Partner Robot

T-HR3

Toyota - Humanoid Robot 3

1st (2005)

T-HR3 is the third generation humanoid robot developed by TOYOTA, following the trumpet and violin-playing humanoids.

Previous robots pursued the precise "positioning" of fingerings and movements to play an instrument.

The new, evolved humanoid can flexibly and smoothly control the "force (torque)" of its entire body.

The Advanced Synchronization System of T-HR3 is achieved by sharing this "force (torque)" with the Master Maneuvering System.

2nd (2010)

Smooth, Sensitive, Synchronization of the Torque Servo Humanoid

TOYOTA

T-HR3

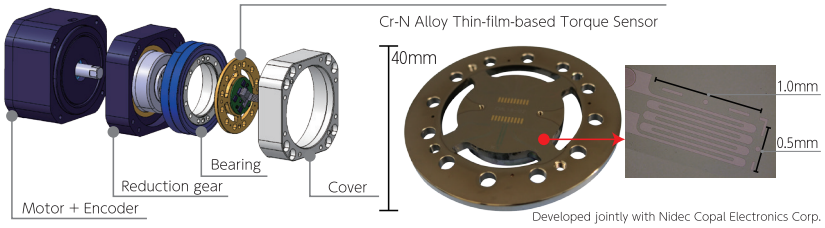
Usage Scenes

Operated remotely from distant locations, T-HR3 can engage not only in everyday tasks such as household chores, nursing and childcare but also construction work and medical diagnoses.T-HR3 technology could make it work in extremely dangerous environments such as disaster-stricken areas and outer space in the future.

Torque Servo Technology

TOYOTA succeeded in developing the supersensitive and highly rigid "Cr-N Alloy Thin-film-based Torque Sensor." Integrating the sensors with motors and reduction gears, Torque Servo modules are installed on each joint of the Master Maneuvering System and T-HR3.

Developed jointly with Tamagawa Seiki Co., Ltd.



Developed jointly with Nidec Copal Electronics Corp.

Installation of Torque Servo Modules

Master Maneuvering System

- Size: W 850 x D 1500 x H 1450 mm
- Weight: 170 kg
- Moving parts: 14 axes + 2
- Accessories: Data Glove, Head Mounted Display

T-HR3

- Height: 1540 mm
- Weight: 75 kg
- 32 joints + 10 fingers

Flexible Control Technology for Robotic Joints

By flexibly controlling its joints through Torque Servo technology, T-HR3 gently fends off external forces that are applied when it comes into contact with its surroundings. The technology allows the humanoid to safely and surely continue its task without harming people, objects or the environment.

Whole-Body Coordination and Balance Control Technology

When conducting household chores or other chores in various postures, T-HR3 uses its entire body to maintain balance as it responds to external forces that are applied when coming into contact with people, objects and environmental elements.

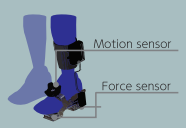
Real Remote Maneuvering Technology

Master Maneuvering System

The operator and the robot share "force (torque)" so that the operator can maneuver the robot as if they have become one.

Master Foot

The operator's natural movements control the robot's movement of the feet and weight shifts.



▶The world's first maneuvering system that allows the entire body of the humanoid robot to be controlled intuitively

Website
http://www.toyota.co.jp/jpn/tech/partner_robot/

TOYOTA