form and repetitive tasks in a controlled environment; service robots are of many types, of different shapes, with varied structures and functions, and they work in unstructured environments. That variety is what makes them slow and expensive to develop: every new service robot has historically been designed from the beginning, with its own actuators, sensors, controller and software, and the cost of that has been the main brake on the industry. The approach this standard promotes is borrowed explicitly from the computer industry, which solved the same problem by defining interfaces and letting specialist suppliers make the parts behind them. The idea is to design functional components with standard interfaces - each completing one function, interchangeable and reusable, capable of being supplied by different specialist vendors - and then to build robots by assembling them. The purpose is stated plainly in the introduction: to reduce the difficulty of robot development, improve research and development efficiency, and reduce manufacturing cost. Issued on 13 December 2016 and in force since 1 July 2017.

This standard specifies the basic principles of modular design of service robots, the basic principles of robot modular design, robot modular system knot Structure, robot modular design standard system, robot modular design process. This standard applies to service robot development, manufacturing and integration.

6 Reference

This standard is drafted in accordance with the rules given in GB/T 1.1-2009. This standard is proposed by the China Machinery Industry Federation. This standard is nationalized by the National Automation System and Integrated Standardization Technical Committee (SAC/TC159). The main drafting of this standard. Beijing University of Aeronautics and Astronautics, Shanghai University, Beijing Institute of Mechanical Industry Automation, Shenyang, the new robot Automation Co., Ltd. The main drafters of this standard. Lei Jing pean, Wei Hongxing, Yang book review, Zou Ying, Xu Fang, Gao Xueqin.

Service robots are different from industrial robots, industrial robots in the form of a single structure, the basic fixed configuration, and more repetitive operation tasks; The service robot types are numerous, different shapes, their structure and function of a variety of features, and more work in the unstructured environment. Facing the huge market demand for service robots, how to promote the rapid formation of the service robot industry? Robotics experts learn from the computer The successful development model of the industry, the modular and standardized design ideas of service-oriented robots, the modular design of service robots Standards to promote the service robot modular research and development, manufacturing and integration, so as to promote the industrialization of service robots. This standard embodies the basic idea of robot modular design, that is, from the perspective of the realization of different functions, the design has a standard interface, to complete a Functionally, interchangeable and reusable functional components that can be supplied by different professional suppliers, which can be accessed by these Functional components assembled, the purpose is to reduce the difficulty of robot development, improve research and development efficiency and reduce manufacturing costs. This standard is used to guide the development, manufacture and integration of service robots, using the basic principles of modular design, standard system and design flow Cheng and so on. Modular design principles for service robots